

Single Stage Water to Air Submittal/Performance Data

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



GeoFurnace Manufacturing

Magnum

Water Source Heat Pump

(MA-S) Single Stage Water to Air Submittal Data

**Non-Standard Units
Models MA 006-042S
60 Hz - R410A**

Revision: 26 May, 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 degrees Fahrenheit because the refrigerant may be low as 32 degrees 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:

$$LWT = EWT + \frac{HR}{GPM \times 500} \quad LC = TC - SC$$

$$LAT (DB) = EAT (DB) - \frac{SC}{CFM \times 1.08} \quad S/T = \frac{SC}{TC}$$

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 convenience.

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

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0.5 - 3.5 Ton - Single Stage Forced Air Performance Summary

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



Single Stage Forced Air - R410A
 Performance ISO 13256-1

Magnum Series
 Water Source Heat Pump

Model	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
6	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
10	11.9	4.6	9.7	15.0	9.8	4.0	10.7	21.3	8.7	4.7	10.1	17.1
12	14.9	4.7	12.2	15.6	12.2	4.2	13.4	22.5	10.0	3.9	12.7	17.8
14	16.6	4.7	13.5	15.4	13.4	4.1	14.0	20.7	13.8	4.3	13.8	17.2
17	20.0	4.6	16.2	15.0	16.4	4.1	17.9	21.0	13.5	3.8	16.9	16.9
18	21.2	4.6	17.2	14.9	17.5	4.1	18.9	20.8	14.2	4.0	17.9	16.8
19	22.8	4.6	18.4	15.3	18.6	4.0	20.2	22.0	14.9	3.5	19.1	17.4
23	26.8	4.7	21.8	15.5	21.7	4.2	24.0	21.7	18.3	3.7	22.7	17.5
29	35.1	4.7	28.6	15.3	28.9	4.2	31.8	21.6	19.6	3.2	29.9	17.3
30	35.8	4.8	29.4	16.0	29.4	4.2	31.0	22.0	23.8	3.6	30.6	18.2
42	50.5	4.9	41.5	16.5	41.2	4.3	45.1	23.7	32.5	3.7	43.0	18.8

Heating capacity is based on entering air temperature of 68 dry bulb / 59 wet bulb

5/4/2010

Cooling capacity based on entering air temperature of 80.6 dry bulb / 66.2 wet bulb

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.

Electrical Specifications

Model	Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
			RLA	LRA						
6	115/120-1-60	5	5.1	27.0	1.5	2.9	0.4	9.9	11.2	15.0
	208/230-1-60	1	#N/A	#N/A	1.5	2.9	0.4	#N/A	#N/A	#N/A
10	115/120-1-60	5	8.0	50.0	1.5	2.9	0.4	12.8	14.8	20.0
	208/230-1-60	1	3.7	22.0	1.5	2.9	0.4	8.5	9.4	15.0
12	115/120-1-60	5	9.5	50.0	1.5	2.9	0.4	14.3	16.7	25.0
	208/230-1-60	1	4.7	25.0	1.5	2.9	0.4	9.5	10.7	15.0
14	115/120-1-60	5	10.5	57.0	1.5	2.9	0.4	15.3	17.9	25.0
	208/230-1-60	1	5.2	25.0	1.5	2.9	0.4	10.0	11.3	15.0
17	115/120-1-60	5	12.3	63.0	1.5	3.6	0.4	17.8	20.9	30.0
	208/230-1-60	1	6.3	32.0	1.5	3.6	0.4	11.8	13.4	15.0
18	115/120-1-60	5	13.5	66.0	1.5	3.6	0.4	19.0	22.4	35.0
	208/230-1-60	1	6.6	33.0	1.5	3.6	0.4	12.1	13.8	20.0
19	208/230-1-60	1	8.0	39.0	1.5	3.6	0.4	13.5	15.5	20.0
	208/230-3-60	2	#N/A	#N/A	1.5	3.6	0.4	#N/A	#N/A	#N/A
23	208/230-1-60	1	8.3	44.0	1.5	4.3	0.4	14.5	16.6	20.0
	208/230-3-60	2	#N/A	#N/A	1.5	4.3	0.4	#N/A	#N/A	#N/A
29	208/230-1-60	1	11.2	53.0	1.5	4.3	0.4	17.4	20.2	30.0
	208/230-3-60	2	#N/A	#N/A	1.5	4.3	0.4	#N/A	#N/A	#N/A
30	208/230-1-60	1	12.9	59.0	1.5	4.3	0.4	19.1	22.3	35.0
	208/230-3-60	2	#N/A	#N/A	1.5	4.3	0.4	#N/A	#N/A	#N/A
42	208/230-1-60	1	20.0	115.0	1.5	4.3	0.4	26.2	31.2	50.0
	208/230-3-60	2	12.8	95.0	1.5	4.3	0.4	19.0	22.2	35.0
	460-3-60	3	6.4	45.0	1.5	4.3	0.4	12.6	14.2	20.0

