

Commercial Rooftop Submittal/Performance Data

Project: _____ Date: _____
Engineer: _____ Unit No. _____
Contractor: _____ PO. _____



GeoFurnace Manufacturing

Magnum

Water Source Heat Pump

(MR-S & D) Single & Dual Compressor Rooftop - Forced Air Submittal Data

**All Standard Models
60 Hz - R410A**

Revision: 21 , July 2010 - AJS

Reference Abbreviations & Calculations

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



Abbreviations and Definitions

COP = Coefficient of Performance EAT = Entering Air Temperature EER = Energy Efficiency Ratio ELT = Entering Load Fluid Temperature EST = Entering Source Fluid Temperature EWT = Entering Water Temperature FLA = Full Load Amps FT = Feet of Head GPM = Gallons per Minute HC = Heating Capacity HE = Heat of Extraction HR = Heat of Rejection HWG = Hot Water Generator (Desuperheater) kBtu/hr = 1000 BTU/hour KW = Power in KiloWatts	LAT = Leaving Air Temperature LC = Latent Cooling capacity LGPM = Load Flow in Gallons Per Minute LLT = Leaving Load Temperature LRA = Locked Rotor Amps LST = Leaving Source Temperature LWPD = Load Heat Exchanger Water Pressure Drop Mbtuh = kBtu/hr = 1000 BTU/hour PD = Pressure Drop PSI = Pounds per Square Inch RLA = Rated Load Amps SC = Sensible Cooling Capacity S/T = Sensible to Total cooling ratio TC = Total Cooling Capacity WPD = Water Pressure Drop
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Notes to Performance Tables

This note applies to all performance data tables

LWT should always be computed to ensure that water will not freeze. If the LWT is near 40 degrees fahrenheit, it is recommended to use a water/glycol mixture or consult the factory in open loop applications. Without antifreeze, flow must be maintained so that LWT is above 40 deg Farenheit because the refrigerant may be low as 32 deg and cause icing to occur on the inside of the heat exchanger.

Forced Air Calculations

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

Heating Calculations: $LST = EST - \frac{HE}{GPM \times 500}$ $LLT = ELT + \frac{HC}{GPM \times 500}$	Cooling Calculations: $LLT = ELT - \frac{TC}{GPM \times 500}$ $LST = EST + \frac{HR}{GPM \times 500}$
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Notes on Pressure Drop Calculations

On performance data sheets, the pressure drop below 40 degrees is based on a 15% methonal antifreeze solution (to match ISO standards).

On performance summary sheets, the pressure drop below 40 degrees has been adjusted based on a Propylene Glycol mixture of 23% (by weight) for your convience.

A Propylene Glycol mixture of 23% by weight (22% by volume) will give freeze protection down to 17°F (ave loop temperature should be 27°F with an EWT of 30°F).

For other Entering Water Temperatures, the pressure drop correction factor should be adjusted. Take the listed pressure drop from the summary sheet and divide by the correction factor, CF, of 1.32 (for 23% PG), multiply the result by the correction factor for the the concentration and type of antifreeze actually used. For EWT of 25°F, the average loop temperature would be 22°F. A recommended freeze point of 12 degrees results requiring 28% PG so use 1.40 for the CF.

Notes on Electrical Tables

This note applies to all electrical data tables

All loads connected into main supply line or HP contactor must be added into the unit FLA, MCA, and MOP calculations to correctly select wire gauge and circuit breaker size. Loads not included in data tables should be added in and computed according to the following calculations based on NFPA 70, NEC, & CSA standards. At all times, the actual standards should be referenced for calculations as GFM does NOT imply any such warranty or liability for errors/omissions in the equations below.

For main feed to HP unit:

Unit FLA = RLA compressor + ΣFLA all other motors
 MCA = 1.25 x RLA largest compressor + ΣFLA all other motors
 MOP* = 2.25 x RLA largest compressor + 1.00 x ΣFLA all other motors

For feeds to electric resistance heaters:

FLA = FLA heater
 MCA = 1.25 x FLA heater
 MOP* = 2.25 x FLA heater

*Where MOP is adjusted according to the following filters.

1). If MOP is not an even multiple of 5, then round down to nearest standard breaker size. 2). MOP must be greater than MCA 3). MOP is a minimum of 15 amps.

HACR circuit breaker is for use in USA only. All fuses Class RK-5

Rev: 8 April, 2010 - GFM--AJS

GeoFurnace 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. Please contact GeoFurnace at 1-605-854-9205 for latest design and specifications. 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 contract between the parties, but are merely GeoFurnace's opinion or commendation of its products.

3 - 50 Ton - Single & Dual Compressor Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



Single & Dual Compressor Rooftop, Forced Air - R410A
 Performance ISO 13256-1

Magnum Series
 Water Source Heat Pump

Model	Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
		Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
		kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
38	Full	44.6	4.5	37.4	16.4	36.5	3.9	40.7	23.5	29.3	3.4	38.8	18.7
50	Full	56.7	4.5	47.4	16.7	45.7	3.9	51.6	23.7	35.9	3.3	49.2	19.0
62	Full	74.3	4.5	62.5	16.7	60.9	4.0	68.1	24.2	48.8	3.4	64.9	19.2
71	Full	81.3	4.6	68.6	17.0	66.5	4.0	74.8	24.2	52.8	3.4	71.3	19.3
96	Full	113.4	4.5	89.9	15.7	91.5	3.9	97.9	22.3	71.9	3.3	93.3	17.9
	Part	56.7	4.5	44.9	15.7	45.7	3.9	48.9	22.3	35.9	3.3	46.7	17.9
126	Full	148.7	4.5	121.8	16.3	121.7	4.0	132.9	23.5	97.6	3.4	126.6	18.6
	Part	74.3	4.5	60.9	16.3	60.9	4.0	66.5	23.5	48.8	3.4	63.3	18.6
140	Full	162.5	4.6	133.8	16.5	133.1	4.0	145.9	23.5	105.6	3.4	139.0	18.8
	Part	81.3	4.6	66.9	16.5	66.5	4.0	72.9	23.5	52.8	3.4	69.5	18.8
164	Full	193.6	4.5	158.3	15.9	158.8	3.9	172.4	22.2	120.2	3.1	164.4	18.0
	Part	96.8	4.5	79.2	15.9	79.4	3.9	86.2	22.2	60.1	3.1	82.2	18.0
220	Full	258.7	4.6	211.5	16.2	212.7	4.1	231.3	21.9	156.8	3.3	219.7	18.1
	Part	129.3	4.6	105.8	16.2	106.4	4.1	115.6	21.9	78.4	3.3	109.8	18.1
260	Full	301.4	4.6	253.7	16.5	246.6	4.2	277.6	22.0	184.3	3.4	263.5	18.4
	Part	150.7	4.6	126.8	16.5	123.3	4.2	138.8	22.0	92.2	3.4	131.8	18.4
290	Full	342.9	4.6	282.5	16.2	283.0	4.1	312.0	21.9	212.0	3.3	294.5	18.1
	Part	171.4	4.6	141.3	16.2	141.5	4.1	156.0	21.9	106.0	3.3	147.2	18.1
350	Full	406.2	4.7	342.0	16.7	333.7	4.2	368.7	22.0	269.1	3.7	354.1	18.5
	Part	203.1	4.7	171.0	16.7	166.9	4.2	184.4	22.0	134.6	3.7	177.0	18.5
450	Full	516.5	4.7	436.9	17.1	422.8	4.2	476.4	23.8	315.8	3.4	453.6	19.2
	Part	258.2	4.7	218.5	17.1	211.4	4.2	238.2	23.8	157.9	3.4	226.8	19.2
620	Full	707.3	4.7	598.0	17.1	581.9	4.2	649.0	23.0	435.7	3.4	620.3	19.1
	Part	353.6	4.7	299.0	17.1	291.0	4.2	324.5	23.0	217.9	3.4	310.1	19.1

7/21/2010

3 - 50 Ton - Single & Dual Compressor Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



Electrical Specification

Model	Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
				RLA	LRA				
38	1/2	208/230-1-60	1	17	96.7	4.9	21.9	26.2	60
		208/230-3-60	2	12.8	95	2.0	14.8	18.0	40
		460-3-60	3	6.4	45	1.0	7.4	9.0	20
		575-3-60	4	4.8	38	0.8	5.6	6.8	15
		380-3-60	6	8.3	52	1.2	9.5	11.6	25
	3/4	208/230-1-60	1	17	96.7	6.9	23.9	28.2	60
		208/230-3-60	2	12.8	95	2.8	15.6	18.8	40
		460-3-60	3	6.4	45	1.4	7.8	9.4	20
		575-3-60	4	4.8	38	1.1	5.9	7.1	15
		380-3-60	6	8.3	52	1.7	10.0	12.1	25
	1	208/230-1-60	1	17	96.7	8.0	25.0	29.3	60
		208/230-3-60	2	12.8	95	3.6	16.4	19.6	45
		460-3-60	3	6.4	45	1.8	8.2	9.8	20
		575-3-60	4	4.8	38	1.4	6.2	7.4	15
		380-3-60	6	8.3	52	2.2	10.5	12.6	25
50	3/4	208/230-1-60	1	21	115	6.9	27.9	33.2	70
		208/230-3-60	2	16	115	2.8	18.8	22.8	50
		460-3-60	3	7.7	50	1.4	9.1	11.0	25
		575-3-60	4	6.4	40	1.1	7.5	9.1	20
		380-3-60	6						
	1	208/230-1-60	1	21	115	8.0	29.0	34.3	70
		208/230-3-60	2	16	115	3.6	19.6	23.6	50
		460-3-60	3	7.7	50	1.8	9.5	11.4	25
		575-3-60	4	6.4	40	1.4	7.8	9.4	20
		380-3-60	6						
	1 1/2	208/230-1-60	1	21	115	10.0	31.0	36.3	70
		208/230-3-60	2	16	115	5.2	21.2	25.2	50
		460-3-60	3	7.7	50	2.6	10.3	12.2	25
		575-3-60	4	6.4	40	2.1	8.5	10.1	20
		380-3-60	6						
62	3/4	208/230-1-60	1	26.3	150	6.9	33.2	39.8	90
		208/230-3-60	2	17.6	120	2.8	20.4	24.8	60
		460-3-60	3	8.3	70	1.4	9.7	11.8	25
		575-3-60	4	7.4	53	1.1	8.5	10.4	25
		380-3-60	6						
	1	208/230-1-60	1	26.3	150	8.0	34.3	40.9	90
		208/230-3-60	2	17.6	120	3.6	21.2	25.6	60
		460-3-60	3	8.3	70	1.8	10.1	12.2	25
		575-3-60	4	7.4	53	1.4	8.8	10.7	25
		380-3-60	6						
	1 1/2	208/230-1-60	1	26.3	150	10.0	36.3	42.9	90
		208/230-3-60	2	17.6	120	5.2	22.8	27.2	60
		460-3-60	3	8.3	70	2.6	10.9	13.0	25
		575-3-60	4	7.4	53	2.1	9.5	11.4	25
		380-3-60	6						
71	1	208/230-1-60	1	30.1	145	8.0	38.1	45.6	100
		208/230-3-60	2	17.6	120	3.6	21.2	25.6	60
		460-3-60	3	9.6	70	1.8	11.4	13.8	30
		575-3-60	4	8	53	1.4	9.4	11.4	25
		380-3-60	6						
	1 1/2	208/230-1-60	1	30.1	145	10.0	40.1	47.6	100
		208/230-3-60	2	17.6	120	5.2	22.8	27.2	60
		460-3-60	3	9.6	70	2.6	12.2	14.6	30
		575-3-60	4	8	53	2.1	10.1	12.1	25
		380-3-60	6						
	2	208/230-1-60	1	30.1	145	12.0	42.1	49.6	100
		208/230-3-60	2	17.6	120	6.8	24.4	28.8	60
		460-3-60	3	9.6	70	3.4	13.0	15.4	30
		575-3-60	4	8	53	2.7	10.7	12.7	25
		380-3-60	6						
96	1 1/2	208/230-1-60	1	21	115	10.0	52.0	57.3	70
		208/230-3-60	2	16	115	5.2	37.2	41.2	50
		460-3-60	3	7.7	50	2.6	18.0	19.9	25
		575-3-60	4	6.4	40	2.1	14.9	16.5	20
		380-3-60	6						

3 - 50 Ton - Single & Dual Compressor Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



