

SUBMITTAL DATA

Affinity Series

Single Speed Hydronic Heat Pump

60Hz / R-454B



SDW5-0025Y



Project Name: _____ Unit Tag: _____

Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____



AHRI/ISO 13256-1 Performance Ratings

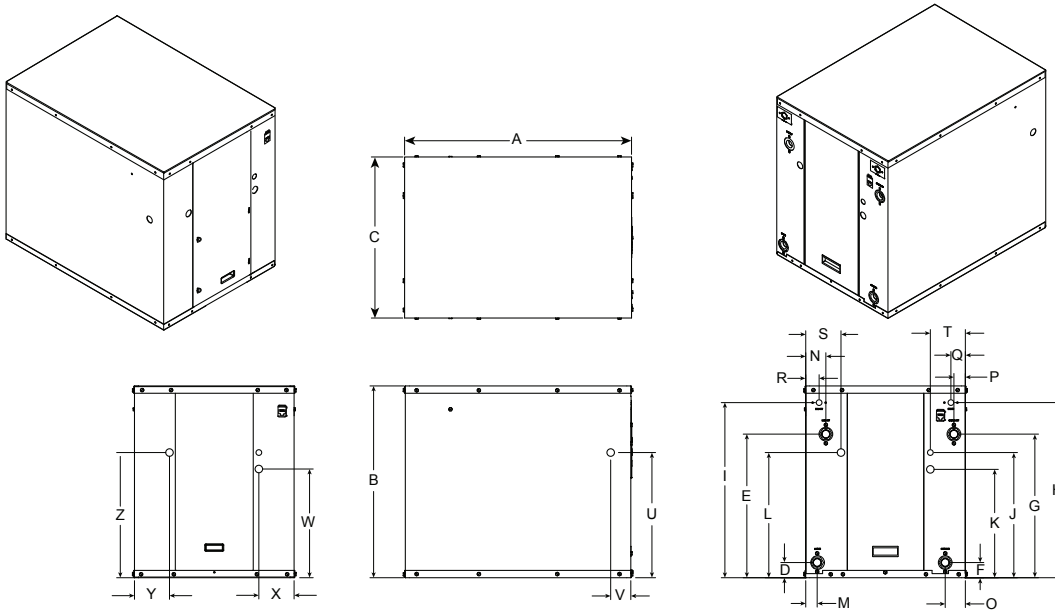
Model	Capacity Modulation	Flow Rate		Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
				Cooling 86°F Source 53.6°F Load		Heating 68°F Source 104°F Load		Cooling 59°F Source 53.6°F Load		Heating 50°F Source 104°F Load		Cooling 77°F Source 53.6°F Load		Heating 32°F Source 104°F Load	
		Load Gpm	Source Gpm	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
024	Full	7	7	24,400	14.6	30,700	4.3	26,000	22.2	27,000	3.8	24,700	16.1	22,000	3.1
048	Full	15	15	48,100	14.0	63,000	4.4	51,100	20.9	52,600	3.6	49,700	16.1	42,700	3.1
060	Full	18	18	55,300	13.7	76,500	4.5	62,800	20.4	63,400	3.8	58,800	16.1	50,200	3.1

All ratings based upon 208V operation

10/11/24

Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

Dimensional Data



2/15/16

Model		Overall Cabinet			Water Connections									Electrical Knockouts		
		A	B	C	D	E	F	G	H	I				J 1/2" cond	K 3/4" cond	L 3/4" cond
		Depth	Height	Width	Load Liquid In	Load Liquid Out	Source Liquid In	Source Liquid Out	HWG In	HWG Out	Load Water FPT	Source Water FPT	HWG Water FPT	Low Voltage	Ext Pump	Power Supply
024	in.	23.5	26.1	19.5	10.0	22.2	10.0	22.2	-	-	1"	1"	-	16.0	14.2	14.2
	cm.	59.7	66.3	49.5	25.4	56.4	25.4	56.4	-	-	25.4	25.4	-	40.6	36.1	36.1
048	in.	31.0	26.2	22.0	2.2	20.6	2.2	20.6	23.9	23.9	1-1/4"	1-1/4"	1/2"	17.1	14.8	17.1
	cm.	78.7	66.5	55.9	5.6	52.3	5.6	52.3	60.7	60.7	31.8	31.8	12.7	43.4	37.6	43.4
060	in.	31.0	26.2	22.0	2.4	23.0	2.4	23.0	20.6	20.6	1-1/4"	1-1/4"	1/2"	17.1	14.8	17.1
	cm.	78.7	66.5	55.9	6.1	58.4	6.1	58.4	52.3	52.3	31.8	31.8	12.7	43.4	37.6	43.4