*Where calculations are based on:

5/26/2010

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 if some of the cells in the above table are blank

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

For #N/A, the specified voltage is NOT available

0.5 - 3.5 Ton - Single Stage Forced Air 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
6	0.9	0.8	0.8	0.6	0.5	0.5	0.5	0.4
	1.4	1.7	1.7	1.2	1.1	1.0	1.0	0.9
	1.9	2.6	2.6	1.8	1.7	1.6	1.5	1.4
10	1.5	2.3	2.2	1.6	1.5	1.4	1.3	1.3
	2.3	4.4	4.3	3.1	2.9	2.7	2.5	2.4
	3.0	7.1	6.9	4.9	4.6	4.3	4.0	3.8
12	1.5	1.8	1.8	1.3	1.2	1.1	1.0	1.0
	2.3	3.1	3.0	2.1	2.0	1.9	1.7	1.7
	3.0	4.6	4.5	3.2	3.0	2.8	2.6	2.5
14	1.9	1.2	1.2	0.9	0.8	0.8	0.7	0.7
	2.8	3.9	3.8	2.7	2.6	2.4	2.2	2.1
	3.8	7.7	7.5	5.4	5.0	4.7	4.4	4.2
17	2.4	2.1	2.0	1.4	1.3	1.2	1.2	1.1
	3.6	3.9	3.8	2.7	2.5	2.4	2.2	2.1
	4.8	6.2	6.0	4.3	4.0	3.8	3.5	3.4
18	2.3	1.6	1.5	1.1	1.0	1.0	0.9	0.9
	3.4	2.7	2.7	1.9	1.8	1.7	1.5	1.5
	4.5	4.3	4.2	3.0	2.8	2.6	2.4	2.3
19	2.6	1.9	1.8	1.3	1.2	1.1	1.0	1.0
	3.8	3.3	3.2	2.3	2.1	2.0	1.9	1.8
	5.1	5.2	5.1	3.6	3.4	3.2	3.0	2.8
23	3.0	1.2	1.2	0.9	0.8	0.7	0.7	0.7
	4.5	2.2	2.2	1.5	1.4	1.3	1.2	1.2
	6.0	3.5	3.4	2.5	2.3	2.1	2.0	1.9
29	3.8	1.1	1.1	0.8	0.7	0.7	0.6	0.6
	5.6	2.3	2.2	1.6	1.5	1.4	1.3	1.3
	7.5	4.1	4.0	2.8	2.6	2.5	2.3	2.2
30	3.8	2.2	2.2	1.5	1.4	1.3	1.2	1.2
	5.6	3.1	3.0	2.2	2.0	1.9	1.8	1.7
	7.5	4.6	4.5	3.2	3.0	2.8	2.6	2.5
42	5.3	2.0	2.0	1.4	1.3	1.2	1.1	1.1
	7.9	2.8	2.7	1.9	1.8	1.7	1.6	1.5
	10.5	4.0	3.9	2.8	2.6	2.4	2.3	2.2

*Pressure drop thru each coaxial heat exchanger - below 40°F based on 23% PG

5/4/2010

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0.5 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA06S Series - R410A