Electrical Specification - Continued

Model	Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*	
				RLA	LRA					
96 (cont)	2	208/230-1-60	1	21	115	12.0	54.0	59.3	80	
		208/230-3-60	2	16	115	6.8	38.8	42.8	50	
		460-3-60	3	7.7	50	3.4	18.8	20.7	25	
		575-3-60	4	6.4	40	2.7	15.5	17.1	20	
		380-3-60	6							
		208/230-1-60	1	21	115	17.0	59.0	64.3	80	
	3	208/230-3-60	2	16	115	9.6	41.6	45.6	60	
		460-3-60	3	7.7	50	4.8	20.2	22.1	25	
		575-3-60	4	6.4	40	3.9	16.7	18.3	20	
		380-3-60	6							
		208/230-1-60	1	26.3	150	12.0	64.6	71.2	90	
		208/230-3-60	2	17.6	120	6.8	42.0	46.4	60	
126	2	460-3-60	3	8.3	70	3.4	20.0	22.1	30	
		575-3-60	4	7.4	53	2.7	17.5	19.4	25	
		380-3-60	6							
		208/230-1-60	1	26.3	150	17.0	69.6	76.2	100	
		208/230-3-60	2	17.6	120	9.6	44.8	49.2	60	
		460-3-60	3	8.3	70	4.8	21.4	23.5	30	
	3	575-3-60	4	7.4	53	3.9	18.7	20.6	25	
		380-3-60	6							
		208/230-1-60	1	26.3	150	28.0	80.6	87.2	110	
		208/230-3-60	2	17.6	120	15.2	50.4	54.8	70	
		460-3-60	3	8.3	70	7.6	24.2	26.3	30	
		575-3-60	4	7.4	53	6.1	20.9	22.8	30	
	140	2	380-3-60	6						
			208/230-1-60	1	30.1	145	12.0	72.2	79.7	100
			208/230-3-60	2	17.6	120	6.8	42.0	46.4	60
			460-3-60	3	9.6	70	3.4	22.6	25.0	30
			575-3-60	4	8	53	2.7	18.7	20.7	25
			380-3-60	6						
3		208/230-1-60	1	30.1	145	17.0	77.2	84.7	110	
		208/230-3-60	2	17.6	120	9.6	44.8	49.2	60	
		460-3-60	3	9.6	70	4.8	24.0	26.4	35	
		575-3-60	4	8	53	3.9	19.9	21.9	25	
		380-3-60	6							
		208/230-1-60	1	30.1	145	28.0	88.2	95.7	125	
5	208/230-3-60	2	17.6	120	15.2	50.4	54.8	70		
	460-3-60	3	9.6	70	7.6	26.8	29.2	35		
	575-3-60	4	8	53	6.1	22.1	24.1	30		
	380-3-60	6								
	208/230-1-60	1	26.9	145	12.0	65.8	72.5	90		
	208/230-3-60	2	23	160	6.8	52.8	58.6	80		
164	2	460-3-60	3	12.2	87	3.4	27.8	30.9	40	
		575-3-60	4	8.6	62	2.7	19.9	22.1	30	
		380-3-60	6							
		208/230-1-60	1	26.9	145	17.0	70.8	77.5	100	
		208/230-3-60	2	23	160	9.6	55.6	61.4	80	
		460-3-60	3	12.2	87	4.8	29.2	32.3	40	
	3	575-3-60	4	8.6	62	3.9	21.1	23.3	30	
		380-3-60	6							
		208/230-1-60	1	26.9	145	28.0	81.8	88.5	110	
		208/230-3-60	2	23	160	15.2	61.2	67.0	80	
		460-3-60	3	12.2	87	7.6	32.0	35.1	45	
		575-3-60	4	8.6	62	6.1	23.3	25.5	30	
	220	2	380-3-60	6						
			208/230-1-60	1	26.6	235	12.0	65.2	71.9	90
			208/230-3-60	2	26.6	235	6.8	60.0	66.7	90
			460-3-60	3	12.2	110	3.4	27.8	30.9	40
			575-3-60	4	10.9	95	2.7	24.5	27.2	35
			380-3-60	6	18.6	124	4.1	41.3	46.0	60
3		208/230-1-60	1	26.6	235	17.0	70.2	76.9	100	
		208/230-3-60	2	26.6	235	9.6	62.8	69.5	90	
		460-3-60	3	12.2	110	4.8	29.2	32.3	40	
		575-3-60	4	10.9	95	3.9	25.7	28.4	35	
		380-3-60	6	18.6	124	5.8	43.0	47.7	60	
		208/230-1-60	1	26.6	235	28.0	81.2	87.9	110	
5	208/230-3-60	2	26.6	235	15.2	68.4	75.1	100		
	460-3-60	3	12.2	110	7.6	32.0	35.1	45		
	575-3-60	4	10.9	95	6.1	27.9	30.6	40		
	380-3-60	6	18.6	124	9.2	46.4	51.1	60		

3 - 50 Ton - Single & Dual Compressor Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



Electrical Specification - Continued

Model	Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
				RLA	LRA				
260	3	208/230-1-60	1	31	235	17.0	79.0	86.8	110
		208/230-3-60	2	31	235	9.6	71.6	79.4	110
		460-3-60	3	16	110	4.8	36.8	40.8	50
		575-3-60	4	11.9	95	3.9	27.7	30.7	40
		380-3-60	6	21.4	160	5.8	48.6	54.0	70
	5	208/230-1-60	1	31	235	28.0	90.0	97.8	125
		208/230-3-60	2	31	235	15.2	77.2	85.0	110
		460-3-60	3	16	110	7.6	39.6	43.6	50
		575-3-60	4	11.9	95	6.1	29.9	32.9	40
	7 1/2	380-3-60	6	21.4	160	9.2	52.0	57.4	70
		208/230-1-60	1	31	235	40.0	102.0	109.8	125
		208/230-3-60	2	31	235	22.0	84.0	91.8	110
460-3-60		3	16	110	11.0	43.0	47.0	60	
290	5	575-3-60	4	11.9	95	9.0	32.8	35.8	45
		380-3-60	6	21.4	160	13.3	56.1	61.5	80
		208/230-1-60	1	35.2	250	28.0	98.4	107.2	125
		208/230-3-60	2	35.2	250	15.2	85.6	94.4	125
		460-3-60	3	19.2	140	7.6	46.0	50.8	60
	7 1/2	575-3-60	4	14.5	100	6.1	35.1	38.7	50
		380-3-60	6						
		208/230-1-60	1	35.2	250	40.0	110.4	119.2	150
		208/230-3-60	2	35.2	250	22.0	92.4	101.2	125
	10	460-3-60	3	19.2	140	11.0	49.4	54.2	70
		575-3-60	4	14.5	100	9.0	38.0	41.6	50
		380-3-60	6						
208/230-1-60		1	35.2	250	50.0	120.4	129.2	150	
208/230-3-60		2	35.2	250	28.0	98.4	107.2	125	
350	7 1/2	460-3-60	3	19.2	140	14.0	52.4	57.2	70
		575-3-60	4	14.5	100	11.0	40.0	43.6	50
		380-3-60	6						
		208/230-1-60	1	45.7	304	22.0	113.4	124.8	150
		208/230-3-60	2	45.7	304	11.0	53.8	59.2	80
	10	460-3-60	3	21.4	147	9.0	46.2	50.9	60
		575-3-60	4	18.6	122	13.3	66.1	72.7	90
		380-3-60	6	26.4	168	16.9	69.7	76.3	100
		208/230-1-60	1	45.7	304	28.0	119.4	130.8	150
		208/230-3-60	2	45.7	304	14.0	56.8	62.2	80
	15	460-3-60	3	21.4	147	11.0	48.2	52.9	70
		575-3-60	4	18.6	122	17.0	54.2	58.9	70
380-3-60		6	26.4	168	25.4	78.2	84.8	110	
208/230-1-60		1	45.7	304	42.0	133.4	144.8	150	
208/230-3-60		2	45.7	304	21.0	63.8	69.2	90	
450	7 1/2	460-3-60	3	21.4	147	17.0	54.2	58.9	70
		575-3-60	4	18.6	122	21.0	63.8	69.2	90
		380-3-60	6	26.4	168	25.4	78.2	84.8	110
		208/230-1-60	1	55.7	320	22.0	133.4	147.3	200
		208/230-3-60	2	55.7	320	11.0	65.0	71.8	90
	10	460-3-60	3	27	180	9.0	51.8	57.2	70
		575-3-60	4	21.4	135	13.3	79.1	87.3	110
		380-3-60	6	32.9	210	16.9	82.7	91.0	110
		208/230-1-60	1	55.7	320	28.0	139.4	153.3	200
		208/230-3-60	2	55.7	320	14.0	68.0	74.8	100
	15	460-3-60	3	27	180	11.0	53.8	59.2	80
		575-3-60	4	21.4	135	17.0	59.8	65.2	80
380-3-60		6	32.9	210	25.4	91.2	99.4	125	
208/230-1-60		1	55.7	320	42.0	153.4	167.3	200	
208/230-3-60		2	55.7	320	21.0	75.0	81.8	100	

3 - 50 Ton - Single & Dual Compressor Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



Electrical Specification - Continued

Model	Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HACR*	
				RLA	LRA					
620	15	208/230-1-60	1							
		208/230-3-60	2	75	485	42.0	192.0	210.8	250	
		460-3-60	3	36.4	215	21.0	93.8	102.9	125	
		575-3-60	4	29.3	175	17.0	75.6	82.9	110	
		380-3-60	6	42.9	260	25.4	111.2	121.9	150	
	20	208/230-1-60	1							
		208/230-3-60	2	75	485	54.0	204.0	222.8	250	
		460-3-60	3	36.4	215	27.0	99.8	108.9	125	
		575-3-60	4	29.3	175	22.0	80.6	87.9	110	
		380-3-60	6	42.9	260	32.7	118.5	129.2	150	
	30	208/230-1-60	1							
		208/230-3-60	2	75	485	80.0	230.0	248.8	300	
		460-3-60	3	36.4	215	40.0	112.8	121.9	150	
		575-3-60	4	29.3	175	32.0	90.6	97.9	125	
		380-3-60	6	42.9	260	48.4	134.2	144.9	150	

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above

HACR circuit breaker for use in USA only. All fuses Class RK-5

For blank cells, the specified voltage is NOT available

Rev: 25 May, 2010 - GFM-AJS

3 - 50 Ton - Single & Dual Compressor Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



Pressure Drop Specifications

Model	GPM	Pressure Drop (psi)*						
		Entering Water Temperature °F						
		20	30	50	70	90	110	120
38	4.5	1.9	1.9	1.3	1.3	1.2	1.1	1.0
	6.8	2.4	2.3	1.7	1.6	1.4	1.3	1.3
	9.0	3.2	3.1	2.2	2.1	2.0	1.8	1.8
50	6.0	2.0	1.9	1.4	1.3	1.2	1.1	1.1
	9.0	3.9	3.8	2.7	2.5	2.4	2.2	2.1
	12.0	6.2	6.0	4.3	4.0	3.7	3.5	3.3
62	7.5	1.8	1.8	1.3	1.2	1.1	1.0	1.0
	11.3	3.3	3.2	2.3	2.2	2.0	1.9	1.8
	15.0	5.4	5.2	3.7	3.5	3.3	3.0	2.9
71	9.0	4.4	4.2	3.0	2.8	2.6	2.4	2.4
	13.5	6.9	6.7	4.8	4.5	4.2	3.9	3.7
	18.0	10.6	10.3	7.4	6.9	6.4	6.0	5.8
96	6.0	2.0	1.9	1.4	1.3	1.2	1.1	1.1
	9.0	3.9	3.8	2.7	2.5	2.4	2.2	2.1
	12.0	6.2	6.0	4.3	4.0	3.7	3.5	3.3
126	7.5	1.8	1.8	1.3	1.2	1.1	1.0	1.0
	11.3	3.3	3.2	2.3	2.2	2.0	1.9	1.8
	15.0	5.4	5.2	3.7	3.5	3.3	3.0	2.9
140	9.0	4.4	4.2	3.0	2.8	2.6	2.4	2.4
	13.5	6.9	6.7	4.8	4.5	4.2	3.9	3.7
	18.0	10.6	10.3	7.4	6.9	6.4	6.0	5.8
164	10.5	4.9	4.8	3.4	3.2	3.0	2.8	2.6
	15.8	6.4	6.2	4.5	4.2	3.9	3.6	3.5
	21.0	8.4	8.1	5.8	5.4	5.1	4.7	4.5
220	13.5	4.3	4.1	2.9	2.8	2.6	2.4	2.3
	20.3	5.9	5.8	4.1	3.9	3.6	3.3	3.2
	27.0	8.4	8.1	5.8	5.4	5.1	4.7	4.5
260	15.0	1.1	1.1	0.8	0.7	0.7	0.6	0.6
	22.5	2.3	2.2	1.6	1.5	1.4	1.3	1.3
	30.0	4.1	4.0	2.8	2.6	2.5	2.3	2.2
290	18.8	2.5	2.4	1.7	1.6	1.5	1.4	1.3
	28.1	3.6	3.5	2.5	2.3	2.2	2.0	1.9
	37.5	4.8	4.7	3.3	3.1	2.9	2.7	2.6
350	22.5	1.7	1.7	1.2	1.1	1.0	1.0	0.9
	33.8	2.8	2.7	1.9	1.8	1.7	1.6	1.5
	45.0	4.2	4.1	2.9	2.7	2.6	2.4	2.3
450	28.5	2.3	2.2	1.6	1.5	1.4	1.3	1.2
	42.8	3.9	3.8	2.7	2.5	2.4	2.2	2.1
	57.0	5.8	5.7	4.0	3.8	3.5	3.3	3.2
620	37.5	3.2	3.1	2.2	2.1	1.9	1.8	1.7
	56.3	5.1	5.0	3.5	3.3	3.1	2.9	2.8
	75.0	7.9	7.7	5.5	5.1	4.8	4.4	4.3

Operation below 40°F based on 23% PG

5/17/2010

*Pressure drop & flow rate is per circuit - dual compressor units have two circuits

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3 Ton - Single Stage Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR038S Series - R410A

Rated Airflow: 1200 Heating / 1200 Cooling

Magnum Series
 Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	4.5	1.7	3.9	25	2.5	16	89	2.9	Operation Not Recommended				
	6.8	2.1	4.9										
	9.0	2.8	6.6										
30	4.5	1.8	4.2						Operation Not Recommended				
	6.8	2.0	4.7	28	2.6	19	91	3.2	42	28	1.4	47	30.2
	9.0	2.8	6.4	29	2.6	20	92	3.2	43	28	1.3	48	33.7
40	4.5	1.4	3.2	30	2.6	21	93	3.4	41	28	1.7	47	23.8
	6.8	1.7	3.9	31	2.7	22	94	3.5	42	28	1.6	47	27.2
	9.0	2.3	5.3	32	2.7	23	95	3.5	43	29	1.4	48	29.6
50	4.5	1.3	3.1	34	2.7	25	96	3.6	41	28	1.9	47	21.4
	6.8	1.7	3.8	35	2.8	26	97	3.8	42	28	1.7	48	24.3
	9.0	2.2	5.2	37	2.8	27	98	3.8	42	29	1.6	48	26.0
60	4.5	1.3	3.0	38	2.8	28	99	3.9	40	28	2.1	47	19.0
	6.8	1.6	3.7	40	2.9	30	101	4.1	41	28	1.9	48	21.6
	9.0	2.2	5.0	41	2.9	31	102	4.2	41	29	1.8	48	22.8
70	4.5	1.3	2.9	41	2.9	31	102	4.1	39	27	2.3	47	16.7
	6.8	1.6	3.6	44	3.0	34	104	4.4	40	28	2.1	47	19.0
	9.0	2.1	4.9	46	3.0	35	105	4.5	40	29	2.0	47	19.9
80	4.5	1.2	2.8	45	3.1	35	105	4.4	37	27	2.6	46	14.5
	6.8	1.5	3.5	49	3.1	38	108	4.7	39	28	2.3	47	16.6
	9.0	2.0	4.7	50	3.1	40	109	4.8	39	28	2.3	47	17.2
90	4.5	1.2	2.7	50	3.2	39	108	4.6	35	26	2.8	45	12.5
	6.8	1.4	3.3	54	3.2	43	112	5.0	37	27	2.6	46	14.3
	9.0	2.0	4.5	56	3.2	45	113	5.1	37	27	2.5	46	14.8
100	4.5	1.1	2.6	Operation Not Recommended					33	25	3.1	44	10.5
	6.8	1.4	3.2						35	26	2.9	45	12.2
	9.0	1.9	4.4						35	26	2.8	45	12.6
110	4.5	1.1	2.5	Operation Not Recommended					30	24	3.5	42	8.7
	6.8	1.3	3.1						32	25	3.2	43	10.1
	9.0	1.8	4.2						33	25	3.1	43	10.6

Interpolation is permissible; extrapolation is not.

