

H-Series

Single-Stage, R-410a
Packaged Horizontal & Vertical
Unit Specifications Catalog



Geothermal Systems
Hydron
Module®

www.hydronmodule.com

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Product Introduction & Unit Features

The H Series Product Line is a highly efficient, reliable and quiet operating, year-round comfort solution for your home or business.

The H Series Line provides exceptional operating efficiency throughout a wide range of entering water temperatures between 25°F to 110°F.

The H Series is manufactured in the heart of America. Pride in workmanship has been deeply embedded in the culture of our company. Every department places a high value on integrity and complete customer satisfaction. “World Class Service – Hometown Values” is far more than a slogan, it’s a way of life.

The H Series comes standard with a stainless steel cabinet designed for long life and extraordinary beauty. The cabinet is bolted together, rather than using screws for unmatched integral strength. The cabinet is also insulated with 3/8" insulation (foil faced) for quiet operation and easy clean up. Another noise reduction feature is rubber mounted Scroll compressors, and rubber mounted blowers. The features work in concert to reduce vibration, which reduces noise.

All Coaxial Heat Exchangers are insulated to reduce corrosion, but also avoids condensation problems at low temperatures. Specially coated air coils add durability and longer equipment life.

Additionally, the air coils are oversized providing high efficiencies at low face velocity. The Bidirectional Expansion Valve delivers optimum refrigerant flow over a wide range of conditions and provides bidirectional operation without troublesome check valves. Highly advanced ECM Blower Motors working with Copeland’s Scroll Compressor Technology deliver high efficiencies and comfort for any application.

Unit Features at a Glance

- Non-Ozone Depleting R-410A Refrigerant
- Stainless Steel Cabinet Construction
- Cabinet Bolted Together
- All Panels Removable for Easy Service
- Coated Air Coils For Extended Life
- Bidirectional Expansion Valve
- PSC Blower Motors
- Corrosion-Proof, Stainless Steel, Drain Pan
- ETL Certified to UL & CSA Standards
- AHRI Certified to ISO Standards
- CuproNickel Coaxial Water Heat Exchanger
- Flow Switch Protected
- Fault Retry To Eliminate Nuisance Service Calls
- High Efficiency Copeland Scroll Compressor
- 5 Year Limited Warranty

Optional features

- ECM Blower Motors
- Hot Water Generator (Desuperheater)
- Field installed internal electric heat
- Extended warranty

Unit Performance: AHRI Data - Single Compressor Units

Ground Loop Heat Pump

Model	Heating		Cooling	
	Btu/hr	COP	Btu/hr	EER
H018	14,100	3.7	17,600	18.9
H024	21,100	3.7	26,400	18.0
H030	27,200	3.7	34,100	18.5
H036	31,600	3.4	39,600	16.4
H042	36,900	3.6	46,200	18.0
H048	44,500	3.5	56,100	17.8
H060	50,200	3.5	62,700	16.2
H072	61,000	3.4	75,800	16.0



Note:

Rated in accordance with ISO Standard 13256-1 which includes Pump Penalties.
 Heating capacities based on 68.0°F DB, 59.0°F WB entering air temperature.
 Cooling capacities based on 80.6°F DB, 66.2°F WB entering air temperature.
 Entering water temperatures: 32°F heating / 77°F cooling.

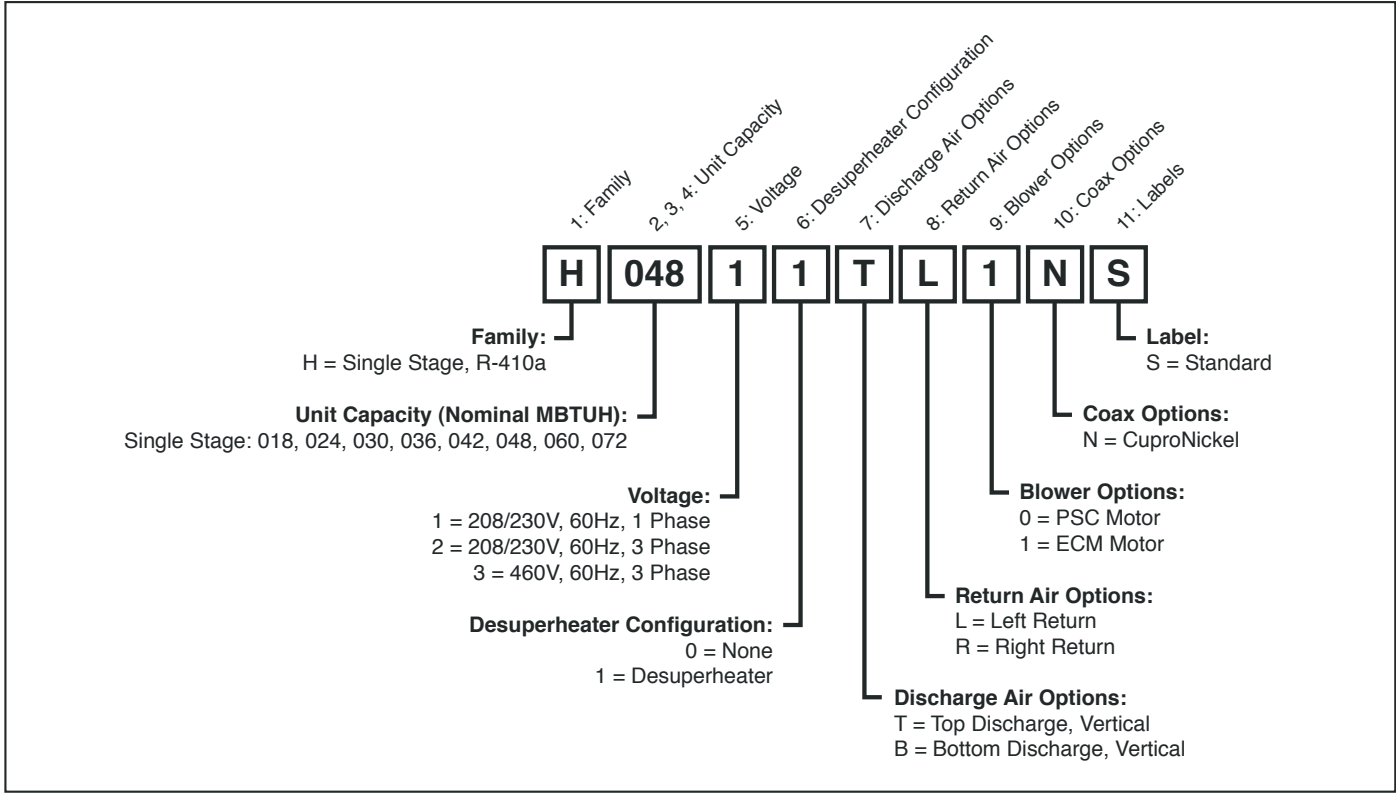
Ground Water Heat Pump

Model	Heating		Cooling	
	BTU/Hr	COP	BTU/Hr	EER
H018	16,200	4.3	18,400	21.7
H024	24,200	4.3	27,700	20.7
H030	31,200	4.3	35,800	21.3
H036	36,300	3.9	41,500	18.9
H042	42,400	4.1	48,500	20.7
H048	51,100	4.0	58,900	20.5
H060	57,700	4.0	65,800	18.6
H072	70,100	3.9	79,500	18.4

Note:

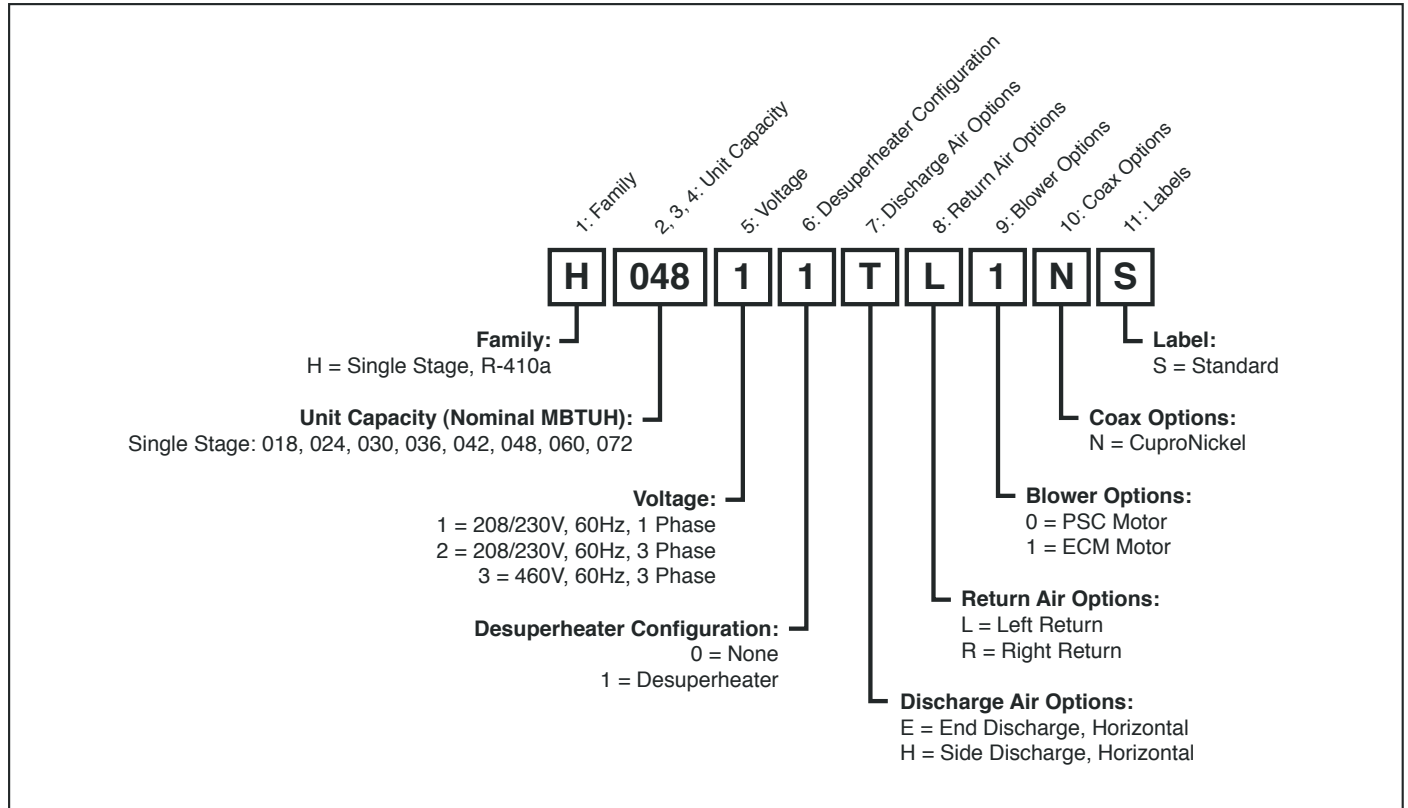
Rated in accordance with ISO Standard 13256-1 which includes Pump Penalties.
 Heating capacities based on 68.0°F DB, 59.0°F WB entering air temperature.
 Cooling capacities based on 80.6°F DB, 66.2°F WB entering air temperature.
 Entering water temperatures: 50°F heating / 59°F cooling.

Unit Nomenclature: Vertical Cabinets



Rev.: 29 April, 2008D

Unit Nomenclature: Horizontal Cabinets



Rev.: 29 April, 2008D

Glossary, Calculations, & Water Flow Selection

Glossary of Terms

CFM = Airflow, Cubic Feet/Minute	HR = Total Heat Of Rejection, Btu/hr
COP = Coefficient of Performance = BTU Output / BTU Input	KW = Total Power Unit Input, Kilowatts
DH = Desuperheater Capacity, Btu/hr	LAT = Leaving Air Temperature, Fahrenheit
EAT = Entering Air Temperature, Fahrenheit (Dry Bulb/Wet Bulb)	LC = Latent Cooling Capacity, Btu/hr
EER = Energy Efficiency Ratio = BTU output/Watts input	SC = Sensible Cooling Capacity, Btu/hr
EWT = Entering Source Water Temperature, Fahrenheit	LWT = Leaving Source Water Temperature, Fahrenheit
ELT = Entering Load Water Temperature, Fahrenheit	LLT = Leaving Load Water Temperature, Fahrenheit
GPM = Water Flow, Gallons Per Minute	TC = Total Cooling Capacity, Btu/hr
HC = Total Heating Capacity, Btu/hr	WPD = Water Pressure Drop, PSI & Feet of Water
HE = Total Heat Of Extraction, Btu/hr	

Calculations, & Water Flow Selection

Heating & Cooling Calculations

Heating	Cooling
$LAT = EAT + \frac{HC}{CFM \times 1.08}$	$LAT (DB) = EAT (DB) - \frac{SC}{CFM \times 1.08}$
$LWT = EWT - \frac{HE}{GPM \times 500}$	$LWT = EWT + \frac{HR}{GPM \times 500}$
	$LC = TC - SC$

Water Flow Selection

Proper flow rate is crucial for reliable operation of geothermal heat pumps. The performance data shows three flow rates for each entering water temperature (EWT column). The general "rule of thumb" when selecting flow rates is the following:

Top flow rate: Open loop systems (1.5 to 2.0 gpm per ton)

Middle flow rate: Minimum closed loop system flow rate (2.25 to 2.50 gpm/ton)

Bottom flow rate: Nominal (optimum) closed loop system flow rate (3.0 gpm/ton)

Although the "rule of thumb" is adequate in most areas of North America, it is important to consider the application type before applying this "rule of thumb." Antifreeze is generally required for all closed loop (geothermal) applications. Extreme Southern U.S. locations are the only exception. Open loop (well water) systems cannot use antifreeze, and must have enough flow rate in order to avoid freezing conditions at the Leaving Source Water Temperature (LWT) connection.

Calculations must be made for all systems without antifreeze to determine if the top flow rate is adequate to prevent LWT at or near freezing conditions. The following steps should be taken in making this calculation:

Determine minimum EWT based upon your geographical area. Go to the performance data table for the heat pump model selected and look up the Heat of Extraction (HE) at the "rule of thumb" water flow rate (GPM) and at the design Entering Air Temperature (EAT).

Calculate the temperature difference (TD) based upon the HE and GPM of the model.

$$TD = HE / (GPM \times 500).$$

Calculate the LWT.

$$LWT = EWT - TD.$$

If the LWT is below 35-38°F, there is potential for freezing conditions if the flow rate or water temperature is less than ideal conditions, and the flow rate must be increased.

Example 1:

$$EWT = 50^{\circ}F.$$

Model H036, heating. Flow rate = 5 GPM. HE = 26,800 Btuh.

$$TD = 26,800 / (5 \times 500) = 10.7^{\circ}F$$

$$LWT = 50 - 10.7 = 39.3^{\circ}F$$

Water flow rate should be adequate under these conditions.

Example 2:

$$EWT = 40^{\circ}F.$$

Model H036, heating. Flow rate = 5 GPM. HE = 23,000 Btuh.

$$TD = 23,000 / (5 \times 500) = 9.2^{\circ}F$$

$$LWT = 40 - 9.2 = 30.8^{\circ}F$$

Water flow rate must be increased.