Rated Airflow: 200 Heating / 180 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	0.9	0.7	1.7	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	Operation Not Recommended				
	1.4	1.5	3.5										
	1.9	2.3	5.3										
30	0.9	0.8	1.8	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.2	#VALUE!	#VALUE!	#VALUE!
	1.4	1.5	3.4	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.3	#VALUE!	#VALUE!	#VALUE!
	1.9	2.2	5.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
40	0.9	0.6	1.4	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.1	#VALUE!	#VALUE!	#VALUE!
	1.4	1.2	2.8	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.2	#VALUE!	#VALUE!	#VALUE!
	1.9	1.9	4.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.3	#VALUE!	#VALUE!	#VALUE!
50	0.9	0.6	1.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.2	#VALUE!	#VALUE!	#VALUE!
	1.4	1.2	2.7	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.3	#VALUE!	#VALUE!	#VALUE!
	1.9	1.8	4.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.4	#VALUE!	#VALUE!	#VALUE!
60	0.9	0.6	1.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.2	#VALUE!	#VALUE!	#VALUE!
	1.4	1.1	2.6	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.3	#VALUE!	#VALUE!	#VALUE!
	1.9	1.8	4.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.3	#VALUE!	#VALUE!	#VALUE!
70	0.9	0.5	1.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.1	#VALUE!	#VALUE!	#VALUE!
	1.4	1.1	2.6	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.2	#VALUE!	#VALUE!	#VALUE!
	1.9	1.7	3.9	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.3	#VALUE!	#VALUE!	#VALUE!
80	0.9	0.5	1.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.0	#VALUE!	#VALUE!	#VALUE!
	1.4	1.1	2.5	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.1	#VALUE!	#VALUE!	#VALUE!
	1.9	1.6	3.8	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.2	#VALUE!	#VALUE!	#VALUE!
90	0.9	0.5	1.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	3.9	#VALUE!	#VALUE!	#VALUE!
	1.4	1.0	2.4	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.0	#VALUE!	#VALUE!	#VALUE!
	1.9	1.6	3.7	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	4.1	#VALUE!	#VALUE!	#VALUE!
100	0.9	0.5	1.1	Operation Not Recommended					#VALUE!	3.8	#VALUE!	#VALUE!	#VALUE!
	1.4	1.0	2.3						#VALUE!	3.9	#VALUE!	#VALUE!	#VALUE!
	1.9	1.5	3.5						#VALUE!	4.0	#VALUE!	#VALUE!	#VALUE!
110	0.9	0.5	1.1	Operation Not Recommended					#VALUE!	3.6	#VALUE!	#VALUE!	#VALUE!
	1.4	1.0	2.2						#VALUE!	3.7	#VALUE!	#VALUE!	#VALUE!
	1.9	1.5	3.4						#VALUE!	3.8	#VALUE!	#VALUE!	#VALUE!

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.

Performance ISO 13256-1

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	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
115/120-1-60	5	5.1	27	1.5	2.9	0.4	9.9	11.2	15
208/230-1-60	1	#N/A	#N/A	1.5	2.9	0.4	#N/A	#N/A	#N/A

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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0.75 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA010S Series - R410A