Operation below 40°F EWT is based upon a 15% antifreeze solution.

All performance is based upon the lower voltage of dual voltage rated units.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

See performance correction tables for operating conditions other than those listed above.

Water flow rate is per circuit - dual compressor units have 2 circuits

3 Ton - Single Stage Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR038S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	44.6	4.5	37.4	16.4	36.5	3.9	40.7	23.5	29.3	3.4	38.8	18.7

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
1/2	208/230-1-60	1	17	96.7	4.9	21.9	26.2	60
	208/230-3-60	2	12.8	95	2.0	14.8	18.0	40
	460-3-60	3	6.4	45	1.0	7.4	9.0	20
	575-3-60	4	4.8	38	0.8	5.6	6.8	15
	380-3-60	6	8.3	52	1.2	9.5	11.6	25
3/4	208/230-1-60	1	17	96.7	6.9	23.9	28.2	60
	208/230-3-60	2	12.8	95	2.8	15.6	18.8	40
	460-3-60	3	6.4	45	1.4	7.8	9.4	20
	575-3-60	4	4.8	38	1.1	5.9	7.1	15
	380-3-60	6	8.3	52	1.7	10.0	12.1	25
1	208/230-1-60	1	17	96.7	8.0	25.0	29.3	60
	208/230-3-60	2	12.8	95	3.6	16.4	19.6	45
	460-3-60	3	6.4	45	1.8	8.2	9.8	20
	575-3-60	4	4.8	38	1.4	6.2	7.4	15
	380-3-60	6	8.3	52	2.2	10.5	12.6	25

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

4 Ton - Single Stage Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR050S Series - R410A

Rated Airflow: 1500 Heating / 1500 Cooling

Magnum Series
 Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	6.0	1.8	4.1	Operation Not Recommended									
	9.0	3.4	7.9										
	12.0	5.4	12.5										
30	6.0	1.9	4.3	30	3.2	20	89	2.8	54	35	1.8	60	29.2
	9.0	3.3	7.7	33	3.2	22	90	3.0	55	36	1.7	60	31.7
	12.0	5.3	12.1	35	3.3	24	92	3.1	55	36	1.7	60	31.7
40	6.0	1.4	3.3	37	3.3	26	93	3.3	52	34	2.2	59	23.8
	9.0	2.8	6.4	39	3.4	27	94	3.4	53	35	2.0	60	26.8
	12.0	4.4	10.2	40	3.4	29	95	3.5	54	36	1.9	61	28.7
50	6.0	1.4	3.2	42	3.4	30	96	3.6	51	35	2.4	60	21.5
	9.0	2.7	6.3	44	3.5	32	97	3.7	53	35	2.2	60	24.3
	12.0	4.3	9.9	46	3.5	34	98	3.8	54	36	2.1	61	25.8
60	6.0	1.3	3.1	47	3.6	35	99	3.9	51	35	2.6	60	19.2
	9.0	2.6	6.1	50	3.6	38	101	4.1	52	35	2.4	60	21.8
	12.0	4.1	9.5	52	3.6	39	102	4.2	53	36	2.3	60	22.9
70	6.0	1.3	3.0	52	3.7	40	102	4.2	49	34	2.9	59	17.0
	9.0	2.5	5.9	56	3.7	43	105	4.4	51	35	2.6	60	19.3
	12.0	4.0	9.2	58	3.8	45	106	4.5	51	36	2.5	60	20.1
80	6.0	1.3	2.9	58	3.9	45	106	4.4	47	34	3.2	58	14.8
	9.0	2.5	5.7	63	3.9	49	109	4.7	49	34	2.9	59	16.8
	12.0	3.9	8.9	65	3.9	51	110	4.8	49	35	2.8	59	17.5
90	6.0	1.2	2.8	64	4.0	50	109	4.6	45	33	3.6	57	12.7
	9.0	2.4	5.5	69	4.0	55	113	5.0	47	33	3.2	58	14.5
	12.0	3.7	8.6	71	4.0	57	114	5.2	47	34	3.1	58	15.0
100	6.0	1.2	2.7	Operation Not Recommended									
	9.0	2.3	5.3										
	12.0	3.6	8.3										
110	6.0	1.1	2.6	Operation Not Recommended									
	9.0	2.2	5.1										
	12.0	3.5	8.0										

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

4 Ton - Single Stage Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR050S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	56.7	4.5	47.4	16.7	45.7	3.9	51.6	23.7	35.9	3.3	49.2	19.0

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
3/4	208/230-1-60	1	21	115	6.9	27.9	33.2	70
	208/230-3-60	2	16	115	2.8	18.8	22.8	50
	460-3-60	3	7.7	50	1.4	9.1	11.0	25
	575-3-60	4	6.4	40	1.1	7.5	9.1	20
	380-3-60	6						
1	208/230-1-60	1	21	115	8.0	29.0	34.3	70
	208/230-3-60	2	16	115	3.6	19.6	23.6	50
	460-3-60	3	7.7	50	1.8	9.5	11.4	25
	575-3-60	4	6.4	40	1.4	7.8	9.4	20
	380-3-60	6						
1 1/2	208/230-1-60	1	21	115	10.0	31.0	36.3	70
	208/230-3-60	2	16	115	5.2	21.2	25.2	50
	460-3-60	3	7.7	50	2.6	10.3	12.2	25
	575-3-60	4	6.4	40	2.1	8.5	10.1	20
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

5 Ton - Single Stage Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR062S Series - R410A

Rated Airflow: 2000 Heating / 2000 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	7.5	1.6	3.7										
	11.3	2.9	6.8										
	15.0	4.7	10.9	39	4.1	25	88	2.8	Operation Not Recommended				
30	7.5	1.7	3.9										
	11.3	2.8	6.6	46	4.2	32	91	3.2	71	46	2.3	79	31.3
	15.0	4.6	10.6	48	4.3	33	92	3.3	72	47	2.1	80	34.9
40	7.5	1.3	3.0	50	4.3	36	93	3.4	69	46	2.8	78	24.6
	11.3	2.4	5.5	52	4.4	37	94	3.5	71	47	2.5	79	28.1
	15.0	3.8	8.9	54	4.4	39	95	3.6	72	48	2.3	80	30.7
50	7.5	1.3	2.9	56	4.5	41	96	3.7	68	46	3.1	79	22.0
	11.3	2.3	5.3	59	4.5	43	97	3.8	70	47	2.8	80	25.1
	15.0	3.7	8.6	61	4.6	45	98	3.9	71	48	2.6	80	26.9
60	7.5	1.2	2.8	63	4.7	47	99	3.9	67	46	3.4	78	19.5
	11.3	2.2	5.2	66	4.7	50	101	4.1	69	47	3.1	79	22.2
	15.0	3.6	8.3	68	4.8	52	102	4.2	69	48	3.0	80	23.5
70	7.5	1.2	2.8	69	4.9	52	102	4.2	65	46	3.8	78	17.1
	11.3	2.2	5.0	74	4.9	57	104	4.4	67	47	3.4	79	19.5
	15.0	3.5	8.1	76	4.9	59	105	4.5	68	48	3.3	79	20.4
80	7.5	1.2	2.7	76	5.1	58	105	4.4	62	45	4.2	77	14.8
	11.3	2.1	4.8	82	5.1	64	108	4.7	65	46	3.8	78	16.9
	15.0	3.4	7.8	84	5.1	67	109	4.8	65	47	3.7	78	17.6
90	7.5	1.1	2.6	83	5.3	65	108	4.6	59	44	4.7	75	12.6
	11.3	2.0	4.7	90	5.3	72	112	5.0	62	45	4.3	76	14.5
	15.0	3.3	7.5	93	5.4	75	113	5.1	62	46	4.1	76	15.1
100	7.5	1.1	2.5						55	42	5.2	73	10.6
	11.3	1.9	4.5						58	43	4.7	74	12.3
	15.0	3.1	7.3	Operation Not Recommended					59	44	4.6	74	12.8
110	7.5	1.0	2.4						51	40	5.8	70	8.7
	11.3	1.9	4.3						54	41	5.3	72	10.2
	15.0	3.0	7.0						55	42	5.1	72	10.7

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

5 Ton - Single Stage Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR062S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	74.3	4.5	62.5	16.7	60.9	4.0	68.1	24.2	48.8	3.4	64.9	19.2

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
3/4	208/230-1-60	1	26.3	150	6.9	33.2	39.8	90
	208/230-3-60	2	17.6	120	2.8	20.4	24.8	60
	460-3-60	3	8.3	70	1.4	9.7	11.8	25
	575-3-60	4	7.4	53	1.1	8.5	10.4	25
	380-3-60	6						
1	208/230-1-60	1	26.3	150	8.0	34.3	40.9	90
	208/230-3-60	2	17.6	120	3.6	21.2	25.6	60
	460-3-60	3	8.3	70	1.8	10.1	12.2	25
	575-3-60	4	7.4	53	1.4	8.8	10.7	25
	380-3-60	6						
1 1/2	208/230-1-60	1	26.3	150	10.0	36.3	42.9	90
	208/230-3-60	2	17.6	120	5.2	22.8	27.2	60
	460-3-60	3	8.3	70	2.6	10.9	13.0	25
	575-3-60	4	7.4	53	2.1	9.5	11.4	25
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

6 Ton - Single Stage Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR071S Series - R410A
 Rated Airflow: 2200 Heating / 2200 Cooling

Magnum Series
 Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	9.0	3.8	8.8	Operation Not Recommended									
	13.5	6.0	14.0										
	18.0	9.3	21.6										
30	9.0	4.0	9.3	32	4.4	17	84	2.1	78	51	2.5	87	31.0
	13.5	5.9	13.6	49	4.6	34	91	3.2	80	52	2.3	87	34.6
	18.0	9.1	21.0	50	4.6	34	91	3.1	76	51	3.1	86	24.5
40	9.0	3.1	7.2	55	4.7	39	93	3.5	78	52	2.8	87	27.9
	13.5	4.9	11.3	57	4.7	41	94	3.5	79	53	2.6	88	30.4
	18.0	7.6	17.5	59	4.8	43	95	3.6	75	51	3.4	86	22.0
50	9.0	3.0	7.0	62	4.9	45	96	3.7	77	52	3.1	87	25.0
	13.5	4.8	11.0	64	4.9	48	97	3.9	78	53	2.9	88	26.7
	18.0	7.4	17.0	67	5.0	50	98	3.9	73	51	3.7	86	19.6
60	9.0	2.9	6.7	68	5.0	51	99	4.0	76	52	3.4	87	22.2
	13.5	4.6	10.7	72	5.1	55	100	4.2	76	53	3.3	87	23.4
	18.0	7.1	16.5	74	5.1	57	101	4.3	71	50	4.1	85	17.2
70	9.0	2.8	6.5	75	5.2	58	102	4.2	74	51	3.8	87	19.6
	13.5	4.5	10.3	80	5.3	62	104	4.5	74	53	3.6	87	20.4
	18.0	6.9	15.9	83	5.3	65	105	4.6	69	49	4.6	84	15.0
80	9.0	2.7	6.3	83	5.4	64	105	4.5	71	50	4.2	85	17.1
	13.5	4.3	10.0	89	5.5	71	108	4.8	72	52	4.0	85	17.7
	18.0	6.7	15.4	92	5.5	73	109	4.9	65	48	5.0	82	12.9
90	9.0	2.6	6.1	90	5.6	71	108	4.7	68	49	4.6	84	14.8
	13.5	4.2	9.6	98	5.7	79	111	5.1	68	50	4.5	84	15.3
	18.0	6.4	14.9	102	5.7	82	113	5.2	61	46	5.6	80	10.9
100	9.0	2.5	5.9	Operation Not Recommended									
	13.5	4.0	9.3										
	18.0	6.2	14.3										
110	9.0	2.4	5.7	64	47	5.1	81	12.6	64	48	5.0	81	13.0
	13.5	3.9	8.9	56	44	6.2	77	9.0	59	45	5.6	78	10.5
	18.0	6.0	13.8	60	46	5.5	79	10.9					

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

6 Ton - Single Stage Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR071S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	81.3	4.6	68.6	17.0	66.5	4.0	74.8	24.2	52.8	3.4	71.3	19.3

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
1	208/230-1-60	1	30.1	145	8.0	38.1	45.6	100
	208/230-3-60	2	17.6	120	3.6	21.2	25.6	60
	460-3-60	3	9.6	70	1.8	11.4	13.8	30
	575-3-60	4	8	53	1.4	9.4	11.4	25
	380-3-60	6						
1 1/2	208/230-1-60	1	30.1	145	10.0	40.1	47.6	100
	208/230-3-60	2	17.6	120	5.2	22.8	27.2	60
	460-3-60	3	9.6	70	2.6	12.2	14.6	30
	575-3-60	4	8	53	2.1	10.1	12.1	25
	380-3-60	6						
2	208/230-1-60	1	30.1	145	12.0	42.1	49.6	100
	208/230-3-60	2	17.6	120	6.8	24.4	28.8	60
	460-3-60	3	9.6	70	3.4	13.0	15.4	30
	575-3-60	4	8	53	2.7	10.7	12.7	25
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