H018 Performance Data: 1.5 Ton, 600 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	2.8	1.2	2.8	60	13.4	9.6	80.7	1.07	3.68	11.8	9.7	78.1	1.06	1.7	3.72
				70	13.0	9.1	90.1	1.13	3.39	11.3	9.1	87.5	1.11	1.7	3.45
				80	12.6	8.5	99.5	1.18	3.13	10.9	8.6	96.8	1.16	1.8	3.20
	3.9	2.2	5.2	60	13.8	10.0	81.4	1.08	3.75	12.1	10.1	78.7	1.06	1.7	3.84
				70	13.5	9.4	90.8	1.14	3.46	11.7	9.5	88.0	1.12	1.8	3.54
				80	13.1	8.9	100.2	1.20	3.21	11.3	8.9	97.4	1.17	1.8	3.28
	5.0	3.6	8.3	60	14.0	10.2	81.6	1.08	3.80	12.3	10.3	78.9	1.06	1.7	3.89
				70	13.6	9.7	91.1	1.14	3.52	11.8	8.3	88.3	1.12	1.8	3.59
				80	13.3	9.1	100.5	1.19	3.26	11.4	9.1	97.6	1.17	1.9	3.32
50	2.8	1.1	2.6	60	17.4	13.5	86.8	1.12	4.54	15.2	13.6	83.5	1.08	2.2	4.70
				70	16.9	12.7	96.0	1.18	4.18	14.6	12.8	92.6	1.14	2.2	4.32
				80	16.3	11.9	105.1	1.24	3.85	14.0	12.0	101.6	1.20	2.3	3.97
	3.9	2.1	4.8	60	18.1	14.1	87.9	1.14	4.65	15.9	14.3	84.5	1.11	2.3	4.80
				70	17.5	13.3	97.0	1.20	4.27	15.2	13.4	93.5	1.16	2.3	4.41
				80	16.9	12.5	106.2	1.27	3.93	14.6	12.6	102.5	1.22	2.4	4.06
	5.0	3.4	7.8	60	18.5	14.5	88.5	1.15	4.72	16.2	14.6	85.0	1.11	2.3	4.89
				70	17.9	13.6	97.6	1.21	4.34	15.5	13.8	94.0	1.17	2.4	4.48
				80	17.3	12.8	106.7	1.27	3.99	14.9	13.0	102.9	1.23	2.4	4.12
70	2.8	1.1	2.6	60	21.1	17.0	92.6	1.19	5.20	18.5	17.2	88.6	1.14	2.6	5.45
				70	20.4	16.0	101.5	1.25	4.77	17.7	16.2	97.3	1.20	2.7	4.99
				80	19.6	15.0	110.3	1.31	4.38	16.9	15.3	106.1	1.26	2.8	4.58
	3.9	2.0	4.6	60	22.2	17.9	94.3	1.23	5.30	19.4	18.2	90.0	1.17	2.8	5.56
				70	21.4	16.9	103	1.29	4.86	18.6	17.1	98.7	1.23	2.8	5.09
				80	20.6	15.9	111.8	1.36	4.45	17.7	16.1	107.4	1.29	2.9	4.67
	5.0	3.2	7.4	60	22.8	18.4	95.2	1.24	5.39	20.0	18.7	90.8	1.18	2.8	5.67
				70	22.0	17.4	103.9	1.31	4.93	19.1	17.7	99.4	1.24	2.9	5.18
				80	21.1	16.3	112.6	1.37	4.52	18.2	16.6	108.1	1.30	3.0	4.75
90	2.8	1.0	2.4	60	24.4	20.0	97.6	1.18	6.04	21.3	20.4	92.9	1.18	3.0	6.08
				70	23.5	18.9	106.2	1.34	5.15	20.4	19.2	101.4	1.24	3.1	5.55
				80	22.6	17.7	114.8	1.38	4.81	19.4	18.1	109.9	1.30	3.2	5.08
	3.9	1.8	4.3	60	25.8	21.2	99.8	1.30	5.82	22.6	21.7	94.8	1.22	3.2	6.19
				70	24.8	20.0	108.3	1.37	5.32	21.5	20.4	103.2	1.29	3.3	5.66
				80	23.8	18.8	116.8	1.43	4.87	20.5	19.2	111.6	1.35	3.3	5.17
	5.0	3.0	6.8	60	26.6	22.0	101.1	1.32	5.92	23.3	22.4	96.0	1.24	3.3	6.31
				70	25.6	20.7	109.5	1.39	5.42	22.2	21.2	104.3	1.30	3.4	5.76
				80	24.6	19.5	118.0	1.46	4.95	21.1	19.9	112.6	1.37	3.5	5.26

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H018 Performance Data: 1.5 Ton, 600 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	2.8	1.2	2.7	75/63	17.4	12.1	20.5	0.85	20.5	17.4	12.2	20.5	0.83	1.5	20.9
				80/67	18.9	12.6	21.8	0.87	21.7	18.9	12.7	21.7	0.85	1.5	22.2
				85/71	20.4	13.1	23.1	0.89	23.0	20.4	13.2	23.1	0.87	1.5	23.5
	3.9	2.1	4.8	75/63	17.6	12.2	20.5	0.81	21.6	17.6	12.3	20.5	0.8	1.4	21.9
				80/67	19.1	12.8	21.8	0.83	23.0	19.1	12.8	21.9	0.82	1.4	23.3
				85/71	20.6	13.3	23.1	0.84	24.4	20.6	13.3	23.1	0.83	1.5	24.7
	5.0	3.4	7.8	75/63	17.7	12.2	20.6	0.79	22.5	17.7	12.3	20.6	0.78	1.3	22.6
				80/67	19.3	12.8	22.0	0.80	24.0	19.3	12.8	22.0	0.8	1.4	24.1
				85/71	20.8	13.3	23.2	0.82	25.4	20.8	13.4	23.3	0.81	1.4	25.6
70	2.8	1.1	2.6	75/63	16.3	11.9	19.9	1.02	16.0	16.4	11.9	20.0	1.00	2.1	16.5
				80/67	17.7	12.4	21.2	1.04	16.9	17.8	12.5	21.2	1.02	2.2	17.5
				85/71	19.1	12.9	22.5	1.06	18.0	19.2	13.0	22.5	1.04	2.2	18.5
	3.9	2.0	4.6	75/63	16.5	12.0	20.0	0.97	17.0	16.6	12.1	20.1	0.95	2.0	17.4
				80/67	18.0	12.5	21.3	0.99	18.1	18.1	12.6	21.4	0.98	2.1	18.5
				85/71	19.4	13.0	22.6	1.01	19.2	19.5	13.1	22.6	0.99	2.1	19.7
	5.0	3.2	7.4	75/63	16.7	12.0	20.1	0.94	17.7	16.8	12.1	20.2	0.94	1.9	17.9
				80/67	18.2	12.5	21.4	0.96	18.9	18.3	12.6	21.5	0.96	2.0	19.1
				85/71	19.6	13.0	22.6	0.98	20.0	19.7	13.1	22.7	0.97	2.1	20.3
90	2.8	1.0	2.4	75/63	14.8	11.4	19.2	1.26	11.8	15.0	11.5	19.2	1.22	2.8	12.2
				80/67	16.1	11.9	20.4	1.29	12.5	16.3	12.0	20.5	1.25	2.9	13.0
				85/71	17.4	12.4	21.6	1.31	13.3	17.6	12.5	21.7	1.27	2.9	13.8
	3.9	1.9	4.3	75/63	15.1	11.5	19.3	1.19	12.7	15.3	11.6	19.4	1.16	2.7	13.1
				80/67	16.4	12.0	20.5	1.22	13.5	16.6	12.1	20.6	1.19	2.7	14.0
				85/71	17.8	12.5	21.7	1.23	14.4	17.9	12.6	21.9	1.21	2.8	14.8
	5.0	3.0	6.9	75/63	15.3	11.5	19.3	1.16	13.2	15.4	11.6	19.4	1.14	2.6	13.5
				80/67	16.6	12.0	20.5	1.18	14.1	16.8	12.1	20.7	1.17	2.6	14.4
				85/71	17.9	12.5	21.8	1.21	14.9	18.1	12.6	22.0	1.19	2.7	15.3
110	2.8	1.0	2.3	75/63	12.9	10.7	18.2	1.57	8.2	13.1	10.8	18.3	1.53	3.4	8.6
				80/67	14.0	11.1	19.4	1.59	8.8	14.3	11.2	19.5	1.55	3.5	9.2
				85/71	15.2	11.6	20.6	1.63	9.3	15.4	11.7	20.6	1.58	3.6	9.8
	3.9	1.8	4.3	75/63	13.3	10.8	18.3	1.47	9.0	13.5	10.9	18.4	1.45	3.3	9.3
				80/67	14.4	11.2	19.4	1.50	9.6	14.7	11.3	19.6	1.47	3.4	10.0
				85/71	15.6	11.7	20.6	1.54	10.1	15.8	11.8	20.8	1.50	3.5	10.6
	5.0	2.9	6.7	75/63	13.4	10.8	18.3	1.44	9.3	13.6	10.9	18.5	1.42	3.2	9.6
				80/67	14.6	10.2	19.4	1.46	10.0	14.8	11.3	19.7	1.46	3.3	10.2
				85/71	15.7	11.7	20.6	1.49	10.6	16.0	11.8	20.8	1.47	3.4	10.9

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H024 Performance Data: 2.0 Ton, 800 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	3.3	1.4	3.1	60	20.1	14.5	83.3	1.6	3.68	17.6	14.5	80.4	1.59	2.5	3.72
				70	19.6	13.6	92.7	1.69	3.39	17.0	13.7	89.7	1.66	2.6	3.45
				80	19.0	12.8	101.9	1.77	3.13	16.3	12.8	98.9	1.74	2.7	3.20
	4.7	2.5	5.8	60	20.8	15.1	84.0	1.62	3.75	18.2	15.1	81.9	1.59	2.6	3.84
				70	20.2	14.2	93.4	1.71	3.46	17.5	14.3	90.3	1.67	2.7	3.54
				80	19.6	13.3	102.7	1.79	3.21	16.9	13.4	99.5	1.75	2.8	3.28
	6.0	4.1	9.4	60	21.0	15.4	84.3	1.62	3.80	18.4	15.4	81.3	1.59	2.6	3.89
				70	20.5	14.5	93.7	1.71	3.52	17.8	12.5	90.6	1.67	2.7	3.59
				80	19.9	13.6	103.1	1.79	3.26	17.1	13.7	99.8	1.76	2.8	3.32
50	3.3	1.3	2.9	60	26.1	20.2	90.2	1.68	4.54	22.8	20.4	86.4	1.63	3.2	4.70
				70	25.3	19.0	99.3	1.77	4.18	21.9	19.2	95.4	1.72	3.3	4.32
				80	24.4	17.9	108.3	1.86	3.85	21.0	18.1	104.3	1.80	3.4	3.97
	4.7	2.3	5.4	60	27.2	21.1	91.4	1.71	4.65	23.8	21.4	87.5	1.66	3.4	4.80
				70	26.3	20.0	100.4	1.80	4.27	22.8	20.1	96.4	1.75	3.5	4.41
				80	25.4	18.7	109.4	1.90	3.93	21.9	19.0	105.3	1.83	3.6	4.06
	6.0	3.8	8.7	60	27.7	21.7	92.1	1.72	4.72	24.3	21.9	88.1	1.66	3.5	4.89
				70	26.8	20.5	101.1	1.81	4.34	23.3	20.7	96.9	1.75	3.5	4.48
				80	25.9	19.2	110.0	1.90	3.99	22.3	19.5	105.8	1.84	3.6	4.12
70	3.3	1.3	2.9	60	31.7	25.5	96.7	1.79	5.20	27.8	25.8	92.1	1.71	3.9	5.45
				70	30.6	24.0	105.4	1.88	4.77	26.5	24.3	100.7	1.80	4.0	4.99
				80	29.5	22.6	114.1	1.97	4.38	25.3	22.9	109.3	1.89	4.1	4.58
	4.7	2.3	5.2	60	33.3	26.8	98.5	1.84	5.30	29.2	27.3	93.7	1.75	4.1	5.56
				70	32.1	25.3	107.2	1.94	4.86	27.9	25.7	102.3	1.85	4.2	5.09
				80	30.9	23.8	115.8	2.04	4.45	26.6	24.2	110.8	1.94	4.3	4.67
	6.0	3.6	8.3	60	34.2	27.7	99.6	1.86	5.39	29.9	28.1	94.7	1.77	4.3	5.67
				70	33.0	26.1	108.1	1.96	4.93	28.6	26.5	103.1	1.86	4.4	5.18
				80	31.7	24.5	116.7	2.06	4.52	27.3	25.0	111.6	1.96	4.5	4.75
90	3.3	1.2	2.7	60	36.6	30.0	102.3	1.77	6.04	32.0	30.6	97.0	1.76	4.6	6.08
				70	32.5	28.3	110.8	2.01	5.15	30.6	28.9	105.4	1.86	4.7	5.55
				80	33.9	26.6	119.2	2.06	4.81	29.1	27.1	113.7	1.95	4.8	5.08
	4.7	2.1	4.8	60	38.6	31.8	104.7	1.95	5.82	33.8	32.5	99.2	1.83	4.8	6.19
				70	37.2	30.0	113.1	2.05	5.32	32.3	30.7	107.4	1.93	4.9	5.66
				80	35.8	28.2	121.4	2.15	4.87	30.8	28.8	115.6	2.03	5.0	5.17
	6.0	3.3	7.7	60	39.9	33.0	106.2	1.98	5.92	35.0	33.7	100.5	1.85	5.0	6.31
				70	38.4	31.1	114.5	2.08	5.42	33.3	31.8	108.6	1.96	5.1	5.76
				80	36.9	29.2	122.7	2.18	4.95	31.7	29.9	116.7	2.05	5.2	5.26

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H024 Performance Data: 2.0 Ton, 800 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	3.3	1.3	3.0	75/63	26.1	18.2	30.7	1.34	19.5	26.1	18.2	30.7	1.31	2.2	19.9
				80/67	28.3	19.0	32.7	1.37	20.7	28.3	19.0	32.6	1.34	2.2	21.2
				85/71	30.6	19.7	34.6	1.39	21.9	30.6	19.8	34.6	1.37	2.3	22.4
	4.7	2.3	5.4	75/63	26.3	18.4	30.6	1.28	20.6	26.3	18.4	30.8	1.26	2.1	20.9
				80/67	28.6	19.1	32.7	1.3	21.9	28.6	19.2	32.8	1.29	2.1	22.2
				85/71	30.9	19.9	34.7	1.33	23.2	30.9	19.9	34.7	1.31	2.2	23.5
	6.0	3.8	8.7	75/63	26.6	18.4	30.9	1.24	21.5	26.6	18.4	30.9	1.23	2.0	21.5
				80/67	28.9	19.1	32.9	1.27	22.8	28.9	19.2	32.9	1.26	2.0	22.9
				85/71	31.2	19.9	34.9	1.29	24.2	31.2	19.9	34.9	1.28	2.1	24.3
70	3.3	1.3	2.9	75/63	24.4	17.9	29.9	1.61	15.2	24.6	17.9	29.9	1.57	3.2	15.7
				80/67	26.5	18.6	31.8	1.64	16.1	26.7	18.7	31.8	1.60	3.3	16.7
				85/71	28.7	19.3	33.7	1.67	17.2	28.9	19.4	33.7	1.64	3.4	17.6
	4.7	2.3	5.2	75/63	24.8	18.1	30.0	1.53	16.2	25.0	18.1	30.1	1.50	3.1	16.6
				80/67	27.0	18.8	31.9	1.56	17.3	27.1	18.9	32.0	1.54	3.2	17.6
				85/71	29.1	19.6	33.8	1.59	18.3	29.3	19.6	34.0	1.56	3.2	18.7
	6.0	3.6	8.3	75/63	25.0	18.1	30.1	1.48	16.9	25.2	18.1	30.2	1.48	2.9	17.1
				80/67	27.2	18.8	32.1	1.51	18.0	27.4	18.9	32.2	1.51	3.0	18.2
				85/71	29.4	19.6	34.0	1.54	19.0	29.6	19.6	34.1	1.53	3.1	19.3
90	3.3	1.2	2.7	75/63	22.2	17.1	28.7	1.99	11.2	22.5	17.3	28.8	1.93	4.2	11.7
				80/67	24.2	17.8	30.6	2.03	11.9	24.4	18.0	30.7	1.97	4.3	12.4
				85/71	26.1	18.6	32.5	2.06	12.7	26.4	18.7	32.6	2.00	4.4	13.2
	4.7	2.1	4.8	75/63	22.7	17.3	28.9	1.87	12.1	22.9	17.4	29.1	1.83	4.0	12.5
				80/67	24.7	18.1	30.7	1.92	12.9	24.9	18.1	30.9	1.87	4.1	13.3
				85/71	26.6	18.8	32.6	1.94	13.7	26.9	18.9	32.8	1.91	4.2	14.1
	6.0	3.4	7.7	75/63	22.9	17.3	29.0	1.82	12.6	23.2	17.4	29.2	1.80	3.9	12.9
				80/67	24.9	18.1	30.8	1.86	13.4	25.2	18.1	31.1	1.84	4.0	13.7
				85/71	26.9	18.8	32.7	1.90	14.2	27.2	18.9	32.9	1.87	4.1	14.5
110	3.3	1.1	2.6	75/63	19.4	16.1	27.3	2.48	7.8	19.7	16.2	27.5	2.40	5.1	8.2
				80/67	21.1	16.7	29.1	2.51	8.4	21.4	16.8	29.2	2.44	5.3	8.8
				85/71	22.8	17.4	30.8	2.57	8.9	23.2	17.5	30.9	2.48	5.5	9.3
	4.7	2.1	4.8	75/63	19.9	16.2	27.5	2.32	8.6	20.2	16.4	27.6	2.28	5.0	8.9
				80/67	21.7	16.9	29.2	2.37	9.1	22.0	17.0	29.4	2.31	5.1	9.5
				85/71	23.4	17.6	30.9	2.43	9.6	23.8	17.7	31.2	2.36	5.2	10.1
	6.0	3.3	7.6	75/63	20.1	16.2	27.5	2.27	8.9	20.4	16.4	27.7	2.24	4.8	9.1
				80/67	21.9	16.9	29.2	2.30	9.5	22.2	17.0	29.5	2.29	4.9	9.7
				85/71	23.6	17.6	30.9	2.34	10.1	24.0	17.7	31.3	2.32	5.1	10.4