Rated Airflow: 350 Heating / 310 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	1.5	2.0	4.7						Operation Not Recommended				
	2.3	3.9	9.0										
	3.0	6.2	14.4	9.0	0.3	8.1	93.9	9.2					
30	1.5	2.1	5.0						Operation Not Recommended				
	2.3	3.8	8.8	8.6	0.5	6.9	92.6	5.2					
	3.0	6.0	14.0	8.5	0.5	6.7	92.5	4.7					
40	1.5	1.7	3.8	8.6	0.6	6.5	92.7	4.1	10.9	7.1	0.5	12.6	21.6
	2.3	3.2	7.3	8.7	0.6	6.5	93.0	4.0	11.3	7.3	0.5	12.8	24.7
	3.0	5.1	11.7	8.8	0.7	6.6	93.3	3.9	11.5	7.5	0.4	12.9	27.0
50	1.5	1.6	3.7	9.1	0.7	6.7	94.1	3.8	10.7	7.2	0.6	12.6	19.4
	2.3	3.1	7.1	9.4	0.7	7.0	95.0	3.9	11.1	7.3	0.5	12.8	22.0
	3.0	4.9	11.3	9.7	0.7	7.2	95.7	3.9	11.3	7.5	0.5	12.9	23.6
60	1.5	1.6	3.6	10.0	0.7	7.5	96.4	4.0	10.4	7.2	0.6	12.5	17.3
	2.3	3.0	6.9	10.5	0.7	8.0	97.9	4.2	10.8	7.3	0.6	12.7	19.6
	3.0	4.8	11.0	10.9	0.7	8.3	98.8	4.3	11.0	7.5	0.5	12.8	20.6
70	1.5	1.5	3.5	11.0	0.8	8.5	99.2	4.3	10.1	7.1	0.7	12.3	15.2
	2.3	2.9	6.7	11.8	0.8	9.1	101.1	4.5	10.5	7.2	0.6	12.6	17.3
	3.0	4.6	10.6	12.1	0.8	9.4	101.9	4.5	10.6	7.4	0.6	12.6	18.0
80	1.5	1.5	3.3	12.1	0.8	9.4	102.0	4.5	9.6	6.9	0.7	12.1	13.3
	2.3	2.8	6.4	12.8	0.8	10.0	103.9	4.6	10.1	7.1	0.7	12.3	15.1
	3.0	4.4	10.3	13.1	0.8	10.2	104.6	4.6	10.1	7.3	0.6	12.4	15.7
90	1.5	1.4	3.2	12.9	0.9	10.0	104.2	4.4	9.1	6.7	0.8	11.8	11.5
	2.3	2.7	6.2	13.6	0.9	10.4	105.9	4.3	9.5	6.9	0.7	12.0	13.1
	3.0	4.3	9.9	13.7	1.0	10.4	106.2	4.1	9.6	7.1	0.7	12.0	13.6
100	1.5	1.4	3.1	Operation Not Recommended					8.5	6.5	0.9	11.4	9.9
	2.3	2.6	6.0						8.9	6.7	0.8	11.7	11.3
	3.0	4.1	9.6						9.0	6.8	0.8	11.7	11.7
110	1.5	1.3	3.0	Operation Not Recommended					7.7	6.2	0.9	10.9	8.3
	2.3	2.5	5.8						8.3	6.3	0.9	11.2	9.5
	3.0	4.0	9.2						8.4	6.5	0.8	11.2	9.9

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.

Performance ISO 13256-1

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	11.9	4.6	9.7	15.0	9.8	4.0	10.7	21.3	8.7	4.7	10.1	17.1

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
115/120-1-60	5	8	50	1.5	2.9	0.4	12.8	14.8	20
208/230-1-60	1	3.7	22	1.5	2.9	0.4	8.5	9.4	15

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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.