8 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR096S Series - R410A

Rated Airflow: 2800 Heating / 2800 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	6.0	1.8	4.1										
	9.0	3.4	7.9										
	12.0	5.4	12.5	61	6.4	39	90	2.8					Operation Not Recommended
30	6.0	1.9	4.3										
	9.0	3.3	7.7	65	6.5	43	92	3.0	101	65	3.7	114	27.6
	12.0	5.3	12.1	70	6.6	48	93	3.1	103	66	3.4	115	30.0
40	6.0	1.4	3.3	75	6.6	52	95	3.3	99	64	4.4	114	22.5
	9.0	2.8	6.4	78	6.7	55	96	3.4	101	66	4.0	115	25.3
	12.0	4.4	10.2	81	6.8	57	97	3.5	103	67	3.8	116	27.2
50	6.0	1.4	3.2	84	6.9	61	98	3.6	98	65	4.8	114	20.3
	9.0	2.7	6.3	88	6.9	65	99	3.7	101	66	4.4	116	22.9
	12.0	4.3	9.9	92	7.0	68	100	3.8	102	68	4.2	116	24.3
60	6.0	1.3	3.1	94	7.1	70	101	3.9	96	65	5.3	114	18.1
	9.0	2.6	6.1	100	7.2	76	103	4.1	99	66	4.8	115	20.5
	12.0	4.1	9.5	104	7.3	79	104	4.2	100	68	4.6	115	21.6
70	6.0	1.3	3.0	105	7.4	80	105	4.2	93	64	5.8	113	16.0
	9.0	2.5	5.9	112	7.5	87	107	4.4	96	65	5.3	115	18.2
	12.0	4.0	9.2	116	7.5	90	108	4.5	97	67	5.1	115	19.0
80	6.0	1.3	2.9	116	7.7	90	108	4.4	90	63	6.5	112	13.9
	9.0	2.5	5.7	125	7.7	99	111	4.7	93	64	5.9	113	15.9
	12.0	3.9	8.9	129	7.8	102	113	4.8	94	66	5.7	113	16.5
90	6.0	1.2	2.8	127	8.0	100	112	4.6	85	61	7.2	110	11.9
	9.0	2.4	5.5	138	8.0	111	116	5.0	89	62	6.5	111	13.7
	12.0	3.7	8.6	142	8.1	115	117	5.2	89	64	6.3	111	14.2
100	6.0	1.2	2.7						80	59	8.0	107	10.1
	9.0	2.3	5.3						84	60	7.2	109	11.6
	12.0	3.6	8.3						85	62	7.0	109	12.0
110	6.0	1.1	2.6										
	9.0	2.2	5.1						74	56	8.9	104	8.4
	12.0	3.5	8.0						78	57	8.1	106	9.7

Part Load

Rated Airflow: 1400 Heating / 1400 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	6.0	1.8	4.1										
	9.0	3.4	7.9										
	12.0	5.4	12.5	30	3.2	19	90	2.8					Operation Not Recommended
30	6.0	1.9	4.3										
	9.0	3.3	7.7	33	3.2	22	92	3.0	51	32	1.8	57	27.6
	12.0	5.3	12.1	35	3.3	24	93	3.1	52	33	1.7	58	30.0
40	6.0	1.4	3.3	37	3.3	26	95	3.3	49	32	2.2	57	22.5
	9.0	2.8	6.4	39	3.4	27	96	3.4	51	33	2.0	58	25.3
	12.0	4.4	10.2	40	3.4	28	96	3.5	51	34	1.9	58	27.2
50	6.0	1.4	3.2	42	3.4	30	98	3.6	49	32	2.4	57	20.3
	9.0	2.7	6.3	44	3.5	32	99	3.7	50	33	2.2	58	22.9
	12.0	4.3	9.9	46	3.5	34	100	3.8	51	34	2.1	58	24.3
60	6.0	1.3	3.1	47	3.6	35	101	3.9	48	32	2.6	57	18.1
	9.0	2.6	6.1	50	3.6	38	103	4.1	49	33	2.4	58	20.5
	12.0	4.1	9.5	52	3.6	39	104	4.2	50	34	2.3	58	21.6
70	6.0	1.3	3.0	52	3.7	40	105	4.2	47	32	2.9	57	16.0
	9.0	2.5	5.9	56	3.7	43	107	4.4	48	33	2.7	57	18.2
	12.0	4.0	9.2	58	3.8	45	108	4.5	49	33	2.6	57	19.0
80	6.0	1.3	2.9	58	3.9	45	108	4.4	45	31	3.2	56	13.9
	9.0	2.5	5.7	62	3.9	49	111	4.7	47	32	2.9	57	15.9
	12.0	3.9	8.9	64	3.9	51	112	4.8	47	33	2.8	57	16.5
90	6.0	1.2	2.8	64	4.0	50	112	4.6	43	30	3.6	55	11.9
	9.0	2.4	5.5	69	4.0	55	116	5.0	45	31	3.3	56	13.7
	12.0	3.7	8.6	71	4.1	57	117	5.1	45	32	3.2	56	14.2
100	6.0	1.2	2.7						40	29	4.0	54	10.1
	9.0	2.3	5.3						42	30	3.6	54	11.6
	12.0	3.6	8.3						42	31	3.5	54	12.0
110	6.0	1.1	2.6										
	9.0	2.2	5.1						37	28	4.4	52	8.4
	12.0	3.5	8.0						39	29	4.0	53	9.7

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

8 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR096S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	113.4	4.5	89.9	15.7	91.5	3.9	97.9	22.3	71.9	3.3	93.3	17.9
Part	56.7	4.5	44.9	15.7	45.7	3.9	48.9	22.3	35.9	3.3	46.7	17.9

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
1 1/2	208/230-1-60	1	21	115	10.0	52.0	57.3	70
	208/230-3-60	2	16	115	5.2	37.2	41.2	50
	460-3-60	3	7.7	50	2.6	18.0	19.9	25
	575-3-60	4	6.4	40	2.1	14.9	16.5	20
	380-3-60	6						
2	208/230-1-60	1	21	115	12.0	54.0	59.3	80
	208/230-3-60	2	16	115	6.8	38.8	42.8	50
	460-3-60	3	7.7	50	3.4	18.8	20.7	25
	575-3-60	4	6.4	40	2.7	15.5	17.1	20
	380-3-60	6						
3	208/230-1-60	1	21	115	17.0	59.0	64.3	80
	208/230-3-60	2	16	115	9.6	41.6	45.6	60
	460-3-60	3	7.7	50	4.8	20.2	22.1	25
	575-3-60	4	6.4	40	3.9	16.7	18.3	20
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

10 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR126S Series - R410A

Rated Airflow: 4000 Heating / 4000 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	7.5	1.6	3.7										
	11.3	2.9	6.8										
	15.0	4.7	10.9	79	8.2	51	88	2.8					Operation Not Recommended
30	7.5	1.7	3.9										
	11.3	2.8	6.6	92	8.4	63	91	3.2	139	93	4.6	154	30.3
	15.0	4.6	10.6	95	8.5	66	92	3.3	141	95	4.2	156	33.7
40	7.5	1.3	3.0	101	8.6	71	93	3.4	134	92	5.6	153	23.9
	11.3	2.4	5.5	105	8.7	75	94	3.5	138	94	5.1	155	27.3
	15.0	3.8	8.9	108	8.9	78	95	3.6	140	96	4.7	156	29.7
50	7.5	1.3	2.9	113	9.0	82	96	3.7	133	92	6.2	154	21.4
	11.3	2.3	5.3	118	9.1	87	97	3.8	137	95	5.6	156	24.4
	15.0	3.7	8.6	122	9.2	90	98	3.9	138	97	5.3	156	26.1
60	7.5	1.2	2.8	125	9.3	93	99	3.9	130	92	6.9	154	18.9
	11.3	2.2	5.2	132	9.4	100	101	4.1	134	94	6.2	156	21.6
	15.0	3.6	8.3	136	9.5	104	102	4.2	136	97	6.0	156	22.8
70	7.5	1.2	2.8	138	9.7	105	102	4.2	127	91	7.6	153	16.6
	11.3	2.2	5.0	147	9.8	114	104	4.4	131	93	6.9	155	18.9
	15.0	3.5	8.1	152	9.9	118	105	4.5	132	96	6.7	155	19.8
80	7.5	1.2	2.7	151	10.1	117	105	4.4	122	90	8.5	150	14.4
	11.3	2.1	4.8	163	10.2	128	108	4.7	126	92	7.7	153	16.5
	15.0	3.4	7.8	168	10.3	133	109	4.8	127	94	7.4	153	17.1
90	7.5	1.1	2.6	165	10.6	129	108	4.6	115	87	9.4	147	12.3
	11.3	2.0	4.7	180	10.6	144	112	5.0	121	89	8.5	150	14.1
	15.0	3.3	7.5	186	10.7	149	113	5.1	121	91	8.3	150	14.6
100	7.5	1.1	2.5						108	84	10.4	143	10.3
	11.3	1.9	4.5						113	86	9.5	146	11.9
	15.0	3.1	7.3						114	88	9.2	146	12.4
110	7.5	1.0	2.4							80	11.6	138	8.5
	11.3	1.9	4.3							82	10.6	141	9.9
	15.0	3.0	7.0							84	10.2	141	10.4

Part Load

Rated Airflow: 2000 Heating / 2000 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	7.5	1.6	3.7										
	11.3	2.9	6.8										
	15.0	4.7	10.9	39	4.1	25	88	2.8					Operation Not Recommended
30	7.5	1.7	3.9										
	11.3	2.8	6.6	46	4.2	31	91	3.2	69	46	2.3	77	30.3
	15.0	4.6	10.6	47	4.3	33	92	3.3	71	47	2.1	78	33.7
40	7.5	1.3	3.0	50	4.3	36	93	3.4	67	46	2.8	77	23.9
	11.3	2.4	5.5	52	4.4	37	94	3.5	69	47	2.5	78	27.3
	15.0	3.8	8.9	54	4.4	39	95	3.6	70	48	2.4	78	29.7
50	7.5	1.3	2.9	56	4.5	41	96	3.7	66	46	3.1	77	21.4
	11.3	2.3	5.3	59	4.5	43	97	3.8	68	47	2.8	78	24.4
	15.0	3.7	8.6	61	4.6	45	98	3.9	69	48	2.7	78	26.1
60	7.5	1.2	2.8	63	4.7	47	99	3.9	65	46	3.4	77	18.9
	11.3	2.2	5.2	66	4.7	50	100	4.1	67	47	3.1	78	21.6
	15.0	3.6	8.3	68	4.8	52	101	4.2	68	48	3.0	78	22.8
70	7.5	1.2	2.8	69	4.9	52	102	4.2	63	46	3.8	76	16.6
	11.3	2.2	5.0	73	4.9	57	104	4.4	65	47	3.5	77	18.9
	15.0	3.5	8.1	76	5.0	59	105	4.5	66	48	3.3	77	19.8
80	7.5	1.2	2.7	76	5.1	58	105	4.4	61	45	4.2	75	14.4
	11.3	2.1	4.8	81	5.1	64	108	4.7	63	46	3.8	76	16.5
	15.0	3.4	7.8	84	5.2	66	109	4.8	64	47	3.7	76	17.1
90	7.5	1.1	2.6	83	5.3	65	108	4.6	58	44	4.7	74	12.3
	11.3	2.0	4.7	90	5.3	72	112	5.0	60	45	4.3	75	14.1
	15.0	3.3	7.5	93	5.4	74	113	5.1	61	46	4.1	75	14.6
100	7.5	1.1	2.5						54	42	5.2	72	10.3
	11.3	1.9	4.5						57	43	4.7	73	11.9
	15.0	3.1	7.3						57	44	4.6	73	12.4
110	7.5	1.0	2.4						49	40	5.8	69	8.5
	11.3	1.9	4.3						52	41	5.3	70	9.9
	15.0	3.0	7.0						53	42	5.1	71	10.4

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

10 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR126S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	148.7	4.5	121.8	16.3	121.7	4.0	132.9	23.5	97.6	3.4	126.6	18.6
Part	74.3	4.5	60.9	16.3	60.9	4.0	66.5	23.5	48.8	3.4	63.3	18.6

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
2	208/230-1-60	1	26.3	150	12.0	64.6	71.2	90
	208/230-3-60	2	17.6	120	6.8	42.0	46.4	60
	460-3-60	3	8.3	70	3.4	20.0	22.1	30
	575-3-60	4	7.4	53	2.7	17.5	19.4	25
	380-3-60	6						
3	208/230-1-60	1	26.3	150	17.0	69.6	76.2	100
	208/230-3-60	2	17.6	120	9.6	44.8	49.2	60
	460-3-60	3	8.3	70	4.8	21.4	23.5	30
	575-3-60	4	7.4	53	3.9	18.7	20.6	25
	380-3-60	6						
5	208/230-1-60	1	26.3	150	28.0	80.6	87.2	110
	208/230-3-60	2	17.6	120	15.2	50.4	54.8	70
	460-3-60	3	8.3	70	7.6	24.2	26.3	30
	575-3-60	4	7.4	53	6.1	20.9	22.8	30
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