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H030 Performance Data: 2.5 Ton, 1000 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	3.9	1.4	3.1	60	26.0	18.7	84.1	2.07	3.68	22.8	18.7	81.1	2.05	3.2	3.72
				70	25.3	17.6	93.4	2.18	3.39	21.9	17.7	90.3	2.14	3.3	3.45
				80	24.5	16.6	102.7	2.29	3.13	21.0	16.6	99.5	2.24	3.4	3.2
	5.4	2.5	5.8	60	26.8	19.5	84.8	2.09	3.75	23.5	19.5	81.7	2.05	3.3	3.84
				70	26.1	18.3	94.1	2.21	3.46	22.6	18.4	90.9	2.16	3.4	3.54
				80	25.4	17.2	103.5	2.32	3.21	21.8	17.3	100.2	2.27	3.6	3.28
	7.0	4.1	9.4	60	27.2	19.8	85.1	2.09	3.80	23.8	20.0	82.0	2.05	3.4	3.89
				70	26.4	18.7	94.5	2.20	3.52	22.9	16.1	91.2	2.16	3.5	3.59
				80	25.7	17.6	103.8	2.31	3.26	22.1	17.7	100.5	2.27	3.6	3.32
50	3.9	1.3	2.9	60	33.7	26.1	91.2	2.17	4.54	39.5	26.3	87.3	2.10	4.2	4.70
				70	32.7	24.6	100.2	2.29	4.18	38.3	24.8	96.2	2.22	4.3	4.32
				80	31.5	23.1	109.2	2.40	3.85	27.1	23.3	105.1	2.33	4.4	3.97
	5.4	2.3	5.4	60	25.1	27.3	92.5	2.21	4.65	30.7	27.6	88.4	2.14	4.4	4.80
				70	33.9	25.8	101.4	2.33	4.27	29.4	26.0	97.3	2.25	4.5	4.41
				80	32.8	24.2	110.4	2.45	3.93	28.2	24.5	106.1	2.37	4.6	4.06
	7.0	3.8	8.7	60	35.8	28.0	93.2	2.22	4.72	31.3	28.3	89.0	2.14	4.5	4.89
				70	34.7	26.4	102.1	2.34	4.34	30.1	26.8	97.8	2.27	4.6	4.48
				80	33.5	24.8	111.0	2.46	3.99	38.8	25.1	106.6	2.38	4.7	4.12
70	3.9	1.3	2.9	60	41.0	32.9	97.9	2.31	5.20	35.9	33.3	93.2	2.20	5.1	5.45
				70	39.5	31.0	106.6	2.43	4.77	34.3	31.4	101.7	2.32	5.2	4.99
				80	38.1	29.1	115.2	2.55	4.38	32.7	29.6	110.3	2.44	5.3	4.58
	5.4	2.3	5.2	60	43.0	34.7	99.8	2.38	5.30	37.7	35.2	94.9	2.27	5.4	5.56
				70	41.5	32.7	108.4	2.50	4.86	36.0	33.2	103.3	2.39	5.5	5.09
				80	40.0	30.7	117.0	2.63	4.45	34.3	31.2	111.8	2.51	5.6	4.67
	7.0	3.6	8.3	60	44.2	35.7	100.9	2.40	5.39	38.7	36.3	95.8	2.29	5.5	5.67
				70	42.6	33.7	109.4	2.53	4.93	36.9	34.3	104.2	2.41	5.6	5.18
				80	41.0	31.7	117.9	2.66	4.52	35.2	32.2	112.6	2.53	5.8	4.75
90	3.9	1.2	2.7	60	47.2	38.8	103.7	2.29	6.04	41.3	39.5	98.3	2.28	5.9	6.08
				70	45.5	36.5	112.1	2.59	5.15	39.5	37.3	106.5	2.40	6.0	5.55
				80	43.7	34.4	120.5	2.66	4.81	37.6	35.0	114.8	2.52	6.1	5.08
	5.4	2.1	4.8	60	49.9	41.1	160.2	2.51	5.82	43.7	42.0	100.5	2.36	6.2	6.19
				70	48.1	38.8	114.5	2.65	5.32	41.7	39.6	108.6	2.49	6.4	5.66
				80	46.2	36.5	122.8	2.78	4.87	39.7	37.2	116.8	2.62	6.5	5.17
	7.0	3.3	7.7	60	51.6	42.6	107.8	2.55	5.92	45.2	43.5	101.8	2.39	6.4	6.31
				70	49.6	40.2	115.9	2.69	5.42	43.1	41.1	109.9	2.53	6.6	5.76
				80	47.7	37.8	124.1	2.82	4.95	41.0	38.6	117.9	2.65	6.7	5.26

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H030 Performance Data: 2.5 Ton, 1000 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	3.9	1.3	3.0	75/63	33.7	23.5	39.6	1.68	20.0	33.7	23.6	39.6	1.65	2.8	20.4
				80/67	36.6	24.5	42.2	1.72	21.3	36.6	24.5	42.1	1.68	2.9	21.8
				85/71	39.5	25.5	44.7	1.75	22.5	39.5	25.5	44.7	1.72	3.0	23.0
	5.4	2.3	5.4	75/63	34.0	23.7	39.8	1.61	21.2	34.0	23.8	39.8	1.58	2.7	21.5
				80/67	36.9	24.7	42.3	1.64	22.5	36.9	24.8	42.3	1.62	2.8	22.8
				85/71	39.9	25.7	44.8	1.67	23.9	39.9	25.7	44.8	1.65	2.8	24.2
	7.0	3.8	8.7	75/63	34.4	23.7	40.0	1.56	22.0	34.4	23.8	40.0	1.55	2.6	22.1
				80/67	37.3	24.7	42.5	1.59	23.5	37.3	24.8	42.5	1.58	2.6	23.6
				85/71	40.3	25.7	45.0	1.62	24.8	40.3	25.7	45.1	1.61	2.7	25.0
70	3.9	1.3	2.9	75/63	31.6	23.1	38.6	2.02	15.6	31.8	23.2	38.7	1.97	4.1	16.1
				80/67	34.3	24.0	41.0	2.07	16.6	34.5	24.1	41.1	2.01	4.2	17.2
				85/71	37.1	25.0	43.5	2.10	17.6	37.3	25.1	43.6	2.06	4.4	18.1
	5.4	2.3	5.2	75/63	32.1	23.3	38.7	1.92	16.7	32.2	23.4	38.9	1.89	3.9	17.1
				80/67	34.8	24.3	41.2	1.96	17.7	35.0	24.4	41.4	1.93	4.1	18.1
				85/71	37.6	25.3	43.7	2.00	18.8	37.8	25.4	43.9	1.96	4.1	19.3
	7.0	3.6	8.3	75/63	32.3	23.3	38.9	1.86	17.3	32.5	23.4	39.1	1.85	3.7	17.5
				80/67	35.2	24.3	41.4	1.90	18.5	35.4	24.4	41.6	1.89	3.9	18.7
				85/71	38.0	25.3	43.9	1.94	19.6	38.2	25.4	44.1	1.92	4.0	19.8
90	3.9	1.2	2.7	75/63	28.7	22.1	37.1	2.50	11.5	29.0	22.3	37.3	2.42	5.4	12.0
				80/67	31.2	23.0	39.5	2.55	12.3	31.5	23.2	39.6	2.47	5.5	12.7
				85/71	33.7	24.0	41.9	2.59	13.0	34.1	24.1	42.1	2.52	5.7	13.5
	5.4	2.1	4.8	75/63	29.3	22.3	37.3	2.35	12.5	29.6	22.5	37.5	2.30	5.2	12.8
				80/67	31.9	23.3	39.7	2.41	13.2	32.2	23.4	39.9	2.35	5.3	13.7
				85/71	34.4	24.2	42.1	2.44	14.1	34.8	24.4	42.3	2.40	5.5	14.5
	7.0	3.4	7.7	75/63	29.6	22.3	37.4	2.29	12.9	29.9	22.5	37.7	2.26	5.0	13.2
				80/67	32.2	23.3	39.8	2.33	13.8	32.5	23.4	40.1	2.31	5.1	14.1
				85/71	34.8	24.2	42.2	2.39	14.6	35.1	24.4	42.5	2.35	5.3	15.0
110	3.9	1.1	2.6	75/63	25.1	20.8	35.3	3.11	8.1	25.5	20.9	33.5	3.02	6.6	8.4
				80/67	27.2	21.6	37.6	3.15	8.6	27.7	21.8	37.8	3.07	6.8	9.0
				85/71	29.4	22.4	39.8	3.23	9.1	29.9	22.7	40.0	3.12	7.1	9.6
	5.4	2.1	4.8	75/63	25.7	21.0	35.5	2.91	8.8	26.1	21.1	35.7	2.87	6.4	9.1
				80/67	28.0	21.8	37.7	2.98	9.4	28.4	22.0	38.0	2.91	6.6	9.8
				85/71	30.2	22.7	40.0	3.06	9.9	30.7	22.9	40.3	2.97	6.8	10.4
	7.0	3.3	7.6	75/63	26.0	21.0	35.5	2.85	9.1	26.4	21.1	35.8	2.81	6.2	9.4
				80/67	28.2	21.8	37.7	2.89	9.8	28.7	22.0	38.1	2.88	6.4	10.0
				85/71	30.5	22.7	40.0	2.94	10.4	31.0	22.9	40.4	2.91	6.6	10.6

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H036 Performance Data: 3.0 Ton, 1200 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	5.0	1.8	4.2	60	30.2	21.7	83.3	2.47	3.58	26.5	21.7	80.4	2.45	3.8	3.62
				70	29.4	20.4	92.7	2.61	3.30	25.5	20.5	89.7	2.56	3.9	3.36
				80	28.4	19.2	101.9	2.73	3.05	24.4	19.3	98.9	2.68	4.0	3.11
	7.0	3.4	7.8	60	31.1	22.6	84.0	2.50	3.65	27.3	22.7	81.0	2.45	3.9	3.73
				70	30.3	21.3	93.4	2.63	3.37	26.3	21.4	90.3	2.58	4.0	3.44
				80	29.4	20.0	102.7	2.77	3.12	25.3	20.1	99.5	2.7	4.1	3.19
	9.0	5.4	12.5	60	31.5	23.0	84.3	2.50	3.70	27.6	23.2	81.3	2.44	3.9	3.78
				70	30.7	21.8	93.7	2.63	3.42	26.6	18.7	90.6	2.58	4.1	3.49
				80	29.9	20.4	103.1	2.76	3.17	25.7	20.5	99.8	2.71	4.2	3.23
50	5.0	1.7	3.9	60	39.1	30.3	90.2	2.59	4.42	34.2	30.6	86.4	2.51	4.9	4.57
				70	37.9	28.5	99.3	2.73	4.07	32.9	28.8	95.4	2.65	5.0	4.20
				80	36.6	26.8	108.3	2.86	3.75	31.5	27.1	104.3	2.78	5.1	3.86
	7.0	3.1	7.2	60	40.7	31.7	91.4	2.64	4.52	35.7	32.1	87.5	2.56	5.1	4.67
				70	39.4	30.0	100.4	2.78	4.15	34.2	30.2	96.4	2.69	5.2	4.29
				80	38.1	28.1	109.4	2.93	3.82	32.8	28.4	105.3	2.83	5.4	3.95
	9.0	5.0	11.6	60	41.6	32.6	92.1	2.65	4.59	36.4	32.8	88.1	2.56	5.2	4.76
				70	40.2	30.7	101.1	2.79	4.22	34.9	31.1	96.9	2.70	5.3	4.36
				80	38.9	28.9	110	2.94	3.88	33.4	29.2	105.8	2.84	5.5	4.01
70	5.0	1.7	3.9	60	47.6	38.2	96.7	2.76	5.06	41.6	38.7	92.1	2.63	5.9	5.30
				70	45.9	36.0	105.4	2.9	4.64	39.8	36.5	100.7	2.77	6.1	4.85
				80	44.2	33.8	114.1	3.04	4.26	38.0	34.4	109.3	2.91	6.2	4.45
	7.0	3.0	6.9	60	49.9	40.2	98.5	2.84	5.16	43.7	40.9	93.7	2.70	6.2	5.41
				70	48.2	38.0	107.2	2.99	4.73	41.8	38.5	102.3	2.85	6.4	4.95
				80	46.4	35.7	115.8	3.14	4.33	39.9	36.2	110.8	2.99	6.5	4.54
	9.0	4.8	11.1	60	51.3	41.5	99.6	2.87	5.24	44.9	42.2	94.7	2.73	6.4	5.51
				70	49.4	39.1	108.1	3.02	4.80	42.9	39.8	103.1	2.87	6.5	5.04
				80	47.6	36.8	116.7	3.17	4.40	40.9	37.4	111.6	3.02	6.7	4.62
90	5.0	1.6	3.6	60	54.8	45.1	102.3	2.73	5.88	48.0	45.9	97.0	2.72	6.8	5.91
				70	52.8	42.4	110.8	3.09	5.01	45.8	43.3	105.4	2.87	7.0	5.40
				80	50.8	39.9	119.2	3.18	4.68	43.7	40.7	113.7	3.01	7.1	4.94
	7.0	2.8	6.4	60	58.0	47.8	104.7	3.00	5.66	50.7	48.7	99.2	2.82	7.2	6.02
				70	55.9	45.1	113.1	3.16	5.18	48.5	46.0	107.4	2.97	7.4	5.5
				80	53.7	42.4	121.4	3.32	4.74	46.1	43.2	115.6	3.13	7.5	5.03
	9.0	4.4	10.3	60	59.9	49.4	106.2	3.05	5.76	52.4	50.5	100.5	2.86	7.5	6.14
				70	57.6	46.7	114.5	3.20	5.27	50.0	47.7	108.6	3.01	7.6	5.60
				80	55.3	43.9	122.7	3.37	4.82	47.6	44.8	116.7	3.17	7.8	5.12