1 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA012S Series - R410A

Rated Airflow: 415 Heating / 390 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	1.5	1.6	3.8						Operation Not Recommended				
	2.3	2.7	6.2										
	3.0	4.1	9.4	8.2	0.7	5.8	88.4	3.4					
30	1.5	1.7	4.0						Operation Not Recommended				
	2.3	2.6	6.0	9.2	0.8	6.6	90.4	3.5					
	3.0	3.9	9.1	9.5	0.8	6.8	91.2	3.6					
40	1.5	1.3	3.0	10.1	0.8	7.4	92.6	3.7	13.5	9.0	0.6	15.5	23.1
	2.3	2.2	5.1	10.4	0.8	7.7	93.3	3.8	13.9	9.2	0.5	15.7	27.2
	3.0	3.3	7.6	10.8	0.8	8.0	94.1	3.9	14.1	9.4	0.5	15.7	30.7
50	1.5	1.3	3.0	11.3	0.8	8.5	95.2	4.0	13.4	9.0	0.7	15.6	20.4
	2.3	2.1	4.9	11.8	0.8	8.9	96.3	4.1	13.8	9.2	0.6	15.8	23.6
	3.0	3.2	7.4	12.2	0.9	9.2	97.2	4.1	13.9	9.4	0.5	15.8	25.6
60	1.5	1.2	2.9	12.6	0.9	9.6	98.0	4.2	13.1	9.0	0.7	15.6	18.0
	2.3	2.1	4.7	13.2	0.9	10.2	99.5	4.4	13.5	9.2	0.7	15.8	20.6
	3.0	3.1	7.2	13.6	0.9	10.6	100.4	4.4	13.6	9.4	0.6	15.8	21.9
70	1.5	1.2	2.8	13.9	0.9	10.7	100.9	4.4	12.7	8.9	0.8	15.4	15.9
	2.3	2.0	4.6	14.8	0.9	11.6	102.9	4.6	13.1	9.1	0.7	15.6	18.1
	3.0	3.0	6.9	15.2	1.0	11.9	103.9	4.7	13.2	9.3	0.7	15.6	18.9
80	1.5	1.2	2.7	15.2	1.0	11.9	104.0	4.6	12.2	8.7	0.9	15.2	13.9
	2.3	1.9	4.4	16.4	1.0	13.0	106.5	4.9	12.7	8.9	0.8	15.4	15.7
	3.0	2.9	6.7	16.8	1.0	13.4	107.5	4.9	12.7	9.2	0.8	15.4	16.3
90	1.5	1.1	2.6	16.6	1.0	13.1	107.1	4.8	11.5	8.5	1.0	14.8	12.0
	2.3	1.9	4.3	18.0	1.0	14.5	110.2	5.1	12.1	8.7	0.9	15.1	13.6
	3.0	2.8	6.5	18.5	1.1	14.9	111.3	5.1	12.1	8.9	0.9	15.1	14.1
100	1.5	1.1	2.5	Operation Not Recommended					10.8	8.2	1.1	14.4	10.2
	2.3	1.8	4.1						11.3	8.4	1.0	14.7	11.7
	3.0	2.7	6.2						11.4	8.6	0.9	14.7	12.1
110	1.5	1.0	2.4	Operation Not Recommended					9.9	7.8	1.2	13.9	8.5
	2.3	1.7	4.0						10.5	8.0	1.1	14.2	9.8
	3.0	2.6	6.0						10.6	8.2	1.0	14.2	10.2

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.

Performance ISO 13256-1

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	14.9	4.7	12.2	15.6	12.2	4.2	13.4	22.5	10.0	3.9	12.7	17.8

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
115/120-1-60	5	9.5	50	1.5	2.9	0.4	14.3	16.7	25
208/230-1-60	1	4.7	25	1.5	2.9	0.4	9.5	10.7	15

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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1.2 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA014S Series - R410A

Magnum Series

Rated Airflow: 540 Heating / 432 Cooling

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	1.9	1.1	2.5	18.3	1.1	14.6	101.4	4.9	Operation Not Recommended				
	2.8	3.5	8.0										
	3.8	6.8	15.7										
30	1.9	1.2	2.7	14.9	1.0	11.4	95.5	4.3	14.0	10.0	0.5	15.7	28.5
	2.8	3.4	7.8						13.9	10.2	0.4	15.3	33.8
	3.8	6.6	15.3										
40	1.9	0.9	2.0	13.2	1.0	9.9	92.6	4.0	14.1	9.9	0.7	16.4	21.2
	2.8	2.8	6.5						14.1	10.2	0.6	16.1	24.3
	3.8	5.5	12.8						14.0	10.4	0.5	15.8	26.9
50	1.9	0.9	2.0	12.9	1.0	9.6	92.0	3.9	14.2	10.0	0.7	16.7	19.1
	2.8	2.7	6.3						14.2	10.2	0.7	16.5	21.4
	3.8	5.4	12.4						14.2	10.5	0.6	16.3	22.9
60	1.9	0.8	1.9	13.7	1.0	10.4	93.5	4.1	14.2	10.0	0.8	17.0	17.2
	2.8	2.6	6.1						14.3	10.2	0.7	16.8	19.2
	3.8	5.2	12.0						14.3	10.4	0.7	16.7	20.1
70	1.9	0.8	1.9	15.2	1.0	11.7	96.1	4.3	13.9	9.9	0.9	17.0	15.5
	2.8	2.6	5.9						14.2	10.1	0.8	17.0	17.2
	3.8	5.0	11.6						14.2	10.3	0.8	16.9	17.9
80	1.9	0.8	1.8	16.8	1.1	13.2	98.9	4.6	13.5	9.7	1.0	16.8	13.7
	2.8	2.5	5.7						13.9	9.9	0.9	17.0	15.4
	3.8	4.9	11.2						14.0	10.1	0.9	17.0	15.9
90	1.9	0.8	1.7	18.1	1.1	14.3	101.0	4.8	12.7	9.4	1.1	16.3	11.9
	2.8	2.4	5.5						13.3	9.6	1.0	16.7	13.5
	3.8	4.7	10.8						13.4	9.9	1.0	16.7	13.9
100	1.9	0.7	1.7	Operation Not Recommended					11.7	9.0	1.2	15.6	10.0
	2.8	2.3	5.3						12.5	9.3	1.1	16.1	11.6
	3.8	4.5	10.5						12.6	9.5	1.1	16.2	12.0
110	1.9	0.7	1.6	Operation Not Recommended					10.4	8.6	1.3	14.7	8.2
	2.8	2.2	5.1						11.3	8.8	1.2	15.3	9.7
	3.8	4.4	10.1						11.5	9.1	1.1	15.4	10.1