12 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR140S Series - R410A

Rated Airflow: 4300 Heating / 4300 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	9.0	3.8	8.8										
	13.5	6.0	14.0										
	18.0	9.3	21.6	64	8.9	34	84	2.1	Operation Not Recommended				
30	9.0	4.0	9.3										
	13.5	5.9	13.6	99	9.1	68	91	3.2	152	100	5.1	169	30.0
	18.0	9.1	21.0	99	9.2	68	91	3.1	155	102	4.7	171	33.4
40	9.0	3.1	7.2	110	9.4	78	94	3.5	147	99	6.2	168	23.8
	13.5	4.9	11.3	114	9.5	82	95	3.5	152	101	5.6	171	27.1
	18.0	7.6	17.5	118	9.6	86	95	3.6	154	103	5.2	172	29.4
50	9.0	3.0	7.0	123	9.7	90	97	3.7	146	99	6.8	169	21.3
	13.5	4.8	11.0	129	9.8	95	98	3.9	150	102	6.2	171	24.3
	18.0	7.4	17.0	133	9.9	99	99	3.9	152	104	5.9	172	25.9
60	9.0	2.9	6.7	137	10.1	102	99	4.0	143	99	7.5	169	19.0
	13.5	4.6	10.7	144	10.1	110	101	4.2	147	102	6.8	171	21.6
	18.0	7.1	16.5	149	10.3	114	102	4.3	149	104	6.5	171	22.7
70	9.0	2.8	6.5	151	10.4	115	102	4.2	139	98	8.3	167	16.8
	13.5	4.5	10.3	161	10.5	125	105	4.5	144	100	7.6	170	19.0
	18.0	6.9	15.9	166	10.6	130	106	4.6	145	103	7.3	170	19.9
80	9.0	2.7	6.3	165	10.8	128	106	4.5	134	96	9.1	165	14.6
	13.5	4.3	10.0	178	10.9	141	108	4.8	139	99	8.4	167	16.6
	18.0	6.7	15.4	184	11.0	146	110	4.9	140	101	8.1	167	17.2
90	9.0	2.6	6.1	181	11.3	142	109	4.7	127	94	10.1	161	12.5
	13.5	4.2	9.6	197	11.3	158	112	5.1	132	96	9.2	164	14.3
	18.0	6.4	14.9	203	11.4	164	114	5.2	133	98	9.0	164	14.9
100	9.0	2.5	5.9										
	13.5	4.0	9.3										
	18.0	6.2	14.3	Operation Not Recommended					126	95	9.9	159	12.6
110	9.0	2.4	5.7										
	13.5	3.9	8.9										
	18.0	6.0	13.8										

Part Load

Rated Airflow: 2200 Heating / 2200 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	9.0	3.8	8.8										
	13.5	6.0	14.0										
	18.0	9.3	21.6	32	4.5	17	84	2.1	Operation Not Recommended				
30	9.0	4.0	9.3										
	13.5	5.9	13.6	49	4.6	34	91	3.2	76	51	2.5	85	30.0
	18.0	9.1	21.0	50	4.6	34	91	3.1	78	52	2.3	86	33.4
40	9.0	3.1	7.2	55	4.7	39	93	3.5	74	51	3.1	84	23.8
	13.5	4.9	11.3	57	4.7	41	94	3.5	76	52	2.8	85	27.1
	18.0	7.6	17.5	59	4.8	43	95	3.6	77	53	2.6	86	29.4
50	9.0	3.0	7.0	62	4.9	45	96	3.7	73	51	3.4	85	21.3
	13.5	4.8	11.0	64	4.9	48	97	3.8	75	52	3.1	86	24.3
	18.0	7.4	17.0	66	5.0	49	98	3.9	76	53	2.9	86	25.9
60	9.0	2.9	6.7	68	5.0	51	99	4.0	71	51	3.8	84	19.0
	13.5	4.6	10.7	72	5.1	55	100	4.2	74	52	3.4	85	21.6
	18.0	7.1	16.5	74	5.1	57	101	4.2	74	53	3.3	86	22.7
70	9.0	2.8	6.5	75	5.2	58	102	4.2	69	50	4.1	84	16.8
	13.5	4.5	10.3	80	5.3	62	104	4.5	72	51	3.8	85	19.0
	18.0	6.9	15.9	83	5.3	64	105	4.6	72	53	3.6	85	19.9
80	9.0	2.7	6.3	83	5.4	64	105	4.5	67	49	4.6	82	14.6
	13.5	4.3	10.0	89	5.5	70	107	4.8	69	50	4.2	84	16.6
	18.0	6.7	15.4	92	5.5	73	109	4.9	70	52	4.0	84	17.2
90	9.0	2.6	6.1	90	5.6	71	108	4.7	63	48	5.0	81	12.5
	13.5	4.2	9.6	98	5.7	79	111	5.1	66	49	4.6	82	14.3
	18.0	6.4	14.9	101	5.7	82	113	5.2	67	50	4.5	82	14.9
100	9.0	2.5	5.9										
	13.5	4.0	9.3										
	18.0	6.2	14.3	Operation Not Recommended					63	48	5.0	80	12.6
110	9.0	2.4	5.7										
	13.5	3.9	8.9										
	18.0	6.0	13.8										

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

12 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR140S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	162.5	4.6	133.8	16.5	133.1	4.0	145.9	23.5	105.6	3.4	139.0	18.8
Part	81.3	4.6	66.9	16.5	66.5	4.0	72.9	23.5	52.8	3.4	69.5	18.8

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
2	208/230-1-60	1	30.1	145	12.0	72.2	79.7	100
	208/230-3-60	2	17.6	120	6.8	42.0	46.4	60
	460-3-60	3	9.6	70	3.4	22.6	25.0	30
	575-3-60	4	8	53	2.7	18.7	20.7	25
	380-3-60	6						
3	208/230-1-60	1	30.1	145	17.0	77.2	84.7	110
	208/230-3-60	2	17.6	120	9.6	44.8	49.2	60
	460-3-60	3	9.6	70	4.8	24.0	26.4	35
	575-3-60	4	8	53	3.9	19.9	21.9	25
	380-3-60	6						
5	208/230-1-60	1	30.1	145	28.0	88.2	95.7	125
	208/230-3-60	2	17.6	120	15.2	50.4	54.8	70
	460-3-60	3	9.6	70	7.6	26.8	29.2	35
	575-3-60	4	8	53	6.1	22.1	24.1	30
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

GeoFurnace 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. Please contact GeoFurnace at 1-605-854-9205 for latest design and specifications. 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 contract between the parties, but are merely GeoFurnace's opinion or commendation of its products.

Rev: 26 May, 2010 - GFM-AJS

14 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data



Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____

MR164S Series - R410A

Magnum Series
 Water Source Heat Pump

Rated Airflow: 5100 Heating / 5100 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	10.5	4.3	9.9						Operation Not Recommended				
	15.8	5.6	13.1										
	21.0	7.4	17.0	79	11.0	41	84	2.1					
30	10.5	4.5	10.5										
	15.8	5.5	12.7	87	11.2	49	86	2.3	180	118	6.4	201	28.2
	21.0	7.1	16.5	114	11.3	75	91	2.9	183	121	5.8	203	31.3
40	10.5	3.5	8.1										
	15.8	4.6	10.6	119	11.5	80	92	3.0	174	117	7.8	200	22.4
	21.0	6.0	13.8	134	11.6	94	94	3.4	179	120	7.0	203	25.5
50	10.5	3.4	7.8										
	15.8	4.5	10.3	141	11.7	101	96	3.5	182	123	6.6	204	27.6
	21.0	5.8	13.4	147	11.9	107	97	3.6	172	118	8.5	201	20.2
60	10.5	3.3	7.6										
	15.8	4.3	10.0	154	12.0	113	98	3.8	177	121	7.7	204	22.9
	21.0	5.6	13.0	159	12.1	118	99	3.8	179	123	7.3	204	24.4
70	10.5	3.2	7.3										
	15.8	4.2	9.6	163	12.3	121	100	3.9	169	118	9.3	201	18.1
	21.0	5.4	12.6	172	12.4	130	101	4.1	174	120	8.5	203	20.5
80	10.5	3.1	7.1										
	15.8	4.0	9.3	178	12.5	135	102	4.2	176	123	8.2	204	21.5
	21.0	5.3	12.1	180	12.7	136	103	4.1	164	116	10.2	199	16.1
90	10.5	3.0	6.8										
	15.8	3.9	9.0	191	12.8	148	105	4.4	170	119	9.4	202	18.1
	21.0	5.1	11.7	198	12.9	154	106	4.5	171	122	9.1	202	18.9
100	10.5	2.9	6.6										
	15.8	3.8	8.7	197	13.1	152	106	4.4	158	114	11.2	196	14.1
	21.0	4.9	11.3	212	13.2	167	109	4.7	164	117	10.3	199	15.9
110	10.5	2.8	6.4										
	15.8	3.6	8.4	219	13.3	173	110	4.8	165	120	10.0	199	16.5
	21.0	4.7	10.9	215	13.6	169	109	4.6	150	111	12.3	192	12.2
100	10.5	2.9	6.6										
	15.8	3.8	8.7	234	13.7	188	113	5.0	157	114	11.3	195	13.9
	21.0	4.9	11.3	241	13.8	194	114	5.1	158	117	11.0	195	14.3
100	10.5	2.9	6.6										
	15.8	3.8	8.7	Operation Not Recommended					140	107	13.5	186	10.4
	21.0	4.9	11.3						147	110	12.4	190	11.9
110	10.5	2.8	6.4										
	15.8	3.6	8.4						149	112	12.1	190	12.3
	21.0	4.7	10.9						128	102	14.8	179	8.6
110	10.5	2.8	6.4										
	15.8	3.6	8.4						136	104	13.7	183	10.0
	21.0	4.7	10.9						138	107	13.3	183	10.4

Part Load

Rated Airflow: 2600 Heating / 2600 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	10.5	4.3	9.9						Operation Not Recommended				
	15.8	5.6	13.1										
	21.0	7.4	17.0	39	5.5	21	84	2.1					
30	10.5	4.5	10.5										
	15.8	5.5	12.7	44	5.6	24	86	2.3	90	60	3.2	101	28.2
	21.0	7.1	16.5	57	5.7	38	90	2.9	92	62	2.9	102	31.3
40	10.5	3.5	8.1										
	15.8	4.6	10.6	60	5.7	40	91	3.0	87	60	3.9	100	22.4
	21.0	6.0	13.8	67	5.8	47	94	3.4	89	61	3.5	101	25.5
50	10.5	3.4	7.8										
	15.8	4.5	10.3	70	5.9	50	95	3.5	91	63	3.3	102	27.6
	21.0	5.8	13.4	74	5.9	53	96	3.6	86	60	4.3	101	20.2
60	10.5	3.3	7.6										
	15.8	4.3	10.0	77	6.0	56	97	3.8	89	62	3.9	102	22.9
	21.0	5.6	13.0	79	6.1	58	98	3.8	90	63	3.7	102	24.4
70	10.5	3.2	7.3										
	15.8	4.2	9.6	82	6.1	61	99	3.9	85	60	4.7	100	18.1
	21.0	5.4	12.6	86	6.2	65	101	4.1	87	61	4.3	102	20.5
80	10.5	3.1	7.1										
	15.8	4.0	9.3	88	6.2	67	101	4.1	88	63	4.1	102	21.5
	21.0	5.3	12.1	90	6.3	68	102	4.1	82	59	5.1	100	16.1
90	10.5	3.0	6.8										
	15.8	3.9	9.0	96	6.4	74	104	4.4	85	61	4.7	101	18.1
	21.0	5.1	11.7	98	6.4	76	105	4.5	86	62	4.5	101	18.9
100	10.5	2.9	6.6										
	15.8	3.8	8.7	98	6.6	76	105	4.4	79	58	5.6	98	14.1
	21.0	4.9	11.3	106	6.6	83	108	4.7	82	60	5.1	100	15.9
110	10.5	2.8	6.4										
	15.8	3.6	8.4	109	6.7	86	109	4.8	83	61	5.0	100	16.5
	21.0	4.7	10.9	107	6.8	84	108	4.6	75	57	6.1	96	12.2
100	10.5	2.9	6.6										
	15.8	3.8	8.7	117	6.8	94	112	5.0	78	58	5.7	98	13.9
	21.0	4.9	11.3	120	6.9	97	113	5.1	79	59	5.5	98	14.3
110	10.5	2.8	6.4										
	15.8	3.6	8.4	Operation Not Recommended					70	54	6.7	93	10.4
	21.0	4.7	10.9						74	56	6.2	95	11.9
110	10.5	2.8	6.4										
	15.8	3.6	8.4						74	57	6.1	95	12.3
	21.0	4.7	10.9						64	52	7.4	89	8.6
110	10.5	2.8	6.4										
	15.8	3.6	8.4						68	53	6.8	92	10.0
	21.0	4.7	10.9						69	55	6.6	92	10.4

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

14 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR164S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	193.6	4.5	158.3	15.9	158.8	3.9	172.4	22.2	120.2	3.1	164.4	18.0
Part	96.8	4.5	79.2	15.9	79.4	3.9	86.2	22.2	60.1	3.1	82.2	18.0

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
2	208/230-1-60	1	26.9	145	12.0	65.8	72.5	90
	208/230-3-60	2	23	160	6.8	52.8	58.6	80
	460-3-60	3	12.2	87	3.4	27.8	30.9	40
	575-3-60	4	8.6	62	2.7	19.9	22.1	30
	380-3-60	6						
3	208/230-1-60	1	26.9	145	17.0	70.8	77.5	100
	208/230-3-60	2	23	160	9.6	55.6	61.4	80
	460-3-60	3	12.2	87	4.8	29.2	32.3	40
	575-3-60	4	8.6	62	3.9	21.1	23.3	30
	380-3-60	6						
5	208/230-1-60	1	26.9	145	28.0	81.8	88.5	110
	208/230-3-60	2	23	160	15.2	61.2	67.0	80
	460-3-60	3	12.2	87	7.6	32.0	35.1	45
	575-3-60	4	8.6	62	6.1	23.3	25.5	30
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

GeoFurnace 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. Please contact GeoFurnace at 1-605-854-9205 for latest design and specifications. 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 contract between the parties, but are merely GeoFurnace's opinion or commendation of its products.