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H036 Performance Data: 3.0 Ton, 1200 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	5.0	1.7	4.0	75/63	39.1	27.3	46.0	2.01	19.5	39.1	27.4	46.0	1.97	3.3	19.9
				80/67	42.5	28.4	49.0	2.05	20.7	42.5	28.5	48.9	2.01	3.4	21.2
				85/71	45.9	29.6	51.9	2.09	21.9	45.9	29.6	51.9	2.05	3.5	22.4
	7.0	3.1	7.2	75/63	39.5	27.6	46.2	1.92	20.6	39.5	27.6	46.2	1.89	2.1	20.9
				80/67	42.9	28.7	49.1	1.96	21.9	42.9	28.7	49.2	1.93	3.2	22.2
				85/71	46.3	29.8	52.1	2.00	23.2	46.3	29.9	52.1	1.97	3.3	23.5
	9.0	5.0	11.6	75/63	39.9	27.6	46.4	1.86	21.5	39.9	27.6	46.4	1.85	3.0	21.5
				80/67	43.4	28.7	49.4	1.90	22.8	43.4	28.7	49.4	1.89	3.1	22.9
				85/71	46.8	29.8	52.3	1.94	24.2	46.8	29.9	52.4	1.92	3.1	24.3
70	5.0	1.7	3.9	75/63	36.7	26.8	44.8	2.41	15.2	36.9	26.9	44.9	2.35	4.7	15.7
				80/67	39.8	27.9	47.6	2.47	16.1	40.0	28.0	47.7	2.40	4.9	16.7
				85/71	43.0	29.0	50.5	2.51	17.2	43.3	29.1	50.6	2.46	5.1	17.6
	7.0	3.0	6.9	75/63	37.2	27.1	45.0	2.29	16.2	37.4	27.2	45.1	2.26	4.6	16.6
				80/67	40.5	28.2	47.9	2.34	17.3	40.4	28.3	48.0	2.31	4.7	17.6
				85/71	43.7	29.3	50.8	2.39	18.3	43.9	29.5	50.9	2.34	4.8	18.7
	9.0	4.8	11.1	75/63	37.6	27.1	45.2	2.22	16.9	37.8	27.2	45.4	2.21	4.3	17.1
				80/67	40.9	28.2	48.1	2.27	18.0	41.1	28.3	48.3	2.26	4.5	18.2
				85/71	44.1	29.3	50.9	2.32	19.0	44.3	29.5	51.2	2.30	4.7	19.3
90	5.0	1.6	3.6	75/63	33.4	25.7	43.1	2.98	11.2	33.7	25.9	43.3	2.89	6.3	11.7
				80/67	36.3	26.8	45.9	3.04	11.9	36.6	27.0	46.0	2.95	6.4	12.4
				85/71	39.2	27.9	48.7	3.09	12.7	39.5	28.0	48.8	3.01	6.6	13.2
	7.0	2.8	6.4	75/63	34.0	26.0	43.4	2.81	12.1	34.3	26.2	43.6	2.75	6.0	12.5
				80/67	37.0	27.1	46.1	2.87	12.9	37.3	27.2	46.3	2.80	6.2	13.3
				85/71	40.0	28.1	48.8	2.92	13.7	40.4	28.3	49.2	2.87	6.3	14.1
	9.0	4.5	10.3	75/63	34.4	26.0	43.4	2.73	12.6	34.7	26.2	43.8	2.70	5.8	12.9
				80/67	37.4	27.1	46.2	2.78	13.4	37.8	27.2	46.6	2.75	5.9	13.7
				85/71	40.4	28.1	49.0	2.85	14.2	40.8	28.3	49.4	2.80	6.1	14.5
110	5.0	1.5	3.5	75/63	39.1	24.1	41.0	3.71	7.8	29.6	24.3	41.2	3.60	7.7	8.2
				80/67	31.6	25.1	43.7	3.76	8.4	32.1	25.3	43.8	3.66	7.9	8.8
				85/71	34.2	26.0	46.3	3.86	8.9	34.7	26.3	46.4	3.73	8.2	9.3
	7.0	2.8	6.4	75/63	29.8	24.3	41.2	3.48	8.6	30.3	24.5	41.4	3.42	7.5	8.9
				80/67	32.5	25.3	43.8	3.55	9.1	33.0	25.5	44.1	3.47	7.7	9.5
				85/71	35.1	26.4	46.4	3.65	9.6	35.6	26.6	46.7	3.54	7.9	10.1
	9.0	4.4	10.1	75/63	30.1	24.3	41.2	3.40	8.9	30.7	24.5	41.6	3.35	7.1	9.1
				80/67	32.8	25.3	43.8	3.45	9.5	33.4	25.5	44.2	3.44	7.4	9.7
				85/71	35.4	26.4	46.4	3.51	10.1	36.0	26.6	46.9	3.48	7.6	10.4

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H042 Performance Data: 3.5 Ton, 1400 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	6.1	1.5	3.5	60	35.3	25.3	83.3	2.89	3.58	30.9	25.4	80.4	2.85	4.4	3.62
				70	34.2	23.8	92.7	3.04	3.30	29.7	24.0	89.7	2.99	4.5	3.36
				80	33.2	22.4	101.9	3.19	3.05	28.5	22.5	98.9	3.12	4.7	3.11
	8.5	2.8	6.5	60	36.3	26.4	84.0	2.92	3.65	31.8	26.4	81.0	2.85	4.5	3.73
				70	35.3	24.8	93.4	3.07	3.37	30.7	25.0	90.3	3.01	4.7	3.44
				80	34.4	23.3	102.7	3.23	3.12	29.5	23.5	99.5	3.16	4.8	3.19
	11.0	4.5	10.4	60	36.8	26.9	84.3	2.91	3.70	32.2	27.0	81.3	2.85	4.6	3.78
				70	35.8	25.4	93.7	3.07	3.42	31.1	21.8	90.6	3.01	4.7	3.49
				80	34.9	23.8	103.1	3.22	3.17	30.0	24.0	99.8	3.16	4.9	3.23
50	6.1	1.4	3.2	60	45.6	35.3	90.2	3.02	4.42	39.9	35.6	86.4	2.92	5.7	4.57
				70	44.2	33.3	99.3	3.19	4.07	38.4	33.6	95.4	3.09	5.8	4.20
				80	42.7	31.3	108.3	3.34	3.75	36.7	31.6	104.3	3.24	6.0	3.86
	8.5	2.6	6.0	60	47.5	37.0	91.4	3.08	4.52	41.6	37.4	87.5	2.98	5.9	4.67
				70	46.0	34.9	100.4	3.25	4.15	39.9	35.3	96.4	3.14	6.1	4.29
				80	44.5	32.8	109.4	3.41	3.82	38.2	33.2	105.3	3.30	6.2	3.95
	11.0	4.2	9.7	60	48.5	38.0	92.1	3.10	4.59	42.5	38.3	88.1	2.99	6.0	4.76
				70	46.9	35.8	101.1	3.26	4.22	40.7	36.2	96.9	3.15	6.2	4.36
				80	45.4	33.7	110.0	3.43	3.88	39.0	34.1	105.8	3.31	6.4	4.01
70	6.1	1.4	3.2	60	55.5	44.6	96.7	3.21	5.06	48.6	45.2	92.1	3.07	6.9	5.30
				70	53.5	42.0	105.4	3.38	4.64	46.4	42.6	100.7	3.23	7.1	4.85
				80	51.6	39.5	114.1	3.55	4.26	44.3	40.1	109.3	3.39	7.2	4.45
	8.5	2.5	5.8	60	58.3	47.0	98.5	3.31	5.16	51.0	47.7	93.7	3.16	7.3	5.41
				70	56.2	44.3	107.2	3.48	4.73	48.8	45.0	102.3	3.33	7.4	4.95
				80	54.1	41.6	115.8	3.66	4.33	46.5	42.3	110.8	3.49	7.6	4.54
	11.0	4.0	9.2	60	59.8	48.4	99.6	3.35	5.24	52.4	49.2	94.7	3.18	7.5	5.51
				70	57.7	45.7	108.1	3.52	4.80	50.1	46.4	103.1	3.35	7.6	5.04
				80	55.5	42.9	116.7	3.70	4.40	47.7	43.7	111.6	3.52	7.8	4.62
90	6.1	1.3	3.0	60	64.0	52.6	102.3	3.19	5.88	56.0	53.6	97.0	3.17	8.0	5.91
				70	61.6	49.5	110.8	3.61	5.01	53.5	50.5	105.4	3.34	8.1	5.40
				80	59.3	46.6	119.2	3.71	4.68	50.9	47.4	113.7	3.51	8.3	4.94
	8.5	2.3	5.3	60	67.6	55.7	104.7	3.50	5.66	59.2	56.8	99.2	3.29	8.4	6.02
				70	65.2	52.6	113.1	3.69	5.18	56.5	53.7	107.4	3.47	8.6	5.50
				80	62.6	49.4	121.4	3.87	4.74	53.8	50.4	115.6	3.65	8.8	5.03
	11.0	3.7	8.5	60	69.9	57.7	106.2	3.56	5.76	61.2	58.9	100.5	3.33	8.7	6.14
				70	67.2	54.4	114.5	3.74	5.27	58.3	55.7	108.6	3.52	8.9	5.60
				80	64.6	51.2	122.7	3.93	4.82	55.5	52.3	116.7	3.69	9.1	5.12

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H042 Performance Data: 3.5 Ton, 1400 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	6.1	1.5	3.3	75/63	45.6	31.9	53.7	2.34	19.5	45.6	31.9	53.7	2.30	3.8	19.9
				80/67	49.6	33.2	57.2	2.39	20.7	49.6	33.2	57.1	2.34	3.9	21.2
				85/71	53.5	34.5	60.6	2.44	21.9	53.5	34.6	60.6	2.39	4.0	22.4
	8.5	2.6	6.0	75/63	46.1	32.2	53.9	2.24	20.6	46.1	32.2	53.9	2.21	3.7	20.9
				80/67	50.0	33.5	57.3	2.28	21.9	50.0	33.5	57.4	2.25	3.7	22.2
				85/71	54.1	34.8	60.7	2.33	23.2	54.1	34.9	60.8	2.30	3.8	23.5
	11.0	4.2	9.7	75/63	46.5	32.2	54.2	2.17	21.5	46.5	32.2	54.2	2.16	3.5	21.5
				80/67	50.6	33.5	57.6	2.21	22.8	50.6	33.5	57.6	2.20	3.6	22.9
				85/71	54.6	34.8	61.0	2.26	24.2	54.6	34.9	61.1	2.24	3.6	24.3
70	6.1	1.4	3.2	75/63	42.8	31.3	52.3	2.81	15.2	40.3	31.4	52.4	2.75	5.5	15.7
				80/67	46.4	32.5	55.6	2.88	16.1	46.7	32.7	55.7	2.80	5.7	16.7
				85/71	50.2	33.8	59.0	2.93	17.2	50.5	34.0	59.1	2.86	5.9	17.6
	8.5	2.5	5.8	75/63	43.4	31.6	52.5	2.68	16.2	43.7	31.7	52.7	2.63	5.3	16.6
				80/67	47.2	32.9	55.9	2.74	17.3	47.5	33.1	56.0	2.69	5.5	17.6
				85/71	51.0	34.2	59.2	2.79	18.3	51.3	34.4	59.4	2.73	5.6	18.7
	11.0	4.0	9.2	75/63	43.8	31.6	52.7	2.60	16.9	44.1	31.7	52.9	2.58	5.1	17.1
				80/67	47.7	32.9	56.1	2.65	18	47.9	33.1	56.3	2.64	5.2	18.2
				85/71	51.4	34.2	59.4	2.70	19	51.7	34.4	59.7	2.68	5.4	19.3
90	6.1	1.3	3.0	75/63	38.9	30.0	50.3	3.48	11.2	39.3	30.2	50.5	3.37	7.3	11.7
				80/67	42.3	31.2	53.5	3.54	11.9	42.7	31.5	53.7	3.44	7.5	12.4
				85/71	45.7	32.5	56.8	3.60	12.7	46.1	32.7	57.0	3.51	7.7	13.2
	8.5	2.3	5.4	75/63	39.7	30.3	50.6	3.27	12.1	40.1	30.5	50.9	3.21	7.0	12.5
				80/67	43.2	31.6	53.8	3.35	12.9	43.6	31.7	54.1	3.27	7.2	13.3
				85/71	46.6	32.8	57.0	3.40	13.7	47.1	33.1	57.4	3.34	7.4	14.1
	11.0	3.7	8.6	75/63	40.1	30.3	50.7	3.19	12.6	40.5	30.5	51.1	3.15	6.7	12.9
				80/67	43.6	31.6	53.9	3.25	13.4	44.0	31.7	54.3	3.21	6.9	13.7
				85/71	47.1	32.8	57.2	3.32	14.2	47.6	33.1	57.6	3.27	7.1	14.5
110	6.1	1.3	2.9	75/63	33.9	28.1	47.9	4.33	7.8	34.5	28.4	48.0	4.21	9.0	8.2
				80/67	36.9	29.2	51.0	4.39	8.4	37.5	29.5	51.1	4.28	9.3	8.8
				85/71	39.9	30.4	54.0	4.50	8.9	40.5	30.7	54.2	4.35	9.6	9.3
	8.5	2.3	5.3	75/63	34.8	28.4	48.0	4.05	8.6	35.4	28.6	48.3	3.99	8.7	8.9
				80/67	37.9	29.5	51.1	4.15	9.1	38.5	29.8	51.4	4.05	9.0	9.5
				85/71	40.9	30.7	54.2	4.26	9.6	41.6	31.0	54.5	4.13	9.2	10.1
	11.0	3.7	8.4	75/63	35.2	28.4	48.0	3.97	8.9	35.8	28.6	48.5	3.91	8.3	9.1
				80/67	38.3	29.5	51.1	4.02	9.5	38.9	29.8	51.6	4.01	8.6	9.7
				85/71	41.3	30.7	54.2	4.10	10.1	42.0	31.0	54.7	4.05	8.9	10.4

Notes:

- Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
- Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
- See Flow Rate Selection on page 7 for proper application.