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.

Performance ISO 13256-1

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	16.6	4.7	13.5	15.4	13.4	4.1	14.0	20.7	13.8	4.3	13.8	17.2

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
115/120-1-60	5	10.5	57	1.5	2.9	0.4	15.3	17.9	25
208/230-1-60	1	5.2	25	1.5	2.9	0.4	10.0	11.3	15

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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1.4 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA017S Series - R410A

Rated Airflow: 560 Heating / 520 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	2.4	1.8	4.2	11.3	1.0	7.8	88.7	3.2	Operation Not Recommended				
	3.6	3.4	7.9										
	4.8	5.4	12.6										
30	2.4	1.9	4.4	12.4	1.1	8.8	90.6	3.4	19.2	12.0	0.7	21.7	26.3
	3.6	3.3	7.7	12.8	1.1	9.2	91.2	3.5	19.8	12.3	0.7	22.1	28.9
	4.8	5.3	12.2										
40	2.4	1.5	3.4	13.6	1.1	9.9	92.6	3.6	18.2	11.9	0.9	21.2	21.2
	3.6	2.8	6.4	14.1	1.1	10.3	93.3	3.7	18.9	12.2	0.8	21.6	24.0
	4.8	4.4	10.2	14.5	1.1	10.6	94.0	3.7	19.4	12.5	0.7	21.9	25.9
50	2.4	1.4	3.3	15.2	1.2	11.2	95.1	3.8	17.9	12.0	0.9	21.1	19.1
	3.6	2.7	6.2	15.8	1.2	11.8	96.2	3.9	18.6	12.3	0.9	21.5	21.6
	4.8	4.3	9.9	16.3	1.2	12.3	97.0	4.0	18.9	12.6	0.8	21.7	23.0
60	2.4	1.4	3.2	16.8	1.2	12.7	97.8	4.1	17.4	12.0	1.0	20.9	17.1
	3.6	2.6	6.1	17.7	1.2	13.5	99.3	4.2	18.1	12.3	0.9	21.3	19.3
	4.8	4.2	9.6	18.3	1.3	14.0	100.2	4.3	18.3	12.6	0.9	21.4	20.3
70	2.4	1.3	3.1	18.6	1.3	14.2	100.7	4.3	16.8	11.9	1.1	20.6	15.1
	3.6	2.5	5.9	19.7	1.3	15.3	102.6	4.5	17.5	12.2	1.0	21.0	17.1
	4.8	4.0	9.3	20.3	1.3	15.8	103.6	4.6	17.7	12.4	1.0	21.1	17.9
80	2.4	1.3	3.0	20.3	1.3	15.8	103.6	4.5	16.1	11.6	1.2	20.3	13.3
	3.6	2.5	5.7	21.8	1.4	17.2	106.1	4.7	16.8	11.9	1.1	20.6	15.0
	4.8	3.9	9.0	22.5	1.4	17.8	107.1	4.8	16.9	12.2	1.1	20.7	15.6
90	2.4	1.2	2.9	22.2	1.4	17.4	106.7	4.7	15.3	11.3	1.3	19.8	11.5
	3.6	2.4	5.5	24.0	1.4	19.2	109.7	5.0	16.0	11.6	1.2	20.2	13.1
	4.8	3.8	8.7	24.7	1.4	19.8	110.8	5.1	16.1	11.9	1.2	20.2	13.5
100	2.4	1.2	2.8	Operation Not Recommended					14.3	10.9	1.4	19.2	9.9
	3.6	2.3	5.3						15.0	11.2	1.3	19.6	11.2
	4.8	3.6	8.4						15.2	11.4	1.3	19.6	11.6
110	2.4	1.2	2.7	Operation Not Recommended					13.1	10.4	1.6	18.5	8.4
	3.6	2.2	5.1						13.9	10.6	1.5	18.9	9.6
	4.8	3.5	8.1						14.1	10.9	1.4	18.9	9.9