Model		Water Connections										Electrical Knockouts			
		M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		Load Liquid In	Load Liquid Out	Source Liquid In	Source Liquid Out	HWG In	HWG Out	Power Supply	Low Voltage	Side Power Supply	Side Power Supply	Ext Pump	Ext Pump	Power Supply	Power Supply
024	in.	2.4	2.4	2.4	2.4	-	-	3.5	2.9	14.9	2.6	2.1	1.8	2.9	4.1
	cm.	6.1	6.1	6.1	6.1	-	-	8.9	7.4	37.8	6.6	5.3	4.4	7.4	10.4
048	in.	1.8	3.6	3.6	1.8	2.1	1.8	4.8	4.8	17.1	2.8	14.9	4.8	4.8	17.1
	cm.	4.6	9.1	9.1	4.6	5.3	4.6	12.2	12.2	43.4	7.1	37.8	12.2	12.2	43.4
060	in.	1.8	4.0	4.0	1.8	4.2	1.4	4.8	4.8	17.1	2.8	14.9	4.8	4.8	17.1
	cm.	4.6	10.2	10.2	4.6	10.7	3.6	12.2	12.2	43.4	7.1	37.8	12.2	12.2	43.4

Note: Plastic front panel extends 1.4" (3.56 cm) beyond front of cabinet.

07/16/24

©2024 The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: _____ P.O.: _____
Engineer: _____
Project Name: _____ Unit Tag: _____



Physical Data

Model	024	024 Heating	048	060
Compressor (1 each)	Scroll			
Factory Charge R-454B, oz [kg]	46.0 [1.30]	42.0 [1.19]	62 [1.76]	82 [2.32]
Coax & Piping Water Volume - gal [l]	.89 [3.38]	.89 [3.38]	1.4 [5.25]	1.6 [6.13]
Weight - Operating, lb [kg]	225 [102.1]	225 [102.1]	325 [147.4]	345 [156.5]
Weight - Packaged, lb [kg]	247 [112.0]	247 [112.0]	340 [154.2]	360 [163.3]

©2024 The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Project Name: _____ Unit Tag: _____



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

Definitions

Abbreviations and Definitions

ELT = entering load fluid temperature to heat pump	kW = kilowatts
SWPD = source coax water pressure drop	EST = entering source fluid temperature to heat pump
LLT = leaving load fluid temperature from heat pump	HE = heat extracted in MBTUH
PSI = pressure drop in pounds per square inch	LST = leaving source fluid temperature from heat pump
LGPM = load flow in gallons per minute	HC = total heating capacity in MBTUH
FT HD = pressure drop in feet of head	COP = coefficient of performance, heating [HC/kW x 3.413]
LWPD = load coax water pressure drop	EER = energy efficiency ratio, cooling
LWT = leaving water temperature	TC = total cooling capacity in MBTUH
EWT = entering water temperature	HR = heat rejected in MBTUH
Brine = water with a freeze inhibiting solution	

Notes to Performance Data Tables

The following notes apply to all performance data tables:

- Three flow rates are shown for each unit. The lowest flow rate shown is used for geothermal open loop/well water systems with a minimum of 50°F EST. The middle flow rate shown is the minimum geothermal closed loop flow rate. The highest flow rate shown is optimum for geothermal closed loop systems and the suggested flow rate for boiler/tower applications.
- Entering water temperatures below 40°F assumes 15% antifreeze solution.
- Interpolation between ELT, EST, and GPM data is permissible.
- Operation in the gray areas is not recommended.

Reference Calculations

Heating Calculations: $LWT = EWT - \frac{HE}{GPM \times C^*}$ $HE = C^* \times GPM \times (EWT - LWT)$	Cooling Calculations: $LWT = EWT + \frac{HR}{GPM \times C^*}$ $HR = C^* \times GPM \times (LWT - EWT)$
--	--

NOTE: * C = 500 for pure water, 485 for brine.

Contractor: _____ P.O.: _____
Engineer: _____
Project Name: _____ Unit Tag: _____

Pressure Drop

Pressure Drop Table

Model	GPM	Pressure Drop (psi)				
		30°F	60°F	80°F	100°F	120°F
024R*	4.0	0.9	0.7	0.6	0.5	0.4
	5.5	2.0	1.9	1.8	1.7	1.5
	7.0	3.2	3.0	2.9	2.8	2.6
	8.5	4.4	4.2	4.0	3.8	3.7
048H/R	8.0	1.7	1.4	1.4	1.3	1.3
	11.5	3.6	3.4	3.2	3.0	2.8
	15.0	5.6	5.4	5.0	4.6	4.2
	18.5	8.3	8.1	7.6	7.2	6.8
060H/R	9.0	1.4	1.1	1.0	1.0	0.9
	13.5	4.2	3.9	3.5	3.1	2.7
	18.0	6.9	6.7	6.0	5.2	4.5
	22.5	10.7	10.5	10.0	9.4	8.7

Note: Temperatures are Entering Water Temperatures 10/11/24
*Domestic water heating units source side pressure drop and reversible units load and source pressure drop.