H048 Performance Data: 4.0 Ton, 1700 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	7.2	2.2	5.0	60	42.8	30.7	83.3	3.60	3.48	37.5	30.8	80.4	3.56	5.3	3.52
				70	41.6	28.9	92.7	3.80	3.21	36.1	29.1	89.7	3.73	5.5	3.27
				80	40.3	27.3	101.9	3.98	2.97	34.6	27.3	98.9	3.90	5.7	3.03
	10.1	4.0	9.3	60	44.1	32.0	84.0	3.64	3.55	38.6	32.1	81.0	3.56	5.5	3.63
				70	42.9	30.1	93.4	3.84	3.28	37.2	30.3	90.3	3.76	5.7	3.35
				80	41.7	28.3	102.7	4.03	3.03	35.9	28.5	99.5	3.94	5.9	3.10
	13.0	6.5	15.0	60	44.7	32.6	84.3	3.64	3.60	39.1	32.8	81.3	3.56	5.6	3.68
				70	43.5	30.8	93.7	3.83	3.33	37.8	26.5	90.6	3.76	5.8	3.39
				80	42.3	28.9	103.1	4.03	3.08	36.4	29.1	99.8	3.95	5.9	3.14
50	7.2	2.0	4.7	60	55.4	42.9	90.2	3.78	4.30	48.5	43.3	86.4	3.65	6.9	4.45
				70	53.7	40.4	99.3	3.98	3.96	46.6	40.8	95.4	3.85	7.1	4.09
				80	51.9	38.0	108.3	4.17	3.65	44.6	38.4	104.3	4.05	7.3	3.75
	10.1	3.7	8.6	60	57.7	44.9	91.4	3.85	4.39	50.5	45.5	87.5	3.72	7.2	4.54
				70	55.8	42.4	100.4	4.05	4.03	48.4	42.8	96.4	3.92	7.4	4.17
				80	54.0	39.8	109.4	4.26	3.71	46.4	40.3	105.3	4.12	7.6	3.84
	13.0	6.0	14.0	60	58.9	46.1	92.1	3.87	4.46	51.6	46.5	88.1	3.73	7.3	4.63
				70	57.0	43.5	101.1	4.07	4.10	49.5	44.0	96.9	3.94	7.5	4.24
				80	55.1	40.9	110.0	4.28	3.77	47.3	41.4	105.8	4.14	7.7	3.90
70	7.2	2.0	4.7	60	67.4	54.1	96.7	4.01	4.92	59.0	54.8	92.1	3.83	8.4	5.16
				70	65.0	51.0	105.4	4.22	4.51	56.4	51.7	100.7	4.04	8.6	4.72
				80	62.6	47.9	114.1	4.43	4.14	53.8	48.7	109.3	4.24	8.8	4.33
	10.1	3.6	8.3	60	70.8	57.0	98.5	4.13	5.02	61.9	58.0	93.7	3.94	8.8	5.26
				70	68.2	53.8	107.2	4.35	4.60	59.2	54.6	102.3	4.15	9.0	4.81
				80	65.7	50.5	115.8	4.58	4.21	56.5	51.3	110.8	4.36	9.2	4.42
	13.0	5.8	13.3	60	72.7	58.8	99.6	4.18	5.09	63.6	59.8	94.7	3.97	9.0	5.36
				70	70.0	55.5	108.1	4.40	4.67	60.8	56.4	103.1	4.19	9.3	4.90
				80	67.4	52.1	116.7	4.62	4.28	57.9	53.0	111.6	4.40	9.5	4.49
90	7.2	1.9	4.3	60	77.7	63.8	102.3	3.98	5.72	68.0	65.1	97.0	3.96	9.7	5.75
				70	74.8	60.1	110.8	4.50	4.87	64.9	61.3	105.4	4.18	9.9	5.25
				80	72.0	56.5	119.2	4.63	4.55	61.9	57.6	113.7	4.39	10.1	4.80
	10.1	3.3	7.7	60	82.1	67.7	104.7	4.37	5.50	71.9	69.0	99.2	4.11	10.2	5.86
				70	79.1	63.8	113.1	4.60	5.04	68.7	65.2	107.4	4.33	10.5	5.35
				80	76.0	60.0	121.4	4.83	4.61	65.3	61.2	115.6	4.55	10.7	4.89
	13.0	5.3	12.3	60	84.9	70.0	106.2	4.44	5.60	74.3	71.5	100.5	4.16	10.6	5.97
				70	81.6	66.1	114.5	4.67	5.12	70.8	67.6	108.6	4.39	10.8	5.45
				80	78.4	62.2	122.7	4.90	4.69	67.4	63.5	116.7	4.61	11.0	4.98

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H048 Performance Data: 4.0 Ton, 1700 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	7.2	2.1	4.8	75/63	55.4	38.7	65.2	2.87	19.3	55.4	38.8	65.2	2.82	4.7	19.6
				80/67	60.2	40.3	69.4	2.94	20.5	60.2	40.4	69.3	2.87	4.8	20.9
				85/71	65.0	41.9	73.5	3.00	21.7	65.0	42.0	73.5	2.93	4.9	22.1
	10.1	3.7	8.6	75/63	55.9	39.0	65.4	2.74	20.4	55.9	39.1	61.2	2.71	4.4	20.7
				80/67	60.7	40.6	69.5	2.8	21.7	60.7	40.7	65.2	2.77	4.5	22.0
				85/71	65.6	42.2	73.8	2.86	23.0	65.6	42.3	69.0	2.82	4.7	23.2
	13.0	6.0	14.0	75/63	56.5	39.0	65.8	2.66	21.2	56.5	39.1	61.5	2.65	4.2	21.3
				80/67	61.4	40.6	70.0	2.72	22.6	61.4	40.7	65.5	2.71	4.3	22.7
				85/71	66.3	42.2	74.1	2.78	23.9	66.3	42.3	69.5	2.76	4.4	24.1
70	7.2	2.0	4.7	75/63	51.9	38.0	63.5	3.46	15.0	52.2	38.1	63.6	3.37	6.7	15.5
				80/67	56.4	39.5	67.5	3.53	16.0	56.7	39.7	67.6	3.44	6.9	16.5
				85/71	61.0	41.1	71.6	3.59	17.0	61.3	41.3	71.7	3.52	7.2	17.4
	10.1	3.6	8.3	75/63	52.7	38.4	63.7	3.29	16.0	53.1	38.5	63.9	3.23	6.5	16.4
				80/67	57.3	40.0	67.8	3.36	17.1	57.6	40.1	68.1	3.31	6.7	17.4
				85/71	61.9	41.6	71.9	3.42	18.1	62.2	41.7	72.2	3.36	6.8	18.5
	13.0	5.8	13.3	75/63	53.2	38.4	64.1	3.19	16.7	53.5	38.5	64.3	3.17	6.1	16.9
				80/67	57.9	40.0	68.2	3.25	17.8	58.2	40.1	68.4	3.24	6.4	18.0
				85/71	62.5	41.6	72.2	3.32	18.8	62.8	41.7	72.5	3.29	6.6	19.1
90	7.2	1.9	4.3	75/63	47.3	36.4	61.1	4.27	11.1	47.7	36.7	61.3	4.14	8.9	11.5
				80/67	51.4	37.9	65.0	4.35	11.8	51.9	38.2	65.2	4.23	9.1	12.3
				85/71	55.5	39.5	69.0	4.42	12.5	56.0	39.7	69.2	4.31	9.3	13.0
	10.1	3.3	7.7	75/63	48.2	36.8	61.4	4.02	12.0	48.6	37.1	61.8	3.94	8.5	12.4
				80/67	52.4	38.4	65.3	4.12	12.7	52.9	38.5	65.7	4.01	8.8	13.2
				85/71	56.6	39.8	69.2	4.18	13.6	57.2	40.1	69.7	4.11	9.0	13.9
	13.0	5.4	12.4	75/63	48.8	36.8	61.5	3.92	12.5	49.2	37.1	62.0	3.87	8.2	12.7
				80/67	53.0	38.4	65.4	3.99	13.3	53.5	38.5	66.0	3.94	8.4	13.6
				85/71	57.2	39.8	69.4	4.08	14.0	57.7	40.1	70.0	4.01	8.6	14.4
110	7.2	1.8	4.2	75/63	41.2	34.1	58.1	5.32	7.7	41.9	34.4	58.3	5.16	10.9	8.1
				80/67	44.8	35.5	61.9	5.39	8.3	45.5	35.8	62.1	5.25	11.3	8.7
				85/71	48.4	36.9	65.5	5.53	8.8	49.2	37.3	65.8	5.34	11.6	9.2
	10.1	3.3	7.7	75/63	42.2	34.5	58.3	4.98	8.5	43.0	34.8	58.7	4.90	10.6	8.8
				80/67	46.0	35.8	62.0	5.09	9.0	46.8	36.1	62.4	4.97	10.9	9.4
				85/71	49.7	37.3	65.8	5.23	9.5	50.5	37.6	66.2	5.07	11.1	10.0
	13.0	5.3	12.1	75/63	42.7	34.5	58.3	4.87	8.8	43.4	34.8	58.9	4.80	10.1	9.0
				80/67	46.5	35.8	62.0	4.94	9.4	47.3	36.1	62.7	4.93	10.5	9.6
				85/71	50.1	37.3	65.8	5.03	10.0	51.0	37.6	66.5	4.98	10.8	10.2

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H060 Performance Data: 5.0 Ton, 2000 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	8.3	2.2	5.1	60	47.8	34.3	82.1	4.03	3.48	41.9	34.4	79.4	3.98	6.0	3.52
				70	46.5	32.3	91.5	4.25	3.21	40.3	32.5	88.7	4.17	6.1	3.27
				80	45.0	30.5	100.8	4.45	2.97	38.7	30.5	97.9	4.36	6.3	3.03
	11.7	4.1	9.6	60	49.3	35.8	82.8	4.07	3.55	43.2	35.9	80.0	3.98	6.1	3.63
				70	47.9	33.7	92.2	4.29	3.28	41.6	33.9	89.3	4.20	6.3	3.35
				80	46.6	31.7	101.6	4.51	3.03	40.1	31.9	98.6	4.40	6.5	3.10
	15.0	6.7	15.4	60	49.9	36.5	83.1	4.07	3.60	43.7	36.7	80.2	3.98	6.2	3.68
				70	48.6	34.5	92.5	4.29	3.33	42.2	29.6	89.5	4.20	6.4	3.39
				80	47.3	32.3	101.9	4.50	3.08	40.7	32.5	98.8	4.41	6.6	3.14
50	8.3	2.1	4.8	60	61.9	48.0	88.7	4.22	4.30	54.2	48.4	85.1	4.08	7.7	4.45
				70	60.0	45.2	97.8	4.45	3.96	52.1	45.6	94.1	4.31	7.9	4.09
				80	58.0	42.5	106.9	4.66	3.65	49.9	42.9	103.1	4.53	8.1	3.75
	11.7	3.8	8.9	60	64.5	50.2	89.9	4.30	4.39	56.5	50.8	86.2	4.16	8.0	4.54
				70	62.4	47.4	98.9	4.53	4.03	54.1	47.8	95.1	4.38	8.2	4.17
				80	60.4	44.5	108.0	4.76	3.71	51.9	45.0	104.0	4.61	8.5	3.84
	15.0	6.2	14.4	60	65.8	51.6	90.5	4.32	4.46	57.6	52.0	86.7	4.17	8.2	4.63
				70	63.7	48.6	99.5	4.55	4.10	55.3	49.2	95.6	4.40	8.4	4.24
				80	61.6	45.7	108.5	4.78	3.77	52.9	46.2	104.5	4.63	8.6	3.90
70	8.3	2.1	4.8	60	75.3	60.5	94.9	4.49	4.92	65.9	61.3	90.5	4.28	9.4	5.16
				70	72.6	57.0	103.6	4.72	4.51	63.0	57.8	99.2	4.51	9.6	4.72
				80	70.0	53.6	112.4	4.95	4.14	60.1	54.4	107.8	4.74	9.8	4.33
	11.7	3.7	8.5	60	79.1	63.7	96.6	4.62	5.02	69.2	64.8	92.1	4.40	9.8	5.26
				70	46.3	60.1	105.3	4.86	4.60	66.2	61.0	100.6	4.64	10.1	4.81
				80	73.5	56.5	114.0	5.12	4.21	63.2	57.4	109.2	4.88	10.3	4.42
	15.0	5.9	13.7	60	81.2	65.7	97.6	4.67	5.09	71.1	66.8	92.9	4.44	10.1	5.36
				70	78.3	62.0	106.2	4.92	4.67	67.9	63.0	101.5	4.68	10.3	4.90
				80	75.3	58.2	114.9	5.16	4.28	64.8	59.3	110.0	4.91	10.6	4.49
90	8.3	1.9	4.4	60	86.8	71.3	100.2	4.45	5.72	76.0	72.7	95.2	4.43	10.8	5.75
				70	83.6	67.2	108.7	5.03	4.87	72.6	68.5	103.6	4.67	11.1	5.25
				80	80.4	63.2	117.2	5.18	4.55	69.1	64.4	112.0	4.91	11.3	4.80
	11.7	3.4	7.9	60	91.8	75.6	102.5	4.89	5.50	83.3	77.1	97.2	4.59	11.4	5.86
				70	88.4	71.3	110.9	5.15	5.04	76.7	72.8	105.5	4.84	11.7	5.35
				80	85.0	67.1	119.3	5.40	4.61	73.0	68.4	113.8	5.09	11.9	4.89
	15.0	5.5	12.6	60	94.8	78.3	103.9	4.96	5.60	83.0	80.0	98.4	4.65	11.8	5.97
				70	91.2	73.9	112.2	5.22	5.12	79.2	75.5	106.7	4.91	12.1	5.45
				80	87.6	69.5	120.6	5.48	4.69	75.3	71.0	114.9	5.16	12.3	4.98

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H060 Performance Data: 5.0 Ton, 2000 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	8.3	2.1	5.0	75/63	61.9	43.3	72.9	3.53	17.5	61.9	43.3	72.9	3.46	5.2	17.9
				80/67	67.2	45.0	77.6	3.61	18.6	67.2	45.1	77.5	3.53	5.3	19.1
				85/71	72.6	46.8	82.2	3.68	19.7	72.6	46.9	82.2	3.60	5.5	20.1
	11.7	3.8	8.9	75/63	62.5	43.6	73.1	3.37	18.6	62.5	43.7	73.1	3.33	5.0	18.8
				80/67	67.9	45.4	77.7	3.44	19.7	67.9	45.5	77.8	3.40	5.1	20.0
				85/71	73.4	47.2	82.4	3.51	20.9	73.4	47.3	82.5	3.47	5.2	21.2
	15.0	6.2	14.4	75/63	63.2	43.6	73.5	3.27	19.3	63.2	43.7	73.5	3.26	4.7	19.4
				80/67	68.7	45.4	78.2	3.34	20.6	68.7	45.5	78.2	3.32	4.8	20.6
				85/71	74.1	47.2	82.8	3.41	21.7	74.1	47.3	83.0	3.38	5.0	21.9
70	8.3	2.1	4.8	75/63	58.1	42.5	70.9	4.24	13.7	58.4	42.6	71.1	4.14	7.5	14.1
				80/67	63.0	44.2	75.4	4.34	14.5	63.4	44.4	75.5	4.22	7.8	15.0
				85/71	68.1	45.9	80.0	4.41	15.4	68.5	46.1	80.2	4.32	8.0	15.9
	11.7	3.7	8.5	75/63	59.0	42.9	71.2	4.04	14.6	59.3	43.1	71.5	3.97	7.2	14.9
				80/67	64.1	44.7	75.8	4.13	15.5	64.4	44.9	76.1	4.06	7.5	15.9
				85/71	69.2	46.4	80.4	4.20	16.5	69.6	46.7	80.7	4.12	7.6	16.9
	15.0	5.9	13.7	75/63	59.5	42.9	71.6	3.91	15.2	59.8	43.1	71.8	3.89	6.9	15.4
				80/67	64.7	44.7	76.2	3.99	16.2	65.1	44.9	76.5	3.98	7.1	16.4
				85/71	69.8	46.4	80.6	4.08	17.1	70.2	46.7	81.0	4.04	7.4	17.4
90	8.3	1.9	4.4	75/63	52.8	40.7	68.3	5.24	10.1	53.3	41.0	68.5	5.08	9.9	10.5
				80/67	57.4	42.4	72.6	5.34	10.7	58.0	42.7	72.9	5.19	10.2	11.2
				85/71	62.0	44.2	77.1	5.43	11.4	62.6	44.4	77.3	5.29	10.4	11.8
	11.7	3.4	7.9	75/63	53.8	41.1	68.7	4.93	10.9	54.4	41.4	69.0	4.83	9.5	11.2
				80/67	58.6	42.9	73.0	5.06	11.6	59.1	43.1	73.4	4.93	9.8	12.0
				85/71	63.3	44.5	77.3	5.13	12.3	63.9	44.9	77.8	5.04	10.0	12.7
	15.0	5.5	12.7	75/63	54.5	41.1	68.8	4.81	11.3	55.0	41.4	69.3	4.75	9.2	11.6
				80/67	59.2	42.9	73.1	4.90	12.1	59.8	43.1	73.8	4.84	9.4	12.3
				85/71	63.9	44.5	77.6	5.01	12.8	64.5	44.9	78.2	4.93	9.7	13.1
110	8.3	1.9	4.3	75/63	46.1	38.2	65.0	6.53	7.1	46.8	38.5	65.2	6.34	12.2	7.4
				80/67	50.0	39.7	69.2	6.62	7.6	50.9	40.0	69.4	6.45	12.6	7.9
				85/71	54.1	41.2	73.2	6.78	8.0	55.0	41.7	73.5	6.55	13.0	8.4
	11.7	3.4	7.9	75/63	47.2	38.5	65.2	6.11	7.7	48.0	38.9	65.6	6.02	11.8	8.0
				80/67	51.4	40.1	69.3	6.25	8.2	52.3	40.4	69.8	6.11	12.2	8.6
				85/71	55.5	41.7	73.5	6.42	8.6	56.4	42.1	74.0	6.23	12.5	9.1
	15.0	5.4	12.5	75/63	47.7	38.5	65.2	5.98	8.0	48.5	38.9	65.8	5.90	11.3	8.2
				80/67	51.9	40.1	69.3	6.07	8.6	52.8	40.4	70.1	6.05	11.7	8.7
				85/71	59.0	41.7	73.5	6.18	9.1	57.0	42.1	74.3	6.11	12.1	9.3