Rev: 26 May, 2010 - GFM--AJS

18 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR220S Series - R410A

Rated Airflow: 6500 Heating / 6500 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	13.5	3.7	8.6										
	20.3	5.2	12.0										
	27.0	7.4	17.0	112	13.7	66	86	2.4					
30	13.5	4.0	9.1										
	20.3	5.1	11.7	117	14.0	69	87	2.4	242	151	9.3	274	26.2
	27.0	7.1	16.5	150	14.2	102	91	3.1	248	154	8.8	278	28.1
40	13.5	3.0	7.0	167	14.4	118	94	3.4	234	149	10.6	270	22.0
	20.3	4.2	9.8	177	14.6	127	95	3.5	241	153	9.9	275	24.3
	27.0	6.0	13.8	190	14.8	139	97	3.8	245	156	9.5	278	25.8
50	13.5	2.9	6.8	198	15.0	146	98	3.9	231	150	11.5	270	20.1
	20.3	4.1	9.5	206	15.2	154	99	4.0	238	154	10.7	275	22.3
	27.0	5.8	13.4	213	15.4	160	100	4.0	241	157	10.3	276	23.5
60	13.5	2.9	6.6	219	15.7	165	101	4.1	226	150	12.4	268	18.2
	20.3	4.0	9.2	230	15.9	176	103	4.2	234	153	11.5	273	20.3
	27.0	5.6	13.0	238	16.1	183	104	4.3	236	157	11.1	274	21.2
70	13.5	2.8	6.4	241	16.4	184	104	4.3	220	148	13.5	266	16.3
	20.3	3.9	8.9	256	16.6	199	106	4.5	227	152	12.5	270	18.2
	27.0	5.4	12.6	264	16.9	207	108	4.6	229	155	12.1	270	18.9
80	13.5	2.7	6.2	264	17.2	205	108	4.5	211	146	14.7	261	14.4
	20.3	3.7	8.6	284	17.5	224	110	4.8	219	149	13.5	266	16.2
	27.0	5.3	12.1	292	17.7	232	112	4.8	221	153	13.2	266	16.7
90	13.5	2.6	6.0	288	18.1	226	111	4.7	201	141	16.0	256	12.6
	20.3	3.6	8.3	313	18.4	250	115	5.0	210	145	14.8	260	14.2
	27.0	5.1	11.7	322	18.6	259	116	5.1	211	148	14.4	260	14.7
100	13.5	2.5	5.7						190	136	17.6	250	10.8
	20.3	3.5	8.0						198	140	16.2	254	12.3
	27.0	4.9	11.3						200	143	15.8	254	12.7
110	13.5	2.4	5.5						177	129	19.3	243	9.2
	20.3	3.3	7.7						186	133	17.8	246	10.5
	27.0	4.7	10.9						187	136	17.3	246	10.8

Part Load

Rated Airflow: 3300 Heating / 3300 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	13.5	3.7	8.6										
	20.3	5.2	12.0										
	27.0	7.4	17.0	56	6.8	33	86	2.4					
30	13.5	4.0	9.1										
	20.3	5.1	11.7	58	7.0	34	86	2.4	121	76	4.6	137	26.2
	27.0	7.1	16.5	75	7.1	51	91	3.1	124	78	4.4	139	28.1
40	13.5	3.0	7.0	84	7.2	59	93	3.4	117	76	5.3	135	22.0
	20.3	4.2	9.8	88	7.3	64	95	3.5	121	78	5.0	138	24.3
	27.0	6.0	13.8	95	7.4	69	97	3.7	123	79	4.8	139	25.8
50	13.5	2.9	6.8	99	7.5	73	98	3.9	115	76	5.7	135	20.1
	20.3	4.1	9.5	103	7.6	77	99	4.0	119	78	5.3	137	22.3
	27.0	5.8	13.4	106	7.7	80	100	4.0	121	80	5.1	138	23.5
60	13.5	2.9	6.6	109	7.9	82	101	4.1	113	76	6.2	134	18.2
	20.3	4.0	9.2	115	8.0	88	102	4.2	117	78	5.8	136	20.3
	27.0	5.6	13.0	118	8.1	91	103	4.3	118	80	5.6	137	21.2
70	13.5	2.8	6.4	120	8.2	92	104	4.3	110	75	6.7	133	16.3
	20.3	3.9	8.9	128	8.3	99	106	4.5	114	77	6.2	135	18.2
	27.0	5.4	12.6	131	8.4	103	107	4.6	114	79	6.1	135	18.9
80	13.5	2.7	6.2	132	8.6	102	107	4.5	106	74	7.3	131	14.4
	20.3	3.7	8.6	141	8.7	112	110	4.8	110	76	6.8	133	16.2
	27.0	5.3	12.1	146	8.9	115	111	4.8	110	77	6.6	133	16.7
90	13.5	2.6	6.0	144	9.0	113	110	4.7	101	72	8.0	128	12.6
	20.3	3.6	8.3	156	9.2	125	114	5.0	105	74	7.4	130	14.2
	27.0	5.1	11.7	160	9.3	129	115	5.1	105	75	7.2	130	14.7
100	13.5	2.5	5.7						95	69	8.8	125	10.8
	20.3	3.5	8.0						99	71	8.1	127	12.3
	27.0	4.9	11.3						100	73	7.9	127	12.7
110	13.5	2.4	5.5						88	66	9.7	121	9.2
	20.3	3.3	7.7						93	68	8.9	123	10.5
	27.0	4.7	10.9						94	69	8.6	123	10.8

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

18 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR220S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	258.7	4.6	211.5	16.2	212.7	4.1	231.3	21.9	156.8	3.3	219.7	18.1
Part	129.3	4.6	105.8	16.2	106.4	4.1	115.6	21.9	78.4	3.3	109.8	18.1

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
2	208/230-1-60	1	26.6	235	12.0	65.2	71.9	90
	208/230-3-60	2	26.6	235	6.8	60.0	66.7	90
	460-3-60	3	12.2	110	3.4	27.8	30.9	40
	575-3-60	4	10.9	95	2.7	24.5	27.2	35
	380-3-60	6	18.6	124	4.1	41.3	46.0	60
3	208/230-1-60	1	26.6	235	17.0	70.2	76.9	100
	208/230-3-60	2	26.6	235	9.6	62.8	69.5	90
	460-3-60	3	12.2	110	4.8	29.2	32.3	40
	575-3-60	4	10.9	95	3.9	25.7	28.4	35
	380-3-60	6	18.6	124	5.8	43.0	47.7	60
5	208/230-1-60	1	26.6	235	28.0	81.2	87.9	110
	208/230-3-60	2	26.6	235	15.2	68.4	75.1	100
	460-3-60	3	12.2	110	7.6	32.0	35.1	45
	575-3-60	4	10.9	95	6.1	27.9	30.6	40
	380-3-60	6	18.6	124	9.2	46.4	51.1	60

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

20 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR260S Series - R410A
Rated Airflow: 8000 Heating / 8000 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	15.0	1.0	2.2										
	22.5	2.0	4.7										
	30.0	3.6	8.3	123	15.2	71	84	2.4					
30	15.0	1.0	2.4										
	22.5	2.0	4.6	136	15.7	82	86	2.5	292	185	11.4	331	25.6
	30.0	3.5	8.0	177	16.0	123	91	3.3	299	190	11.0	337	27.1
40	15.0	0.8	1.8	185	16.3	130	91	3.3	281	184	12.8	325	22.0
	22.5	1.7	3.8	207	16.5	151	94	3.7	290	188	12.1	332	24.0
	30.0	2.9	6.7	219	16.8	162	95	3.8	295	192	11.7	335	25.2
50	15.0	0.8	1.8	228	17.1	170	96	3.9	277	185	13.7	324	20.3
	22.5	1.6	3.7	239	17.4	180	98	4.0	286	189	12.9	330	22.2
	30.0	2.8	6.5	247	17.6	187	99	4.1	290	194	12.5	333	23.3
60	15.0	0.7	1.7	253	18.0	192	99	4.1	271	185	14.7	322	18.5
	22.5	1.6	3.6	267	18.3	205	101	4.3	281	189	13.8	328	20.4
	30.0	2.7	6.3	276	18.6	213	102	4.4	283	193	13.4	329	21.2
70	15.0	0.7	1.7	279	18.9	215	102	4.3	263	183	15.9	318	16.6
	22.5	1.5	3.5	298	19.3	232	105	4.5	273	187	14.8	323	18.4
	30.0	2.6	6.1	308	19.6	241	106	4.6	275	191	14.4	324	19.1
80	15.0	0.7	1.6	307	20.0	239	106	4.5	253	179	17.2	312	14.8
	22.5	1.5	3.4	331	20.4	261	108	4.8	263	183	16.0	318	16.5
	30.0	2.6	5.9	341	20.7	271	110	4.8	265	188	15.5	318	17.0
90	15.0	0.7	1.5	336	21.1	264	109	4.7	241	174	18.6	305	12.9
	22.5	1.4	3.2	366	21.6	292	112	5.0	251	178	17.3	310	14.5
	30.0	2.5	5.7	378	22.0	302	114	5.0	253	183	16.9	310	15.0
100	15.0	0.6	1.5						227	168	20.3	296	11.2
	22.5	1.4	3.1						237	172	18.8	301	12.6
	30.0	2.4	5.5						239	176	18.3	302	13.0
110	15.0	0.6	1.4						210	159	22.1	285	9.5
	22.5	1.3	3.0						221	164	20.5	291	10.8
	30.0	2.3	5.3						224	168	19.9	292	11.2

Part Load

Rated Airflow: 4000 Heating / 4000 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	15.0	1.0	2.2										
	22.5	2.0	4.7										
	30.0	3.6	8.3	61	7.6	35	84	2.4					
30	15.0	1.0	2.4										
	22.5	2.0	4.6	68	7.9	41	86	2.5	146	93	5.7	166	25.6
	30.0	3.5	8.0	88	8.0	61	90	3.2	150	95	5.5	168	27.1
40	15.0	0.8	1.8	93	8.1	65	91	3.3	141	92	6.4	162	22.0
	22.5	1.7	3.8	103	8.3	75	94	3.7	145	94	6.1	166	24.0
	30.0	2.9	6.7	109	8.4	81	95	3.8	148	96	5.9	168	25.2
50	15.0	0.8	1.8	114	8.5	85	96	3.9	139	92	6.8	162	20.3
	22.5	1.6	3.7	119	8.7	90	98	4.0	143	95	6.4	165	22.2
	30.0	2.8	6.5	123	8.8	93	98	4.1	145	97	6.2	166	23.3
60	15.0	0.7	1.7	127	9.0	96	99	4.1	136	92	7.4	161	18.5
	22.5	1.6	3.6	133	9.1	102	101	4.3	140	94	6.9	164	20.4
	30.0	2.7	6.3	137	9.3	106	102	4.3	142	97	6.7	164	21.2
70	15.0	0.7	1.7	140	9.5	107	102	4.3	132	91	7.9	159	16.6
	22.5	1.5	3.5	149	9.6	116	104	4.5	136	93	7.4	162	18.4
	30.0	2.6	6.1	153	9.8	120	105	4.6	137	96	7.2	162	19.1
80	15.0	0.7	1.6	153	10.0	119	106	4.5	127	90	8.6	156	14.8
	22.5	1.5	3.4	165	10.2	130	108	4.7	132	92	8.0	159	16.5
	30.0	2.6	5.9	170	10.4	135	109	4.8	132	94	7.8	159	17.0
90	15.0	0.7	1.5	168	10.6	132	109	4.7	121	87	9.3	152	12.9
	22.5	1.4	3.2	183	10.8	146	112	4.9	126	89	8.6	155	14.5
	30.0	2.5	5.7	188	11.0	150	113	5.0	126	91	8.4	155	15.0
100	15.0	0.6	1.5						113	84	10.1	148	11.2
	22.5	1.4	3.1						119	86	9.4	151	12.6
	30.0	2.4	5.5						120	88	9.2	151	13.0
110	15.0	0.6	1.4						105	80	11.1	143	9.5
	22.5	1.3	3.0						111	82	10.2	146	10.8
	30.0	2.3	5.3						112	84	10.0	146	11.2

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

20 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR260S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	301.4	4.6	253.7	16.5	246.6	4.2	277.6	22.0	184.3	3.4	263.5	18.4
Part	150.7	4.6	126.8	16.5	123.3	4.2	138.8	22.0	92.2	3.4	131.8	18.4

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
3	208/230-1-60	1	31	235	17.0	79.0	86.8	110
	208/230-3-60	2	31	235	9.6	71.6	79.4	110
	460-3-60	3	16	110	4.8	36.8	40.8	50
	575-3-60	4	11.9	95	3.9	27.7	30.7	40
	380-3-60	6	21.4	160	5.8	48.6	54.0	70
5	208/230-1-60	1	31	235	28.0	90.0	97.8	125
	208/230-3-60	2	31	235	15.2	77.2	85.0	110
	460-3-60	3	16	110	7.6	39.6	43.6	50
	575-3-60	4	11.9	95	6.1	29.9	32.9	40
	380-3-60	6	21.4	160	9.2	52.0	57.4	70
7 1/2	208/230-1-60	1	31	235	40.0	102.0	109.8	125
	208/230-3-60	2	31	235	22.0	84.0	91.8	110
	460-3-60	3	16	110	11.0	43.0	47.0	60
	575-3-60	4	11.9	95	9.0	32.8	35.8	45
	380-3-60	6	21.4	160	13.3	56.1	61.5	80

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

GeoFurnace 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. Please contact GeoFurnace at 1-605-854-9205 for latest design and specifications. 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 contract between the parties, but are merely GeoFurnace's opinion or commendation of its products.