Heating Only Load Side Pressure Drop Table

Model	GPM	Pressure Drop (psi)			
		60°F	80°F	100°F	120°F
024H	4.0	1.3	1.3	1.2	1.2
	5.5	3.0	2.9	2.8	2.7
	7.0	4.6	4.4	4.3	4.1
	8.5	6.7	6.5	6.4	6.2

Note: Temperatures are Entering Water Temperatures 10/11/24

©2024 The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: _____ P.O.: _____
Engineer: _____
Project Name: _____ Unit Tag: _____

Performance Data cont.

024 Heating Vented Load Coax

Source		Load Flow-4 GPM							Load Flow-5.5 GPM						Load Flow-7 GPM					
EST	Flow	10	LLT	HC	Power	HE	COP	LST	LLT	HC	Power	HE	COP	LST	LLT	HC	Power	HE	COP	LST
° F	GPM	° F	° F	MBTUH	kW	MBTUH		° F	° F	MBTUH	kW	MBTUH		° F	° F	MBTUH	kW	MBTUH		° F
25	5.5	60	Operation not recommended																	
		80																		
		100																		
		120																		
		120																		
30	4	60	71.0	21.3	1.33	16.8	4.69	20.1	68.0	21.4	1.34	16.8	4.70	20.0	66.3	21.5	1.34	16.9	4.70	20.0
		80	90.6	20.6	1.79	14.5	3.38	20.7	87.7	20.6	1.79	14.5	3.38	20.7	86.1	20.7	1.79	14.6	3.39	20.7
		100	110.3	19.9	2.24	12.2	2.60	21.4	107.4	19.9	2.24	12.2	2.60	21.4	105.8	19.8	2.23	12.2	2.60	21.4
		120	129.9	19.2	2.70	10.0	2.08	22.1	127.2	19.1	2.69	9.9	2.08	22.1	125.6	19.0	2.68	9.9	2.08	22.1
	5.5	60	71.7	22.7	1.32	18.2	5.04	20.6	50.6	22.9	1.34	18.3	5.02	20.6	29.5	23.0	1.35	18.4	4.99	20.5
		80	91.3	21.9	1.80	15.8	3.58	21.9	88.9	22.1	1.79	16.0	3.62	21.7	86.6	22.3	1.79	16.2	3.66	21.6
		100	110.9	21.2	2.27	13.4	2.73	23.1	108.6	21.4	2.25	13.7	2.79	22.9	106.4	21.7	2.23	14.1	2.85	22.8
		120	130.5	20.4	2.75	11.0	2.17	24.3	128.4	20.7	2.71	11.5	2.24	24.1	126.2	21.0	2.67	11.9	2.30	23.9
	7	60	71.9	23.0	1.35	18.4	5.01	22.6	60.1	23.2	1.33	18.7	5.13	22.5	48.3	23.5	1.31	19.0	5.24	22.4
		80	91.4	22.1	1.79	16.0	3.62	23.5	89.0	22.4	1.77	16.3	3.70	23.4	86.7	22.7	1.76	16.6	3.77	23.3
		100	110.9	21.2	2.24	13.6	2.78	24.5	108.7	21.5	2.22	14.0	2.84	24.4	106.4	21.9	2.21	14.3	2.90	24.2
		120	130.5	20.4	2.68	11.2	2.22	25.5	128.3	20.7	2.67	11.6	2.27	25.3	126.2	21.1	2.66	12.0	2.32	25.2
50	4	60	72.0	23.3	1.37	18.6	4.98	24.5	69.5	23.6	1.32	19.1	5.25	24.4	67.0	23.9	1.27	19.6	5.51	24.2
		80	91.5	22.3	1.78	16.2	3.66	25.2	89.1	22.6	1.76	16.6	3.78	25.1	86.8	23.0	1.73	17.1	3.90	25.0
		100	111.0	21.3	2.20	13.8	2.84	25.9	108.7	21.7	2.19	14.2	2.90	25.8	106.5	22.0	2.18	14.6	2.96	25.7
		120	130.5	20.3	2.61	11.4	2.28	26.6	128.3	20.7	2.63	11.7	2.31	26.5	126.2	21.1	2.64	12.1	2.34	26.4
	5.5	60	74.6	28.4	1.39	23.7	5.94	37.8	62.2	28.6	1.38	23.9	6.06	37.7	49.8	28.9	1.37	24.2	6.18	37.5
		80	94.1	27.4	1.86	21.0	4.28	39.2	91.2	27.6	1.85	21.3	4.35	39.0	88.2	27.8	1.84	21.6	4.42	38.9
		100	113.6	26.4	2.34	18.4	3.29	40.5	110.7	26.6	2.32	18.7	3.34	40.4	107.9	26.8	2.31	18.9	3.39	40.2