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H072 Performance Data: 6.0 Ton, 2400 CFM, Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	10.0	2.3	5.4	60	58.8	42.2	82.7	5.09	3.38	51.4	42.3	79.8	5.03	7.3	3.42
				70	57.1	39.7	92.0	5.37	3.12	49.5	39.9	89.1	5.27	7.5	3.17
				80	55.3	37.4	101.3	5.63	2.88	47.5	37.5	98.3	5.51	7.8	2.94
	14.0	4.4	10.1	60	60.5	44.0	83.4	5.15	3.45	53.0	44.1	80.5	5.03	7.5	3.52
				70	58.9	41.3	92.7	5.42	3.18	51.1	41.6	89.7	5.31	7.8	3.25
				80	57.3	38.9	102.1	5.70	2.95	49.2	39.1	99.0	5.57	8.0	3.01
	18.0	7.0	16.2	60	61.3	44.8	83.7	5.14	3.49	53.7	45.1	80.7	5.03	7.6	3.57
				70	59.7	42.3	93.0	5.42	3.23	51.8	36.4	90.0	5.31	7.9	3.3
				80	58.1	39.7	102.4	5.69	2.99	49.9	39.9	99.3	5.58	8.2	3.05
50	10.0	2.2	5.0	60	76.0	58.9	89.3	5.34	4.17	66.5	59.4	85.7	5.16	9.5	4.32
				70	73.7	55.4	98.4	5.62	3.84	64.0	55.9	94.7	5.45	9.7	3.97
				80	71.2	52.2	107.5	5.89	3.54	61.2	52.6	103.6	5.72	10.0	3.65
	14.0	4.1	9.4	60	79.2	61.7	90.6	5.44	4.27	69.4	62.4	86.8	5.26	9.9	4.41
				70	76.6	58.2	99.6	5.73	3.92	66.5	58.8	95.6	5.54	10.1	4.05
				80	74.2	54.6	108.6	6.02	3.61	63.7	55.3	104.6	5.82	10.4	3.73
	18.0	6.6	15.1	60	80.8	63.3	91.2	5.47	4.34	70.8	63.9	87.3	5.27	10.1	4.50
				70	78.2	59.7	100.2	5.75	3.99	67.9	60.4	96.2	5.57	10.3	4.12
				80	75.6	56.1	109.2	6.05	3.66	65.0	56.8	105.1	5.85	10.6	3.79
70	10.0	2.2	5.0	60	92.5	74.3	95.7	5.67	4.78	81.0	75.3	91.2	5.41	11.5	5.01
				70	89.2	70.1	104.4	5.97	4.38	77.4	71.0	99.9	5.71	11.8	4.58
				80	85.9	65.8	113.1	6.26	4.02	73.9	66.8	108.5	5.99	12.1	4.20
	14.0	3.9	9.0	60	97.1	78.3	97.5	5.84	4.87	85.0	79.5	92.8	5.57	12.1	5.11
				70	93.7	73.4	106.1	6.15	4.47	81.3	74.9	101.4	5.87	12.4	4.68
				80	90.2	69.4	114.8	6.47	4.09	77.6	70.5	109.9	6.16	12.7	4.29
	18.0	6.2	14.4	60	99.7	80.7	98.5	5.91	4.95	87.3	82.0	93.7	5.62	12.4	5.21
				70	96.1	76.1	107.1	6.22	4.53	83.4	77.4	102.2	5.92	12.7	4.76
				80	92.5	71.5	115.7	6.53	4.16	79.5	72.8	110.7	6.21	13.0	4.37
90	10.0	2.0	4.7	60	106.6	87.6	101.1	5.63	5.55	93.4	89.3	96.0	5.60	13.3	5.58
				70	102.7	82.5	109.6	6.36	4.73	89.1	84.2	104.4	5.90	13.6	5.10
				80	98.8	77.6	118.1	6.55	4.42	84.9	79.1	112.8	6.20	13.9	4.67
	14.0	3.6	8.3	60	112.7	92.9	103.5	6.18	5.35	98.7	94.7	98.1	5.81	14.0	5.69
				70	108.6	87.6	111.9	6.51	4.89	94.2	89.5	106.4	6.12	14.4	5.20
				80	104.3	82.4	120.3	6.83	4.48	89.7	84.0	114.6	6.43	14.6	4.75
	18.0	5.8	13.3	60	116.5	96.1	104.9	6.28	5.44	102.0	98.2	99.3	5.88	14.5	5.80
				70	112.0	90.7	113.2	6.60	4.98	97.2	92.8	107.5	6.21	14.8	5.29
				80	107.6	85.3	121.5	6.93	4.55	92.5	87.1	115.7	6.52	15.1	4.84

Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

H072 Performance Data: 6.0 Ton, 2400 CFM, Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	10.0	2.3	5.2	75/63	76.0	53.1	89.5	4.39	17.3	76.0	53.2	89.5	4.30	6.4	17.7
				80/67	82.6	55.3	95.3	4.49	18.4	82.6	55.4	95.1	4.39	6.6	18.8
				85/71	89.2	57.5	100.9	4.58	19.5	89.2	57.6	100.9	4.48	6.7	19.9
	14.0	4.1	9.4	75/63	76.8	53.6	89.8	4.19	18.3	76.8	53.7	89.8	4.13	6.1	18.6
				80/67	83.4	55.8	95.4	4.28	19.5	83.4	55.9	95.6	4.23	6.2	19.7
				85/71	90.1	58.0	101.2	4.37	20.6	90.1	58.1	101.3	4.31	6.4	20.9
	18.0	6.6	15.1	75/63	77.6	53.6	90.3	4.07	19.1	77.6	53.7	90.3	4.05	5.8	19.2
				80/67	84.3	55.8	96.1	4.15	20.3	84.3	55.9	96.1	4.13	5.9	20.4
				85/71	91.0	58.0	101.7	4.24	21.5	91.0	58.1	101.9	4.21	6.1	21.6
70	10.0	2.2	5.0	75/63	71.3	52.2	87.1	5.28	13.5	71.7	52.3	87.3	5.15	9.2	13.9
				80/67	77.4	54.2	92.6	5.40	14.3	77.9	54.5	92.8	5.25	9.5	14.8
				85/71	83.7	56.4	98.3	5.49	15.3	84.2	56.7	98.4	5.37	9.8	15.7
	14.0	3.9	9.0	75/63	72.4	52.7	87.4	5.02	14.4	72.8	52.9	87.8	4.93	8.9	14.8
				80/67	78.7	54.8	93.1	5.13	15.3	79.1	55.1	93.4	5.05	9.2	15.7
				85/71	84.9	57.0	98.7	5.13	16.2	85.4	57.3	99.1	5.13	9.4	16.7
	18.0	6.2	14.4	75/63	73.0	52.7	87.9	4.87	15.0	73.4	52.9	88.2	4.84	8.4	15.2
				80/67	79.5	54.9	93.6	4.97	16.0	79.9	55.1	93.9	4.94	8.7	16.2
				85/71	85.7	57.0	99.0	5.07	16.9	86.2	57.3	99.5	5.02	9.1	17.2
90	10.0	2.0	4.7	75/63	64.9	50.0	83.8	6.52	9.9	65.5	50.4	84.1	6.32	12.2	10.4
				80/67	70.5	52.0	89.2	6.65	10.6	71.2	52.4	89.5	6.46	12.5	11.0
				85/71	76.2	54.2	94.7	6.75	11.3	76.9	54.5	95.0	6.58	12.8	11.7
	14.0	3.6	8.4	75/63	66.1	50.5	84.3	6.14	10.8	66.8	50.9	84.8	6.01	11.7	11.1
				80/67	71.9	52.7	89.6	6.29	11.4	72.6	52.9	90.1	6.13	12.0	11.9
				85/71	77.7	54.7	95.0	6.38	12.2	78.5	55.1	95.6	6.27	12.3	12.5
	18.0	5.8	13.4	75/63	66.9	50.5	84.5	5.98	11.2	67.6	50.9	85.1	5.90	11.2	11.4
				80/67	72.7	52.7	89.8	6.09	11.9	73.4	52.9	90.6	6.02	11.6	12.2
				85/71	78.5	54.7	95.3	6.23	12.6	79.3	55.1	96.1	6.13	11.9	12.9
110	10.0	2.0	4.5	75/63	56.6	46.9	79.8	8.12	7.0	57.5	47.3	80.1	7.89	15.0	7.3
				80/67	61.4	48.7	84.9	8.23	7.5	62.5	49.1	85.2	8.02	15.5	7.8
				85/71	66.4	50.6	89.9	8.44	7.9	67.6	51.2	90.3	8.15	15.9	8.3
	14.0	3.6	8.3	75/63	58.0	47.3	80.1	7.60	7.6	59.0	47.7	80.5	7.49	14.5	7.9
				80/67	63.2	49.2	85.1	7.77	8.1	64.2	49.6	85.7	7.59	15.0	8.5
				85/71	68.2	51.2	90.3	7.98	8.5	69.3	51.6	90.9	7.74	15.3	9.0
	18.0	5.7	13.2	75/63	58.6	47.3	80.1	7.44	7.9	59.6	47.7	80.8	7.34	13.9	8.1
				80/67	63.8	49.2	85.1	7.54	8.5	64.9	49.6	86.0	7.52	14.4	8.6
				85/71	68.8	51.2	90.3	7.68	9.0	70.0	51.6	91.2	7.60	14.8	9.2

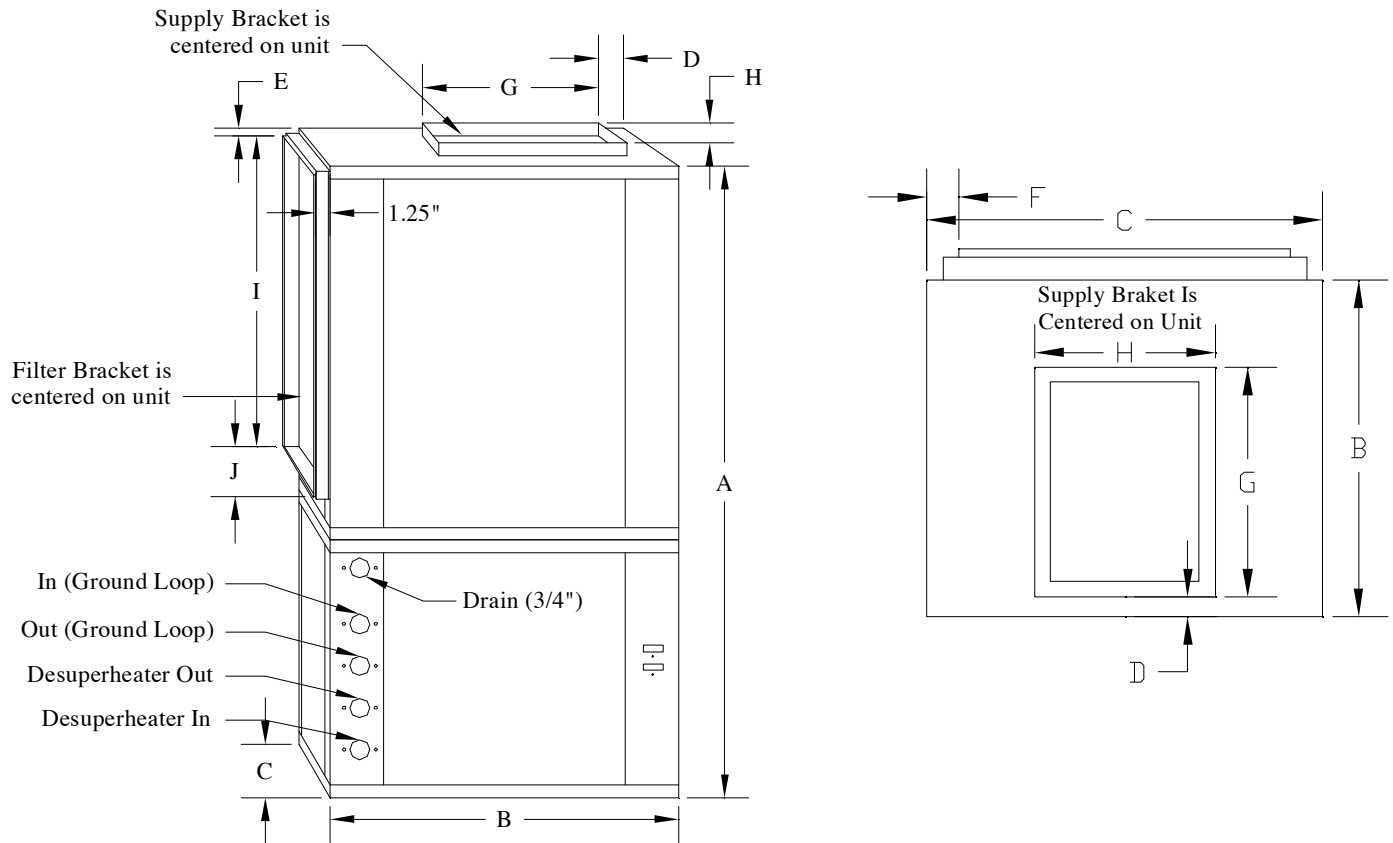
Notes:

1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
3. See Flow Rate Selection on page 7 for proper application.