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.

Performance ISO 13256-1

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	20.0	4.6	16.2	15.0	16.4	4.1	17.9	21.0	13.5	3.8	16.9	16.9

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
115/120-1-60	5	12.3	63	1.5	3.6	0.4	17.8	20.9	30
208/230-1-60	1	6.3	32	1.5	3.6	0.4	11.8	13.4	15

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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1.5 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA018S Series - R410A

Rated Airflow: 600 Heating / 550 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	2.3	1.4	3.2						Operation Not Recommended				
	3.4	2.4	5.6										
	4.5	3.8	8.7	11.2	0.8	8.6	87.2	4.3					
30	2.3	1.5	3.4						Operation Not Recommended				
	3.4	2.3	5.4	12.9	1.0	9.5	89.9	3.9					
	4.5	3.7	8.4	13.4	1.0	9.9	90.7	3.8					
40	2.3	1.1	2.6	14.4	1.1	10.6	92.3	3.8	19.1	12.6	0.9	22.2	21.0
	3.4	2.0	4.5	14.9	1.2	11.0	93.1	3.8	19.6	12.9	0.8	22.4	23.7
	4.5	3.1	7.1	15.5	1.2	11.4	93.9	3.8	19.8	13.2	0.8	22.4	25.7
50	2.3	1.1	2.5	16.2	1.2	12.0	95.0	3.9	18.9	12.7	1.0	22.3	18.9
	3.4	1.9	4.4	16.9	1.3	12.6	96.1	3.9	19.4	13.0	0.9	22.5	21.4
	4.5	3.0	6.9	17.4	1.3	13.1	96.9	4.0	19.6	13.3	0.9	22.5	22.8
60	2.3	1.1	2.5	18.0	1.3	13.5	97.7	4.1	18.5	12.7	1.1	22.2	17.0
	3.4	1.8	4.2	18.9	1.3	14.4	99.2	4.2	19.1	13.0	1.0	22.5	19.1
	4.5	2.9	6.6	19.4	1.3	14.9	100.0	4.3	19.3	13.3	1.0	22.5	20.1
70	2.3	1.0	2.4	19.7	1.3	15.1	100.5	4.3	17.9	12.6	1.2	21.9	15.1
	3.4	1.8	4.1	21.0	1.4	16.3	102.3	4.5	18.6	12.9	1.1	22.3	17.0
	4.5	2.8	6.4	21.6	1.4	16.8	103.3	4.6	18.7	13.2	1.1	22.3	17.7
80	2.3	1.0	2.3	21.6	1.4	16.8	103.3	4.5	17.2	12.3	1.3	21.5	13.3
	3.4	1.7	4.0	23.2	1.5	18.2	105.8	4.7	17.9	12.6	1.2	21.9	15.0
	4.5	2.7	6.2	23.9	1.5	18.8	106.9	4.7	18.0	12.9	1.2	22.0	15.5
90	2.3	1.0	2.2	23.6	1.5	18.4	106.4	4.6	16.2	12.0	1.4	21.0	11.6
	3.4	1.7	3.8	25.7	1.6	20.2	109.7	4.7	17.0	12.3	1.3	21.4	13.1
	4.5	2.6	6.0	26.5	1.7	20.7	110.9	4.6	17.1	12.6	1.3	21.5	13.5
100	2.3	0.9	2.1						15.2	11.5	1.5	20.3	10.1
	3.4	1.6	3.7	Operation Not Recommended					16.0	11.8	1.4	20.8	11.4
	4.5	2.5	5.8						16.1	12.1	1.4	20.8	11.7
2.3	0.9	2.1	14.0						11.0	1.6	19.6	8.6	
110	3.4	1.5	3.6						14.8	11.3	1.5	20.0	9.8
	4.5	2.4	5.6						15.0	11.5	1.5	20.1	10.1