		120	133.1	25.4	2.81	15.8	2.64	41.9	130.3	25.6	2.79	16.0	2.67	41.7	127.6	25.8	2.78	16.3	2.70	41.6
	7	60	75.0	29.1	1.41	24.3	6.06	40.2	67.2	29.3	1.37	24.6	6.29	40.1	59.4	29.6	1.33	25.0	6.53	40.0
		80	94.4	27.9	1.85	21.5	4.40	41.3	91.4	28.1	1.82	21.9	4.52	41.2	88.3	28.3	1.79	22.2	4.63	41.1
		100	113.7	26.7	2.30	18.8	3.39	42.4	110.9	26.9	2.28	19.1	3.45	42.3	108.0	27.1	2.26	19.4	3.52	42.2
		120	133.1	25.5	2.75	16.1	2.71	43.5	130.4	25.7	2.74	16.3	2.75	43.4	127.6	25.9	2.73	16.6	2.78	43.3
70	4	60	75.3	29.7	1.42	24.9	6.09	42.7	72.1	30.0	1.35	25.4	6.49	42.5	68.9	30.3	1.29	25.9	6.88	42.4
		80	94.6	28.3	1.84	22.0	4.47	43.5	91.5	28.6	1.80	22.5	4.64	43.4	88.5	28.9	1.75	22.9	4.82	43.3
		100	113.9	26.9	2.27	19.2	3.46	44.3	111.0	27.2	2.24	19.6	3.54	44.2	108.1	27.5	2.22	19.9	3.62	44.1
		120	133.2	25.6	2.69	16.4	2.77	45.2	130.4	25.8	2.69	16.7	2.80	45.1	127.7	26.1	2.69	16.9	2.84	45.0
	5.5	60	77.6	34.1	1.46	29.1	6.84	55.0	73.9	34.4	1.42	29.6	7.11	54.8	70.2	34.7	1.38	30.0	7.37	54.5
		80	96.9	32.9	1.93	26.3	4.99	56.5	93.4	33.1	1.91	26.6	5.09	56.3	89.8	33.3	1.88	26.9	5.19	56.1
		100	116.3	31.6	2.40	23.4	3.86	57.9	112.9	31.8	2.39	23.6	3.89	57.8	109.4	31.9	2.38	23.8	3.93	57.7
		120	135.7	30.4	2.87	20.6	3.10	59.4	132.3	30.5	2.88	20.6	3.10	59.4	129.0	30.5	2.88	20.7	3.10	59.3
	7	60	78.1	35.1	1.47	30.1	7.02	57.9	74.3	35.4	1.40	30.6	7.39	57.7	70.5	35.7	1.34	31.1	7.80	57.5
		80	97.3	33.6	1.92	27.1	5.14	59.1	93.7	33.8	1.87	27.4	5.29	59.0	90.0	34.0	1.83	27.8	5.45	58.8
		100	116.5	32.1	2.37	24.0	3.97	60.3	113.0	32.3	2.34	24.3	4.03	60.2	109.5	32.4	2.32	24.5	4.10	60.2
		120	135.8	30.6	2.82	21.0	3.18	61.5	132.4	30.7	2.81	21.1	3.20	61.5	129.1	30.8	2.81	21.2	3.22	61.5
90	4	60	78.6	36.1	1.47	31.1	7.20	60.8	74.7	36.4	1.39	31.6	7.72	60.7	70.8	36.6	1.30	32.2	8.25	60.5
	5.5	80	97.7	34.3	1.90	27.8	5.29	61.8	94.0	34.6	1.84	28.3	5.51	61.7	90.2	34.8	1.78	28.7	5.73	61.5
	7	100	116.8	32.6	2.34	24.6	4.08	62.8	113.2	32.8	2.30	24.9	4.18	62.7	109.7	32.9	2.25	25.2	4.28	62.6
		120	135.9	30.8	2.77	21.3	3.26	63.7	132.5	31.0	2.75	21.6	3.30	63.6	129.2	31.1	2.73	21.8	3.34	63.6
Operation not recommended																				

EST = entering source fluid temperature to heat pump
HC = total heating capacity in MBTUH
ELT = entering load fluid temperature to heat pump
HE = heat extracted in MBTUH
LST = leaving source fluid temperature from heat pump
COP = coefficient of performance
LLT = leaving load fluid temperature from heat pump

8/29/24

Contractor: _____ P.O.: _____
Engineer: _____
Project Name: _____ Unit Tag: _____



Revision Guide

Pages:	Description:	Date:	By:
	Guide Creation	12 Nov, 2024	SW

©2024 The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.