Physical Data

Vertical - Single Compressor									
Model Number		H018	H024	H030	H036	H042	H048	H060	H072
Fan Motor (in.)	ECM	9 x 7	9 x 7	9 x 9	9 x 9	11x10	11x10	11x10	12x12
	PSC	9 x 7	9 x 7	9 x 9	9 x 9	11x10	11x10	11x10	12x12
Fan Motor	ECM (HP)	1/2	1/2	1/2	1/2	1	1	1	1
	PSC (HP)	1/4	1/4	1/2	1/2	1/2	1/2	1	1
Refrigerant Charge (oz.)		48	48	64	64	64	64	80	80
Air Coil									
Face Area (Sq.Ft.)		4.2	4.2	5.6	5.6	6.3	6.3	6.3	6.3
Dimensions (in.)		20x30	20x30	25x32	25x32	25x36	25x36	25x36	25x36
Number Of Rows		3	3	3	3	3	3	4	4
Filter 1" Thick		30x24		32x28		36x28		36x28	
Unit Weight (nominal) - lbs		190	200	240	270	280	310	360	410
Horizontal - Single Compressor									
Model Number		H018	H024	H030	H036	H042	H048	H060	H072
Fan Motor (in.)	ECM	9 x 7	9 x 7	9 x 9	9 x 9	11x10	11x10	11x10	12x12
	PSC	9 x 7	9 x 7	9 x 9	9 x 9	11x10	11x10	11x10	12x12
Fan Motor	ECM (HP)	1/2	1/2	1/2	1/2	1	1	1	1
	PSC (HP)	1/4	1/4	1/2	1/2	1/2	1/2	1	1
Refrigerant Charge (oz.)		48	48	64	64	64	64	80	80
Air Coil									
Face Area (Sq.Ft.)		4	4	5.5	5.5	6.4	6.4	6.4	6.4
Dimensions (in.)		18x32	18x32	18x44	18x44	20x46	20x46	20x46	20x46
Number Of Rows		3	3	3	3	3	3	4	4
Filter 1" Thick		18x36		18x48		20x50		20x50	
Unit Weight (nominal) - lbs		190	200	240	270	280	310	360	410

Dimensional Data: Vertical Cabinets

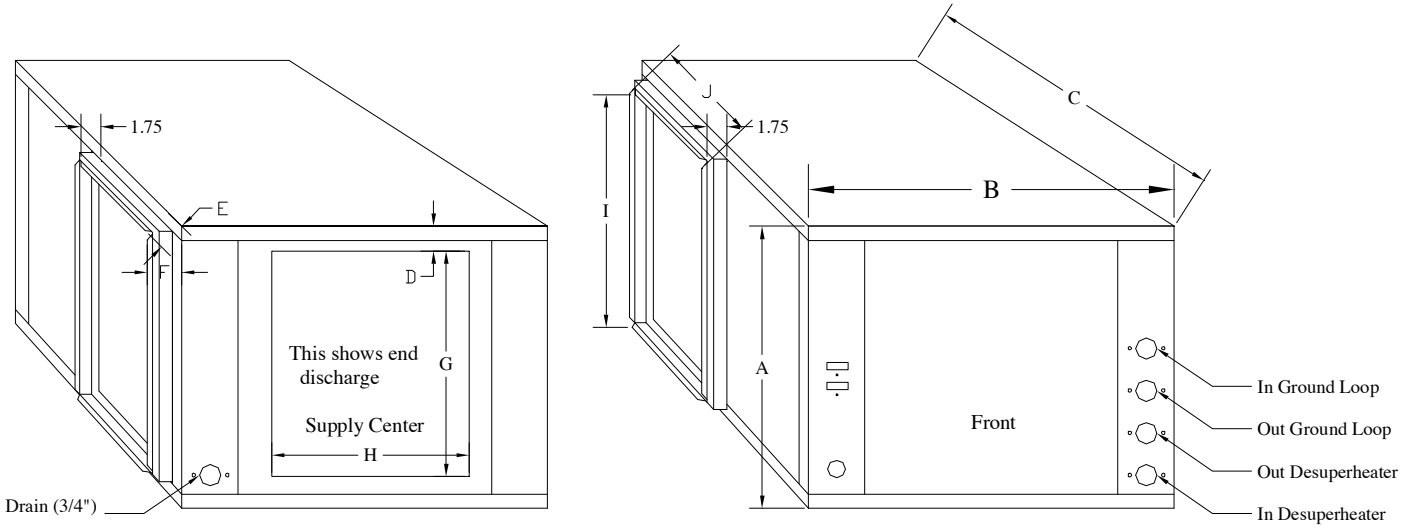


Model	Dimensional Data						Supply Air		Return Air		Water Loop		Weight (lbs)
	A	B	C	D	E	F	G	H	I	J	IN	OUT	
018	50	22	25.5	0.75	1.6	2.5	12	14	28.2	20.7	3/4"	3/4"	190
024	50	22	25.5	0.75	1.6	2.5	12	14	28.2	20.7	3/4"	3/4"	200
030	54	26	30.5	0.75	1.6	2.5	14	16	30.2	25.7	3/4"	3/4"	240
036	54	26	30.5	0.75	1.6	2.5	14	16	30.2	25.7	3/4"	3/4"	270
042	60	26	30.5	0.75	1.6	2.5	16	16	34.2	25.7	1.0"	1.0"	280
048	60	26	30.5	0.75	1.6	2.5	16	16	34.2	25.7	1.0"	1.0"	310
060	60	28	30.5	0.75	1.6	2.5	16	16	34.2	25.7	1.0"	1.0"	360
072	60	28	30.5	0.75	1.6	2.5	16	16	34.2	25.7	1.0"	1.0"	410

Notes

Down Flow equipment has the same dimensional data in an inverted configuration.
 All Desuperheater connections are 3/4" FPT.
 All measurements are in inches.

Dimensional Data: Horizontal Cabinets



Model	Dimensional Data						Supply Air		Return Air		Water Loop		Weight (lbs)
	A	B	C	D	E	F	G	H	I	J	IN	OUT	
018	22	26	54	2	1.75	2	14	12	16.75	33.25	3/4"	3/4"	190
024	22	26	54	2	1.75	2	14	12	16.75	33.25	3/4"	3/4"	200
030	22	28	66	2	1.75	2	16	14	16.75	45.25	3/4"	3/4"	240
036	22	28	66	2	1.75	2	16	14	16.75	45.25	3/4"	3/4"	270
042	24	30	68	2	1.75	2	16	16	18.75	47.25	1.0"	1.0"	280
048	24	30	68	2	1.75	2	16	16	18.75	47.25	1.0"	1.0"	310
060	24	30	68	2	1.75	2	16	16	18.75	47.25	1.0"	1.0"	360
072	24	30	68	2	1.75	2	16	16	18.75	47.25	1.0"	1.0"	410

Notes
 All Desuperheater connections are 3/4" FPT.
 All measurements are in inches.

Electrical Data:

Unit Electrical Data

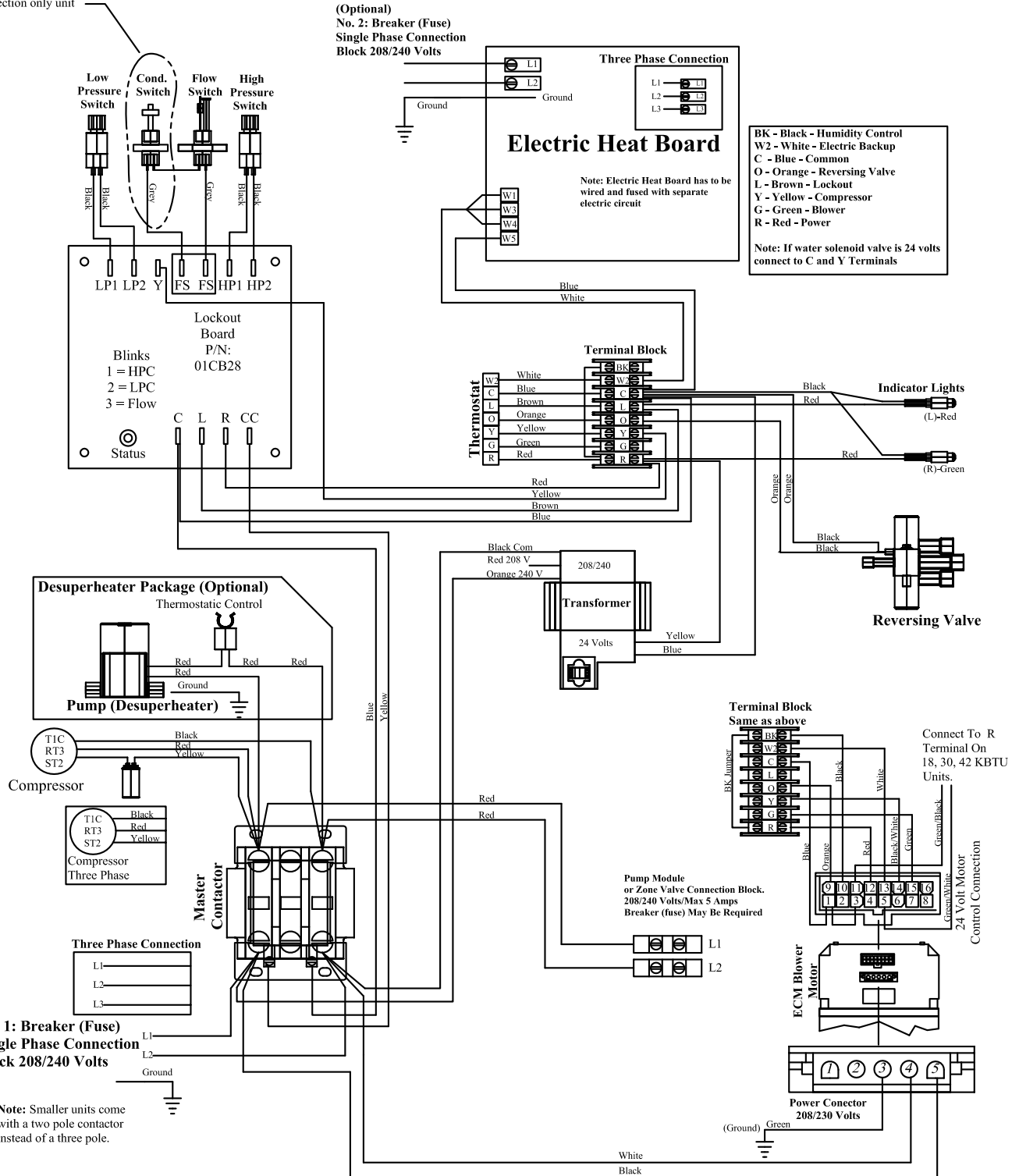
Model	60 HZ Power		Compressor		Fan Motor		Total Unit FLA	Minimum Circuit Ampacity	Maximum Fuse Size
	Volts	Phase	RLA	LRA	FLA	LRA			
018	208-230	1	7.2	48.0	1.7	2.5	8.9	15	15
024	208-230	1	10.6	64.0	1.7	4.5	12.3	20	25
	208-230	3	7.4	63.0	1.7	4.5	9.1	15	20
	460	3	3.6	28.0	0.75	2.3	4.4	5.5	8.8
030	208-230	1	13.5	79.0	3.1	8.0	16.6	25	35
	208-230	3	9.4	77.0	3.1	8.0	12.5	15	25
	460	3	4.6	38.0	1.4	4.2	6.0	10	10
036	208-230	1	16.3	112.0	3.1	8.0	19.4	25	40
	208-230	3	10.9	88.0	3.1	8.0	14.0	20	30
	460	3	5.4	44.0	1.4	4.2	6.8	10	10
	575	3	4.1	34.0	0.7	3.9	4.8	10	10
042	208-230	1	18.6	117.0	1.7	4.5	20.3	25	40
	208-230	3	12.0	91.0	1.7	4.5	13.7	20	25
	460	3	5.6	41.0	1.4	4.2	7.0	10	10
	575	3	4.6	33.0	0.8	3.9	5.4	10	10
048	208-230	1	21.8	134.0	1.7	4.5	26.1	30	50
	208-230	3	14.4	123.0	1.7	4.5	18.7	20	30
	460	3	6.2	46.0	1.4	4.2	7.6	10	15
	575	3	5.0	37.0	0.9	3.9	5.9	10	10
060	208-230	1	24.7	158.0	5.0	38.3	29.7	40	60
	208-230	3	16.3	155.0	5.0	38.3	21.3	30	40
	460	3	8.0	75.0	1.5	4.8	9.5	15	15
	575	3	6.5	54.0	1.4	3.9	7.9	10	15
072	208-230	1	25.7	148.0	5.4	40.0	31.1	40	60
	208-230	3	18.2	149.0	5.4	40.0	23.6	30	45
	460	3	9.1	75.0	1.6	4.8	10.7	15	20
	575	3	7.3	54.0	1.5	4.0	8.8	15	15

Notes:

- PSC = Permanent Split Capacitor motor (CFM varies with ESP)
ECM = Electronically Commutated Motor (constant CFM up to max. allowable ESP)
- Make sure compressors and blower motors do not run backwards on three-phase equipment.
- Always refer to unit nameplate data prior to installation
Installing Wires (High Voltage): Main Electric Supply for H Series (compressor compartment) should enter the unit at the heat pump high voltage wiring entrance. Wire should be run through a conduit up to the cabinet and wired to the heat pump main contactor.

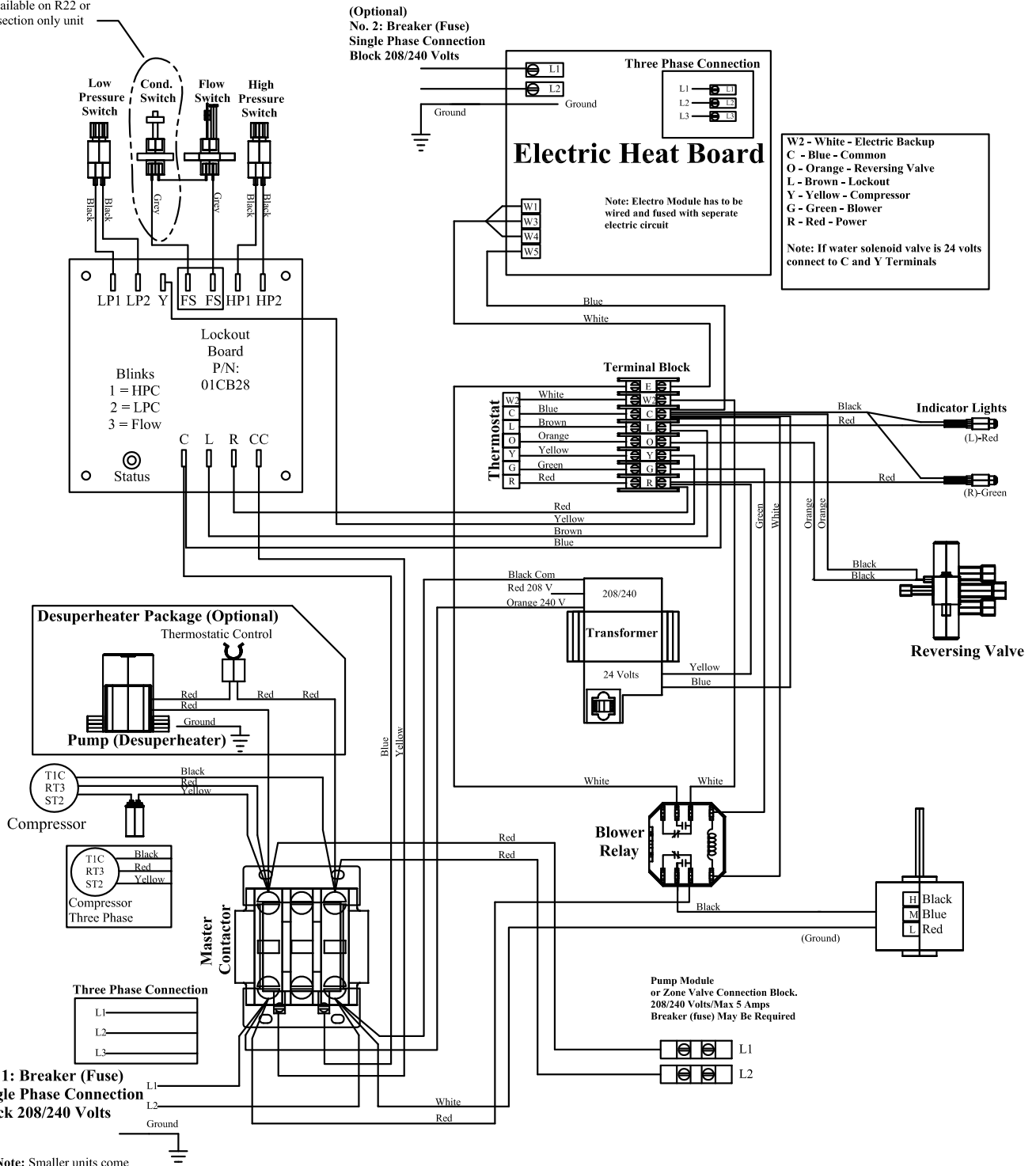
H-Series, Single Compressor with ECM Motor Wiring Diagram

Note: Not available on R22 or Compressor section only unit



H-Series, Single Compressor with PSC Motor Wiring Diagram

Note: Not available on R22 or Compressor section only unit

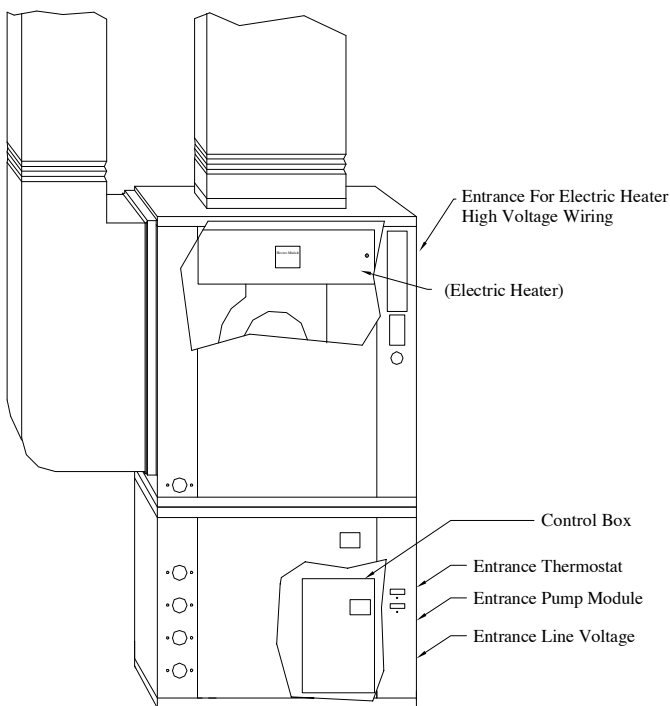


Note: Smaller units come with a two pole contactor instead of a three pole.