Rev: 26 May, 2010 - GFM--AJS

25 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data



Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____

MR290S Series - R410A

Magnum Series
 Water Source Heat Pump

Rated Airflow: 9000 Heating / 9000 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	18.8	2.2	5.0										
	28.1	3.1	7.2										
	37.5	4.2	9.8	122	18.3	60	83	2.0	Operation Not Recommended				
30	18.8	2.3	5.3										
	28.1	3.0	7.0	160	18.7	96	86	2.5	329	209	12.5	372	26.2
	37.5	4.1	9.5	198	19.0	133	90	3.1	337	213	11.9	378	28.2
40	18.8	1.8	4.1	196	19.2	130	90	3.0	316	207	14.4	365	22.0
	28.1	2.5	5.9	242	19.5	176	95	3.6	327	212	13.5	373	24.3
	37.5	3.4	8.0	253	19.7	186	96	3.8	333	216	12.9	377	25.8
50	18.8	1.7	4.0	263	20.0	195	97	3.9	311	208	15.5	364	20.1
	28.1	2.5	5.7	274	20.3	205	98	4.0	322	213	14.4	372	22.3
	37.5	3.3	7.7	283	20.5	213	99	4.0	327	218	13.9	374	23.5
60	18.8	1.7	3.9	290	20.9	219	100	4.1	304	208	16.7	361	18.2
	28.1	2.4	5.5	306	21.1	234	101	4.2	315	213	15.5	368	20.3
	37.5	3.2	7.5	315	21.4	242	102	4.3	318	217	15.0	370	21.2
70	18.8	1.6	3.7	319	21.8	245	103	4.3	294	205	18.0	355	16.3
	28.1	2.3	5.3	339	22.0	264	105	4.5	305	210	16.8	363	18.2
	37.5	3.1	7.2	350	22.3	273	106	4.6	308	215	16.3	364	18.9
80	18.8	1.6	3.6	349	22.8	271	106	4.5	282	202	19.5	348	14.4
	28.1	2.2	5.2	375	23.1	296	109	4.8	293	206	18.1	355	16.2
	37.5	3.0	7.0	386	23.4	306	110	4.8	296	211	17.7	356	16.7
90	18.8	1.5	3.5	380	23.8	298	109	4.7	267	196	21.3	340	12.6
	28.1	2.2	5.0	412	24.2	330	112	5.0	279	201	19.7	347	14.2
	37.5	2.9	6.8	425	24.5	341	114	5.1	281	206	19.2	347	14.7
100	18.8	1.5	3.4						251	188	23.2	330	10.8
	28.1	2.1	4.8						263	193	21.4	336	12.3
	37.5	2.8	6.5	Operation Not Recommended					265	198	20.9	337	12.7
110	18.8	1.4	3.2						233	179	25.4	319	9.2
	28.1	2.0	4.6						245	184	23.4	325	10.5
	37.5	2.7	6.3						248	189	22.8	326	10.8

Part Load

Rated Airflow: 4500 Heating / 4500 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	18.8	2.2	5.0										
	28.1	3.1	7.2										
	37.5	4.2	9.8	61	9.1	30	83	2.0	Operation Not Recommended				
30	18.8	2.3	5.3										
	28.1	3.0	7.0	80	9.4	48	86	2.5	165	104	6.3	186	26.2
	37.5	4.1	9.5	99	9.5	67	90	3.1	168	107	6.0	189	28.2
40	18.8	1.8	4.1	98	9.6	65	90	3.0	158	103	7.2	183	22.0
	28.1	2.5	5.9	121	9.7	88	95	3.6	164	106	6.7	186	24.3
	37.5	3.4	8.0	126	9.9	92	96	3.7	167	108	6.4	189	25.8
50	18.8	1.7	4.0	132	10.0	97	97	3.9	156	104	7.7	182	20.1
	28.1	2.5	5.7	137	10.1	102	98	4.0	161	106	7.2	186	22.3
	37.5	3.3	7.7	141	10.3	106	99	4.0	163	109	7.0	187	23.5
60	18.8	1.7	3.9	145	10.4	110	100	4.1	152	104	8.3	180	18.2
	28.1	2.4	5.5	153	10.6	117	101	4.2	158	106	7.8	184	20.3
	37.5	3.2	7.5	157	10.7	120	102	4.3	159	109	7.5	185	21.2
70	18.8	1.6	3.7	159	10.9	122	103	4.3	147	103	9.0	178	16.3
	28.1	2.3	5.3	169	11.0	132	105	4.5	153	105	8.4	181	18.2
	37.5	3.1	7.2	174	11.2	136	106	4.6	154	108	8.1	182	18.9
80	18.8	1.6	3.6	174	11.4	135	106	4.5	141	101	9.8	174	14.4
	28.1	2.2	5.2	187	11.5	148	108	4.8	147	103	9.1	178	16.2
	37.5	3.0	7.0	192	11.7	152	110	4.8	148	106	8.8	178	16.7
90	18.8	1.5	3.5	190	11.9	149	109	4.7	134	98	10.6	170	12.6
	28.1	2.2	5.0	206	12.1	164	112	5.0	140	100	9.8	173	14.2
	37.5	2.9	6.8	211	12.3	170	114	5.1	141	103	9.6	173	14.7
100	18.8	1.5	3.4						125	94	11.6	165	10.8
	28.1	2.1	4.8						132	97	10.7	168	12.3
	37.5	2.8	6.5	Operation Not Recommended					133	99	10.5	168	12.7
110	18.8	1.4	3.2						116	90	12.7	160	9.2
	28.1	2.0	4.6						123	92	11.7	163	10.5
	37.5	2.7	6.3						124	94	11.4	163	10.8

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

25 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR290S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	342.9	4.6	282.5	16.2	283.0	4.1	312.0	21.9	212.0	3.3	294.5	18.1
Part	171.4	4.6	141.3	16.2	141.5	4.1	156.0	21.9	106.0	3.3	147.2	18.1

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
5	208/230-1-60	1	35.2	250	28.0	98.4	107.2	125
	208/230-3-60	2	35.2	250	15.2	85.6	94.4	125
	460-3-60	3	19.2	140	7.6	46.0	50.8	60
	575-3-60	4	14.5	100	6.1	35.1	38.7	50
	380-3-60	6						
7 1/2	208/230-1-60	1	35.2	250	40.0	110.4	119.2	150
	208/230-3-60	2	35.2	250	22.0	92.4	101.2	125
	460-3-60	3	19.2	140	11.0	49.4	54.2	70
	575-3-60	4	14.5	100	9.0	38.0	41.6	50
	380-3-60	6						
10	208/230-1-60	1	35.2	250	50.0	120.4	129.2	150
	208/230-3-60	2	35.2	250	28.0	98.4	107.2	125
	460-3-60	3	19.2	140	14.0	52.4	57.2	70
	575-3-60	4	14.5	100	11.0	40.0	43.6	50
	380-3-60	6						

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

30 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR350S Series - R410A

Rated Airflow: 11000 Heating / 11000 Cooling

Magnum Series
 Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	22.5	1.5	3.5										
	33.8	2.5	5.7										
	45.0	3.7	8.5	227	20.3	158	89	3.3					
30	22.5	1.6	3.7										
	33.8	2.4	5.5	246	21.0	175	91	3.4	375	255	14.5	425	25.8
	45.0	3.6	8.3	263	21.3	190	92	3.6	378	261	13.6	425	27.8
40	22.5	1.2	2.8	278	21.7	204	93	3.8	371	253	16.9	428	21.9
	33.8	2.0	4.6	287	22.0	212	94	3.8	378	259	15.7	432	24.1
	45.0	3.0	6.9	297	22.4	221	95	3.9	381	265	15.0	432	25.5
50	22.5	1.2	2.8	309	22.8	232	96	4.0	369	254	18.2	431	20.2
	33.8	1.9	4.5	323	23.1	244	97	4.1	377	260	17.0	435	22.2
	45.0	2.9	6.7	334	23.5	254	98	4.2	380	266	16.3	436	23.3
60	22.5	1.2	2.7	343	23.9	261	99	4.2	364	254	19.6	431	18.5
	33.8	1.9	4.4	361	24.3	278	100	4.4	373	260	18.3	436	20.4
	45.0	2.8	6.5	373	24.7	289	101	4.4	376	266	17.7	436	21.2
70	22.5	1.1	2.6	377	25.2	291	102	4.4	355	251	21.2	427	16.7
	33.8	1.8	4.2	402	25.6	314	104	4.6	366	257	19.7	433	18.5
	45.0	2.7	6.3	414	26.0	326	105	4.7	367	263	19.2	433	19.2
80	22.5	1.1	2.5	413	26.5	323	105	4.6	342	246	22.9	420	14.9
	33.8	1.8	4.1	444	27.0	352	107	4.8	354	252	21.3	427	16.6
	45.0	2.6	6.1	458	27.4	364	109	4.9	356	258	20.8	427	17.1
90	22.5	1.0	2.4	450	27.9	355	108	4.7	326	239	24.8	411	13.1
	33.8	1.7	3.9	489	28.5	391	111	5.0	339	245	23.0	418	14.7
	45.0	2.6	5.9	503	28.9	404	112	5.1	341	251	22.5	418	15.2
100	22.5	1.0	2.3						307	230	26.9	399	11.4
	33.8	1.6	3.8						321	236	25.0	406	12.9
	45.0	2.5	5.7						323	242	24.4	407	13.3
110	22.5	1.0	2.2						285	219	29.3	385	9.7
	33.8	1.6	3.6						300	225	27.2	393	11.0
	45.0	2.4	5.5						303	231	26.5	393	11.4

Part Load

Rated Airflow: 5500 Heating / 5500 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	22.5	1.5	3.5										
	33.8	2.5	5.7										
	45.0	3.7	8.5	114	10.2	79	89	3.3					
30	22.5	1.6	3.7										
	33.8	2.4	5.5	123	10.5	87	91	3.4	188	127	7.3	212	25.8
	45.0	3.6	8.3	131	10.6	95	92	3.6	189	130	6.8	212	27.8
40	22.5	1.2	2.8	139	10.8	102	93	3.8	185	126	8.5	214	21.9
	33.8	2.0	4.6	143	11.0	106	94	3.8	189	129	7.9	216	24.1
	45.0	3.0	6.9	148	11.2	110	95	3.9	191	132	7.5	216	25.5
50	22.5	1.2	2.8	155	11.4	116	96	4.0	184	127	9.1	216	20.2
	33.8	1.9	4.5	161	11.6	122	97	4.1	189	130	8.5	218	22.2
	45.0	2.9	6.7	166	11.7	126	98	4.1	190	133	8.2	218	23.3
60	22.5	1.2	2.7	171	12.0	130	99	4.2	182	127	9.8	215	18.5
	33.8	1.9	4.4	180	12.2	139	100	4.3	187	130	9.2	218	20.4
	45.0	2.8	6.5	186	12.4	144	101	4.4	188	133	8.9	218	21.2
70	22.5	1.1	2.6	189	12.6	146	102	4.4	177	126	10.6	213	16.7
	33.8	1.8	4.2	201	12.8	157	104	4.6	183	129	9.9	216	18.5
	45.0	2.7	6.3	206	13.0	162	105	4.6	184	132	9.6	216	19.2
80	22.5	1.1	2.5	207	13.2	161	105	4.6	171	123	11.5	210	14.9
	33.8	1.8	4.1	222	13.5	176	107	4.8	177	126	10.7	213	16.6
	45.0	2.6	6.1	228	13.7	181	108	4.9	178	129	10.4	213	17.1
90	22.5	1.0	2.4	225	14.0	177	108	4.7	163	120	12.4	205	13.1
	33.8	1.7	3.9	244	14.2	195	111	5.0	170	123	11.5	209	14.7
	45.0	2.6	5.9	250	14.4	201	112	5.1	171	126	11.3	209	15.2
100	22.5	1.0	2.3						153	115	13.5	199	11.4
	33.8	1.6	3.8						161	118	12.5	203	12.9
	45.0	2.5	5.7						162	121	12.2	203	13.3
110	22.5	1.0	2.2						142	110	14.7	192	9.7
	33.8	1.6	3.6						150	113	13.6	196	11.0
	45.0	2.4	5.5						151	115	13.2	197	11.4

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

30 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR350S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	406.2	4.7	342.0	16.7	333.7	4.2	368.7	22.0	269.1	3.7	354.1	18.5
Part	203.1	4.7	171.0	16.7	166.9	4.2	184.4	22.0	134.6	3.7	177.0	18.5

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
7 1/2	208/230-1-60	1						
	208/230-3-60	2	45.7	304	22.0	113.4	124.8	150
	460-3-60	3	21.4	147	11.0	53.8	59.2	80
	575-3-60	4	18.6	122	9.0	46.2	50.9	60
	380-3-60	6	26.4	168	13.3	66.1	72.7	90
10	208/230-1-60	1						
	208/230-3-60	2	45.7	304	28.0	119.4	130.8	150
	460-3-60	3	21.4	147	14.0	56.8	62.2	80
	575-3-60	4	18.6	122	11.0	48.2	52.9	70
	380-3-60	6	26.4	168	16.9	69.7	76.3	100
15	208/230-1-60	1						
	208/230-3-60	2	45.7	304	42.0	133.4	144.8	150
	460-3-60	3	21.4	147	21.0	63.8	69.2	90
	575-3-60	4	18.6	122	17.0	54.2	58.9	70
	380-3-60	6	26.4	168	25.4	78.2	84.8	110

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

GeoFurnace 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. Please contact GeoFurnace at 1-605-854-9205 for latest design and specifications. 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 contract between the parties, but are merely GeoFurnace's opinion or commendation of its products.