Electrical Data: Auxiliary Heater Electrical Data

Model Number	Unit Model	kW	Volts	Amps	Minimum Circuit Size	Maximum Circuit Size	Fuse Size Amps (Inside Heater)	Minimum CFM
AHTR101A	018 - 072	10	240	40.0	50.0	90.0	None	600
AHTR151A	036 - 072	15	240	60.0	75.0	135.0	2 - 30 & 2 - 50	900
AHTR201A	048 - 072	20	240	80.0	100.0	180.0	4 - 50	1200

Note: 20kW heater not recommended for H036 and smaller units.



All line voltage knockouts are 1-1/8".
All low voltage knockouts are 7/8".

Installing Electric Heater High Voltage Wires:

A: Wires should enter the unit at the entrance of Electric Heater wiring entrance. Wire should be run through a conduit up to the cabinet and wired to the Electric Heater terminal strip (See wiring diagram located inside units electric box cover).

B: A separate circuit/breaker must be installed for the Electric Heater. It is not recommended to operate the Electric Heater on the same Line or Fuse (breaker) that the unit is powered.

All wiring **MUST** be done in strict compliance with local, state, national or any other applicable codes.

Note: If Electric Auxiliary is used, never disconnect power to the heat unit as it may be required to properly heat the home. Major damage may result.

Blower Data

ECM Blower

Note: ECM Motors will maintain a nominal CFM (approximately 400 CFM Per Ton) between 0.10 and 0.75 Static Pressure.

Constant Fan Speed is 50% of High Speed

Auxiliary Heat Speed is 110% of High Speed

PSC Blower

Model	Blower Speed	Static Pressure (inches w.c.)											
		CFM Nominal	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.5	0.6	0.7	0.8
H018	High	600	908	892	872	852	824	800	766	700	633		
	Med*		771	758	741	724	700	680	651	595			
	Low		635	624	610	596	576	560	536				
H024	High*	800	908	892	872	852	824	800	766	700	633		
	Med		771	758	741	724	700	680	651	595			
	Low		635	624	610	596	576	560	536				
H030	High	1000	1350	1362	1338	1308	1278	1236	1200	1149	1050	950	
	Med*		1147	1157	1137	1111	1086	1050	1020	977	895		
	Low		945	953	936	915	894	865	840	804			
H036	High*	1200	1350	1362	1338	1308	1278	1236	1200	1149	1050	950	
	Med		1147	1157	1137	1111	1086	1050	1020	977	895		
	Low		945	953	936	915	894	865	840	804			
H042	High	1400		1800	1816	1784	1774	1704	1648	1600	1532	1400	
	Med*		1516	1530	1543	1516	1482	1448	1400	1360	1302		
	Low		1248	1260	1271	1248	1220	1192	1153	1120			
H048	High*	1650		1800	1816	1784	1774	1704	1648	1600	1532	1400	
	Med		1516	1530	1543	1516	1482	1448	1400	1360	1302		
	Low		1248	1260	1271	1248	1220	1192	1153	1120			
H060	High	2050					2616	2556	2472	2400	2229	2124	1920
	Med*					2274	2223	2172	2101	2040	1954	1781	
	Low		1873	1890	1906	1873	1831	1789	1730	1680	1584		
H072	High*	2450					2616	2556	2472	2400	2229	2124	1920
	Med					2274	2223	2172	2101	2040	1954	1781	
	Low		1873	1890	1906	1873	1831	1789	1730	1680	1584		

Notes:

PSC Blower Motors come with 3 speed taps. To change the speed of the motor to a higher or lower speed, remove the electric box cover that is mounted on the blower. Locate the label on the motor to identify the wire color for each speed. Remove wire nut of existing speed and replace with wire of selected speed.

Operating Pressures

Heating - Without Desuperheater							
EWT (°F)	GPM Per Ton	Discharge Pressure (PSIG)	Suction Pressure (PSIG)	Sub Cooling (°F)	Super Heat (°F)	Air Temperature Rise (°F-DB)	Water Temperature Drop (°F)
30	1.5	285-310	68-76	4-10	8-12	14-20	5-8
	3	290-315	70-80	4-10	8-12	16-22	3-6
50	1.5	315-345	100-110	6-12	9-14	22-28	7-10
	3	320-350	105-115	6-12	9-14	24-30	5-8
70	1.5	355-395	135-145	7-12	10-15	30-36	9-12
	3	360-390	140-150	7-12	10-15	32-38	7-10
Cooling - Without Desuperheater							
EWT (°F)	GPM Per Ton	Discharge Pressure (PSIG)	Suction Pressure (PSIG)	Sub Cooling (°F)	Super Heat (°F)	Air Temperature Drop (°F-DB)	Water Temperature Rise (°F)
50	1.5	220-235	120-130	10-16	12-20	20-26	19-23
	3	190-210	120-130	10-16	12-20	20-26	9-12
70	1.5	280-300	125-135	8-14	10-16	19-24	18-22
	3	250-270	125-135	8-14	10-16	19-24	9-12
90	1.5	360-380	130-145	8-14	10-14	18-22	17-21
	3	330-350	130-140	8-14	10-14	18-22	8-11

01CB28 Lockout Board Control Feature and Operation, For Single Speed Units

The H Series Logic Controlled System

(01CB28) is a microprocessor-based printed circuit board. It is located in the unit control box for convenient accessibility. This control board is specially design for the H series units. The Board provides control of the unit as well as outputs for status modes, faults and diagnostics.

Startup

The unit will not operate until all inputs and safety controls are checked for normal conditions.

Fault Retry & Diagnostics

All faults are retried three times, with 5 minute delay between each attempt, before finally locking the unit out.

- 1 Blink for high pressure switch
- 2 Blinks for low pressure switch
- 3 Blinks for flow switch

Safety Controls

The H Series control receives separate signals for a high pressure switch for safety, a low pressure switch to prevent loss/lo refrigerant charge damage & a flow switch for freeze protection.

Testing

The H Series control allows service personal to shorten timing delays for fast diagnostics. If jumper is set to no positions, timing is set to standard, If jumper is set to yes position; timing is reduced for service and startup.

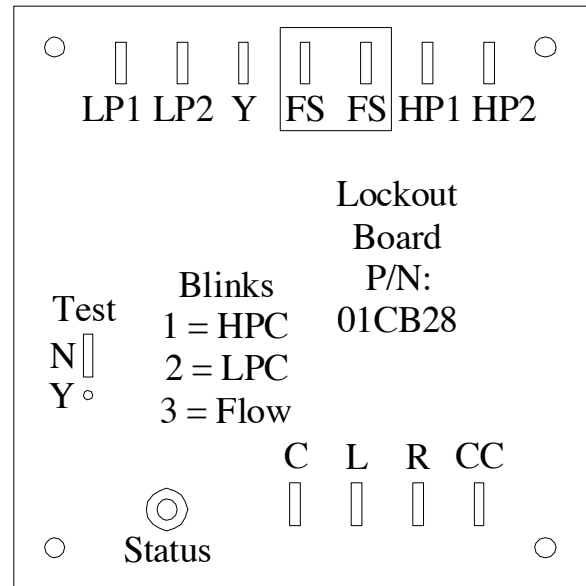
Flow Switch (Freeze Protection) Operation

When the 24vac is applied to the y terminal, the control is monitoring the flow switch input. If the flow switch opens (no water flow), the control board will energize the compressor contractor, and start the compressor, after the random start is over. If the flow switch is still open after the 30 seconds, the control will de-energize the compressor contractor. The control board won't start the sequence unless the flow switch closes. If the flow switch opens while the compressor is energizes, the control board will energize the compressor contractor for a minimum time period of 30 seconds, after 30 seconds, the control board will de-energize the compressor contractor and go into a soft lockout. The control board will not energize the compressor contractor unless the flow switch closes and the anti-short cycle time has expired. If the flow switch opens three times with-in 1 hour, the control board will go into manual lockout and the fault indicator will energize. When the flow switch is open , or if in lockout mode, the status led on the control board will blink, three times.

Condensation Overflow Protection

The H Series units come standard with a condensation sensor. If sensor is sensing condensation liquid the compressor will shut down and the flow status light will blink, three times.

H Series Logic Control Board



LP1 - Low Pressure
LP2 - Low Pressure
Y - H/C Call
FS - Flow Switch
FS - Flow Switch
SS - Contactor

HP1 - High Pressure
HP2 - High Pressure
C - Common
L - Fault
R - Power

Anti-Short Cycle Operation

If all safety controls are satisfactory, the compressor contractor will energize when the control board receives 24VAC on the thermostat input "y" terminal. If the 24VAC on the "y" terminal is removed, the control board will de-energize the compressor contractor and go into a 300 second lockout. If the 24VAC is reapplied to the "y" terminal again, the control board will not energize the compressor contractor until after the 300 second lockout is over.

High & Low Pressure Safety Operation

When the 24vac is applied to the "y" terminal, the control board is monitoring the high & low pressure switch input to make sure that they are closed. The control board won't start the sequence unless the high & Low pressure switch are closed. If the high & low pressure switch opens while the compressor contractor is energized, the control will de-energize the compressor contractor and go into a soft lockout. The control board will not energize the compressor contractor unless the high or low pressure switch closes and the anti-short cycle time has expired. If the high or low pressure switch opens three times with in 1 hour, the control board will go into manual lockout and the fault contact will energize. When the high or low pressure switch opens or if in lockout mode, the status led on the control board will board will blink, one for high & two for low pressure switch.

Engineering Specifications

General

The Geothermal Heat Pump system and the earth loop shall be one system and include all interconnecting piping and controls to provide an efficient, harmoniously balanced package. All units shall be tested and rated by ETL in accordance with UL and CSA test laboratory safety and performance standards. Each unit shall be computer run-tested at the factory. Each unit shall be mounted on a pallet and shipped in a corrugated box. Units shall be designed to operate with entering liquid temperature between 25°F and 110°F.

Refrigerant Circuit

Compressor shall be hermetically sealed high efficient scroll, mounted on vibration isolators. The air heat exchanger (coated) coil shall use high-density technology, low-face velocity and incorporate enhanced aluminum fins bonded to copper tubing not less than three rows deep. The coaxial water heat exchanger shall be designed for low water pressure drop and constructed of a standard cupro-nickel inner tube and a steel outer tube with enhanced heat exchanger surface. An optional domestic water desuperheater coil of vented double wall copper construction for potable water with high limit control shall be employed. The thermostatic expansion device shall be bi-directional, mechanical controlled and shall provide proper superheat over the entire liquid temperature range with minimal hunting. The reversing valve shall be of copper construction with a 24V AC solenoid valve with fail-to-heating position.

Cabinet

The cabinet shall be of heavy gauge steel. It shall be bolted together and incorporate a condensate pan and be installed with high-density insulation, with smoke and flame spread of class 1 type and acoustic value of NRC .45. It shall be oriented to allow complete component service access from all sides. Electrical box shall be of heavy gauge steel located on the access panel side of the cabinet. A duct collar shall be provided on the supply air opening and a return air filter, rack & duct collar shall be provided on the return air opening. Standard size 1-inch filters shall be provided with each.

Controls and Blower Motor

Units shall incorporate a microprocessor based control board. All equipment shall incorporate both high and low pressure switches and freeze protection with total refrigerant circuit lockout with manual reset. The board shall provide a terminal block, LED status, fault indicators, fault memory and accessory output. All units shall have knockouts for entrance of line & low voltage wiring.

Fan Motor & Assembly.

The fan shall be a direct driven type. The motor shall be a optional variable-speed ECM or standard high efficiency PSC motor with direct driven or belt driven blowers that can be easily removed from the heat pump without duct disconnection. The ECM fan motor shall be soft starting and maintain constant CFM over its operating static pressure range. The fan motor shall be isolated from the housing by rubber grommets. The ECM motors shall be long life ball bearing type The PSC motor shall be thermostatic overload protection and to have permanently lubricated.

Piping & Connections

Loop water connections (supply/return) shall be 1-inch FPT brass swivel connection, which provide a union for easy connection. Larger fitting shall be female copper (1¼ to 1½) connection. All water piping shall be insulated to prevent condensation at low water temperatures. The condensation connection shall be ¾" female brass connection.

Hanger Kit (for field installed horizontal units)

The hanger kit shall consist of galvanized steel brackets, isolators, bolts & lock washers. Bracket shall be designed to fasten to the unit's bottom cabinet and be connected to ceiling with 3/8" threaded rod. Units sizes 018-024 shall include four brackets and units size 030-072 shall include six brackets

Secondary Drain Pan.

A secondary drain pan should be field furnished and installed under the unit, on horizontal unit or any other unit that is mounted overhead in an attic, second floor

Options, Accessories, & Warranty

Desuperheater

Optional desuperheater package of vented double wall copper constructed heat exchanger coil suitable for potable water shall be provided. The heat exchanger and hot water circulating pump shall be factory installed inside the cabinet.

Field Installed Hydronic Pump Module (Flow Center)

Pump module shall be self contained and provide all liquid flow, liquid fill and connection required for earth loop system. The pumps shall be wired to the pump terminal strip inside unit electric box.

Field Installed Thermostat

A multiple-stage manual or autochangeover electronic/digital thermostat shall be provided with the unit. The thermostat shall provide two or three stage heating and one or two stage cooling with comfort temperature control. An AUTO-OFF fan switch, an EMERG-HEAT OFF- COOL-AUTO system switch, and indicating LEDs. The thermostat shall provide display in °F or °C. An option remote outdoor sensor shall be available.

Field Installed Electric Auxiliary Heater

An Electric resistance heater shall provide emergency and/or supplemental heating. Vertical unit shall have the control console and element (coils) assembly mounted internally. Horizontal units shall have the control board and elements (coils) assembly mounted inside on end discharge units and on side discharge the control board shall be mounted inside while the elements (coils) assembly should be mounted outside the cabinet. The heater shall provide operation control based upon signals from the thermostat or compressor section controls. A Low Voltage wiring harness shall be provided with electric heat package.

Zone Control System

Call your Factory representative for information on Zoning.

Warranty

Residential Class Equipment

Enertech Manufacturing, LLC warrants the REFRIGERANT SYSTEM, to include the compressor, condenser, evaporator, expansion valve, and reversing valve, to be free from defect in material and workmanship for a period of FIVE (5) YEARS FROM THE DATE OF INSTALLATION.†

Enertech Manufacturing, LLC warrants its GEOTHERMAL UNIT against defect in materials and workmanship for TWO (2) YEARS FROM THE DATE OF INSTALLATION.†

Enertech Manufacturing, LLC warrants SERVICE LABOR ALLOWANCES for TWO (2) YEARS FROM THE DATE OF INSTALLATION† for servicing, removing, or reinstalling parts for the refrigerant circuit, steel cabinets or for any defect in materials and workmanship as set forth above.

† Warranty start date will be delivery date unless proof of startup (no later than 90 days after invoice) is presented. All warranties must be purchased within 90 days of invoice. For unoccupied spec homes, extended warranty may be purchased within 360 days of invoice. Warranty commences at startup date.

Revision Table

Date:	By:	Page:	Description:
17 Oct, 2008	DS	3	Updated 036 AHRI Information
17 Oct, 2008	DS	28-29	Updated Wiring Diagrams
22 May, 2008	DS	All	First Published

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