Rev: 26 May, 2010 - GFM--AJS

38 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR450S Series - R410A

Rated Airflow: 14000 Heating / 14000 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	28.5	2.0	4.6	212	26.8	121	84	2.3	Operation Not Recommended				
	42.8	3.4	7.9										
	57.0	5.1	11.8										
30	28.5	2.1	4.9	233	27.4	139	85	2.5	497	324	15.3	549	32.4
	42.8	3.3	7.7	304	27.8	209	90	3.2	506	332	13.3	551	37.9
	57.0	5.0	11.5	317	28.2	221	91	3.3	482	322	19.9	549	24.3
40	28.5	1.6	3.7	355	28.5	258	94	3.7	495	329	17.7	556	28.0
	42.8	2.8	6.4	376	28.9	277	95	3.8	502	337	16.2	558	31.1
	57.0	4.2	9.6	392	29.3	292	96	3.9	476	324	22.0	551	21.7
50	28.5	1.6	3.6	409	29.7	308	97	4.0	490	331	19.9	558	24.6
	42.8	2.7	6.2	423	30.1	320	98	4.1	496	339	18.7	560	26.5
	57.0	4.0	9.3	434	30.6	330	99	4.2	467	323	24.1	549	19.4
60	28.5	1.5	3.5	459	31.0	353	100	4.3	482	331	22.0	557	21.8
	42.8	2.6	6.0	473	31.4	366	101	4.4	486	338	21.1	558	23.0
	57.0	3.9	9.0	479	31.9	370	102	4.4	454	320	26.3	543	17.3
70	28.5	1.5	3.4	511	32.4	401	104	4.6	469	327	24.2	552	19.4
	42.8	2.5	5.9	527	32.8	415	105	4.7	472	335	23.4	552	20.2
	57.0	3.8	8.7	526	33.5	412	105	4.6	436	314	28.6	534	15.3
80	28.5	1.4	3.3	567	34.0	451	107	4.9	453	321	26.4	543	17.1
	42.8	2.4	5.7	584	34.4	467	109	5.0	456	329	25.7	543	17.7
	57.0	3.7	8.5	575	35.2	455	108	4.8	416	305	31.2	522	13.3
90	28.5	1.4	3.2	625	35.8	503	111	5.1	433	312	28.8	531	15.0
	42.8	2.4	5.5	644	36.3	520	113	5.2	436	320	28.1	531	15.5
	57.0	3.5	8.2	Operation Not Recommended					391	293	34.1	507	11.5
100	28.5	1.3	3.1						409	301	31.5	517	13.0
	42.8	2.3	5.3						412	308	30.7	517	13.4
	57.0	3.4	7.9	363	279	37.6	491	9.7					
110	28.5	1.3	2.9	382	286	34.5	500	11.1					
	42.8	2.2	5.1	386	294	33.6	500	11.5					
	57.0	3.3	7.6										

Part Load

Rated Airflow: 7000 Heating / 7000 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	28.5	2.0	4.6	105	13.4	60	84	2.3	Operation Not Recommended				
	42.8	3.4	7.9										
	57.0	5.1	11.8										
30	28.5	2.1	4.9	116	13.7	69	85	2.5	248	162	7.7	274	32.4
	42.8	3.3	7.7	151	13.9	104	90	3.2	253	166	6.7	276	37.9
	57.0	5.0	11.5	159	14.1	111	91	3.3	241	161	9.9	275	24.3
40	28.5	1.6	3.7	177	14.3	129	93	3.6	248	165	8.8	278	28.0
	42.8	2.8	6.4	187	14.4	138	95	3.8	251	168	8.1	279	31.1
	57.0	4.2	9.6	196	14.7	146	96	3.9	238	162	11.0	275	21.7
50	28.5	1.6	3.6	204	14.8	154	97	4.0	245	166	9.9	279	24.6
	42.8	2.7	6.2	211	15.0	159	98	4.1	248	169	9.4	280	26.5
	57.0	4.0	9.3	217	15.3	165	99	4.2	233	162	12.0	274	19.4
60	28.5	1.5	3.5	229	15.5	176	100	4.3	241	165	11.0	278	21.8
	42.8	2.6	6.0	236	15.7	182	101	4.4	243	169	10.6	279	23.0
	57.0	3.9	9.0	240	16.0	185	102	4.4	227	160	13.1	272	17.3
70	28.5	1.5	3.4	255	16.2	200	104	4.6	235	164	12.1	276	19.4
	42.8	2.5	5.9	262	16.4	206	105	4.7	236	167	11.7	276	20.2
	57.0	3.8	8.7	263	16.7	206	105	4.6	218	157	14.3	267	15.3
80	28.5	1.4	3.3	283	17.0	225	107	4.9	226	161	13.2	272	17.1
	42.8	2.4	5.7	291	17.2	232	108	4.9	228	164	12.8	272	17.7
	57.0	3.7	8.5	287	17.6	227	108	4.8	208	152	15.6	261	13.3
90	28.5	1.4	3.2	312	17.9	251	111	5.1	216	156	14.4	266	15.0
	42.8	2.4	5.5	321	18.2	259	112	5.2	218	160	14.0	266	15.5
	57.0	3.5	8.2	Operation Not Recommended					195	147	17.1	254	11.5
100	28.5	1.3	3.1						205	150	15.7	258	13.0
	42.8	2.3	5.3						206	154	15.3	258	13.4
	57.0	3.4	7.9	181	139	18.8	245	9.7					
110	28.5	1.3	2.9	191	143	17.2	250	11.1					
	42.8	2.2	5.1	193	147	16.8	250	11.5					
	57.0	3.3	7.6										

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

38 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR450S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	516.5	4.7	436.9	17.1	422.8	4.2	476.4	23.8	315.8	3.4	453.6	19.2
Part	258.2	4.7	218.5	17.1	211.4	4.2	238.2	23.8	157.9	3.4	226.8	19.2

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
7 1/2	208/230-1-60	1						
	208/230-3-60	2	55.7	320	22.0	133.4	147.3	200
	460-3-60	3	27	180	11.0	65.0	71.8	90
	575-3-60	4	21.4	135	9.0	51.8	57.2	70
	380-3-60	6	32.9	210	13.3	79.1	87.3	110
10	208/230-1-60	1						
	208/230-3-60	2	55.7	320	28.0	139.4	153.3	200
	460-3-60	3	27	180	14.0	68.0	74.8	100
	575-3-60	4	21.4	135	11.0	53.8	59.2	80
	380-3-60	6	32.9	210	16.9	82.7	91.0	110
15	208/230-1-60	1						
	208/230-3-60	2	55.7	320	42.0	153.4	167.3	200
	460-3-60	3	27	180	21.0	75.0	81.8	100
	575-3-60	4	21.4	135	17.0	59.8	65.2	80
	380-3-60	6	32.9	210	25.4	91.2	99.4	125

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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Rev: 26 May, 2010 - GFM--AJS

50 Ton - Dual Compressor Forced Air Rooftop - Submittal/Performance Data

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR620S Series - R410A

Rated Airflow: 18000 Heating / 18000 Cooling

Magnum Series
Water Source Heat Pump

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	37.5	2.8	6.5										
	56.3	4.5	10.4										
	75.0	6.9	16.0	293	36.5	168	85	2.4	Operation Not Recommended				
30	37.5	3.0	6.8										
	56.3	4.4	10.1	321	37.5	194	87	2.5	667	417	24.6	751	27.0
	75.0	6.7	15.6	420	38.0	290	92	3.2	675	427	23.4	754	28.9
40	37.5	2.3	5.2	438	38.5	306	93	3.3	654	414	28.5	751	23.0
	56.3	3.7	8.4	490	39.0	357	95	3.7	669	423	26.5	760	25.2
	75.0	5.6	13.0	519	39.5	384	97	3.8	676	433	25.3	763	26.7
50	37.5	2.2	5.1	540	40.2	403	98	3.9	649	416	30.7	754	21.1
	56.3	3.5	8.2	564	40.7	425	99	4.1	666	426	28.6	763	23.3
	75.0	5.5	12.6	582	41.2	442	100	4.1	672	436	27.5	765	24.5
60	37.5	2.1	4.9	597	41.9	454	101	4.2	638	415	33.2	751	19.2
	56.3	3.4	7.9	630	42.5	485	102	4.3	657	425	30.9	762	21.3
	75.0	5.3	12.2	650	43.0	503	103	4.4	661	435	29.8	763	22.2
70	37.5	2.1	4.8	657	43.8	508	104	4.4	621	411	36.1	744	17.2
	56.3	3.3	7.7	700	44.4	548	106	4.6	641	421	33.4	755	19.2
	75.0	5.1	11.8	721	45.0	568	107	4.7	645	430	32.4	756	19.9
80	37.5	2.0	4.6	719	45.8	563	107	4.6	597	403	39.2	731	15.2
	56.3	3.2	7.4	773	46.5	614	110	4.9	620	413	36.3	744	17.1
	75.0	5.0	11.4	796	47.1	635	111	5.0	623	423	35.3	744	17.7
90	37.5	1.9	4.5	783	48.0	619	110	4.8	569	392	42.8	715	13.3
	56.3	3.1	7.2	849	48.7	683	114	5.1	593	401	39.5	728	15.0
	75.0	4.8	11.1	873	49.4	705	115	5.2	596	411	38.5	728	15.5
100	37.5	1.9	4.3						535	377	46.8	695	11.4
	56.3	3.0	6.9	Operation Not Recommended					560	387	43.2	708	13.0
	75.0	4.6	10.7	Operation Not Recommended					564	396	42.1	708	13.4
110	37.5	1.8	4.1						496	359	51.3	671	9.7
	56.3	2.9	6.6	Operation Not Recommended					523	368	47.3	684	11.1
	75.0	4.4	10.3	Operation Not Recommended					528	378	46.0	685	11.5

Part Load

Rated Airflow: 9000 Heating / 9000 Cooling

EWT °F	WATER/BRINE			Heating - EAT 70°F					Cooling - EAT 80/67°F				
	FLOW gpm	PD psi	PD ft.	HC kBtu/hr	Pwr kW	HE kBtu/hr	LAT °F	COP	TC kBtu/hr	SC kBtu/hr	Pwr kW	HR kBtu/hr	EER
20	37.5	2.8	6.5										
	56.3	4.5	10.4										
	75.0	6.9	16.0	146	18.2	83	85	2.3	Operation Not Recommended				
30	37.5	3.0	6.8										
	56.3	4.4	10.1	160	18.7	96	86	2.5	333	209	12.3	375	27.0
	75.0	6.7	15.6	209	19.0	144	91	3.2	337	213	11.7	377	28.9
40	37.5	2.3	5.2	219	19.3	153	93	3.3	327	207	14.2	376	23.0
	56.3	3.7	8.4	245	19.5	178	95	3.7	335	212	13.3	380	25.2
	75.0	5.6	13.0	258	19.8	191	97	3.8	338	216	12.7	381	26.7
50	37.5	2.2	5.1	270	20.1	201	98	3.9	324	208	15.4	377	21.1
	56.3	3.5	8.2	281	20.3	212	99	4.1	333	213	14.3	382	23.3
	75.0	5.5	12.6	290	20.6	220	100	4.1	336	218	13.7	383	24.5
60	37.5	2.1	4.9	299	21.0	227	101	4.2	319	208	16.6	376	19.2
	56.3	3.4	7.9	314	21.2	242	102	4.3	328	213	15.4	381	21.3
	75.0	5.3	12.2	324	21.5	250	103	4.4	331	217	14.9	382	22.2
70	37.5	2.1	4.8	329	21.9	254	104	4.4	310	205	18.0	372	17.2
	56.3	3.3	7.7	349	22.2	273	106	4.6	321	210	16.7	378	19.2
	75.0	5.1	11.8	359	22.5	282	107	4.7	323	215	16.2	378	19.9
80	37.5	2.0	4.6	360	22.9	282	107	4.6	299	202	19.6	366	15.2
	56.3	3.2	7.4	386	23.2	306	110	4.9	310	206	18.1	372	17.1
	75.0	5.0	11.4	396	23.5	316	111	4.9	312	211	17.7	372	17.7
90	37.5	1.9	4.5	392	24.0	310	110	4.8	284	196	21.4	357	13.3
	56.3	3.1	7.2	423	24.4	340	114	5.1	296	201	19.8	364	15.0
	75.0	4.8	11.1	435	24.7	350	115	5.2	298	206	19.3	364	15.5
100	37.5	1.9	4.3						267	188	23.4	347	11.4
	56.3	3.0	6.9	Operation Not Recommended					280	193	21.6	354	13.0
	75.0	4.6	10.7	Operation Not Recommended					282	198	21.0	354	13.4
110	37.5	1.8	4.1						248	179	25.6	336	9.7
	56.3	2.9	6.6	Operation Not Recommended					262	184	23.6	342	11.1
	75.0	4.4	10.3	Operation Not Recommended					264	189	23.0	343	11.5

Interpolation is permissible; extrapolation is not.
 Operation below 40°F EWT is based upon a 15% antifreeze solution.
 All performance is based upon the lower voltage of dual voltage rated units.
 Table does not reflect fan or pump power corrections for ARI/ISO conditions.
 See performance correction tables for operating conditions other than those listed above.
 Water flow rate is per circuit - dual compressor units have 2 circuits

50 Ton - Dual Compressor Forced Air Rooftop - Performance Summary

Project: _____ Date: _____
 Engineer: _____ Unit No. _____
 Contractor: _____ PO: _____



MR620S Series - R410A

Forced Air

Performance ISO 13256-1

Magnum Series

Water Source Heat Pump

Loading/ Capacity	Water Loop				Ground Water				Ground Loop			
	Heating 68°F EWT		Cooling 86°F EWT		Heating 50°F EWT		Cooling 59°F EWT		Heating 32/41°F EWT Full/Part		Cooling 77/68°F EWT Full/Part	
	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER	kBtu/hr	COP	kBtu/hr	EER
Full	707.3	4.7	598.0	17.1	581.9	4.2	649.0	23.0	435.7	3.4	620.3	19.1
Part	353.6	4.7	299.0	17.1	291.0	4.2	324.5	23.0	217.9	3.4	310.1	19.1

Electrical Specification

Fan Motor HP	Voltage	Elect. Symbol	Compressor		Fan Motor FLA	Max Unit FLA	Min. Ampacity*	Max. Fuse/HAC R*
			RLA	LRA				
15	208/230-1-60	1						
	208/230-3-60	2	75	485	42.0	192.0	210.8	250
	460-3-60	3	36.4	215	21.0	93.8	102.9	125
	575-3-60	4	29.3	175	17.0	75.6	82.9	110
	380-3-60	6	42.9	260	25.4	111.2	121.9	150
20	208/230-1-60	1						
	208/230-3-60	2	75	485	54.0	204.0	222.8	250
	460-3-60	3	36.4	215	27.0	99.8	108.9	125
	575-3-60	4	29.3	175	22.0	80.6	87.9	110
	380-3-60	6	42.9	260	32.7	118.5	129.2	150
30	208/230-1-60	1						
	208/230-3-60	2	75	485	80.0	230.0	248.8	300
	460-3-60	3	36.4	215	40.0	112.8	121.9	150
	575-3-60	4	29.3	175	32.0	90.6	97.9	125
	380-3-60	6	42.9	260	48.4	134.2	144.9	150

*Where calculations are based on:

MCA = 1.25 x RLA compressor + FLA other motors

MOP = 2.25 x RLA largest compressor + 1.00 x FLA other motors

Ensure that all loads on the supply line are added into the equations above, blank cells indicate a voltage that is not available

HACR circuit breaker for use in USA only. All fuses Class RK-5

Ratings for the compressor are per circuit

Dual compressor units have 2 circuits

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