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.

Performance ISO 13256-1

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	21.2	4.6	17.2	14.9	17.5	4.1	18.9	20.8	14.2	4.0	17.9	16.8

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
115/120-1-60	5	13.5	66	1.5	3.6	0.4	19.0	22.4	35
208/230-1-60	1	6.6	33	1.5	3.6	0.4	12.1	13.8	20

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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

1.6 Ton - Single Stage Forced Air Submittal/Performance Data

Contractor: _____ PO: _____
 Engineer: _____
 Project: _____ Date: _____



MA019S Series - RA410

Rated Airflow: 650 Heating / 580 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	2.6	1.6	3.8						Operation Not Recommended				
	3.8	2.9	6.7										
	5.1	4.6	10.6	11.7	1.2	7.4	86.6	2.8					
30	2.6	1.7	4.0						Operation Not Recommended				
	3.8	2.8	6.5	13.7	1.3	9.3	89.4	3.2					
	5.1	4.5	10.3	14.1	1.3	9.8	90.1	3.2					
40	2.6	1.3	3.1	15.1	1.3	10.7	91.5	3.4	20.6	13.3	0.9	23.8	22.4
	3.8	2.4	5.5	15.7	1.3	11.2	92.3	3.5	21.7	13.6	0.8	24.6	25.5
	5.1	3.7	8.7	16.2	1.3	11.7	93.1	3.6	22.5	14.0	0.8	25.3	27.7
50	2.6	1.3	3.0	17.1	1.4	12.5	94.4	3.7	20.1	13.4	1.0	23.5	20.0
	3.8	2.3	5.3	17.9	1.4	13.2	95.5	3.8	21.0	13.7	0.9	24.1	22.8
	5.1	3.6	8.4	18.5	1.4	13.8	96.4	3.9	21.5	14.0	0.9	24.4	24.4
60	2.6	1.2	2.9	19.2	1.4	14.4	97.3	4.0	19.6	13.4	1.1	23.4	17.7
	3.8	2.2	5.1	20.3	1.4	15.4	98.9	4.2	20.3	13.7	1.0	23.8	20.2
	5.1	3.5	8.1	20.9	1.4	16.0	99.8	4.3	20.6	14.0	1.0	23.9	21.4
70	2.6	1.2	2.8	21.2	1.5	16.3	100.3	4.3	19.1	13.2	1.2	23.2	15.5
	3.8	2.1	5.0	22.5	1.5	17.5	102.1	4.5	19.7	13.6	1.1	23.5	17.7
	5.1	3.4	7.9	23.1	1.5	18.1	103.0	4.6	19.9	13.9	1.1	23.5	18.5
80	2.6	1.2	2.7	23.2	1.5	18.0	103.0	4.5	18.4	13.0	1.4	23.0	13.5
	3.8	2.1	4.8	24.6	1.5	19.5	105.1	4.8	19.0	13.3	1.2	23.3	15.4
	5.1	3.3	7.6	25.1	1.5	19.9	105.8	4.8	19.1	13.6	1.2	23.2	16.0
90	2.6	1.1	2.6	24.9	1.6	19.5	105.4	4.7	17.5	12.6	1.5	22.6	11.6
	3.8	2.0	4.6	26.3	1.5	21.1	107.5	5.0	18.2	12.9	1.4	22.9	13.3
	5.1	3.2	7.3	26.8	1.6	21.5	108.1	5.0	18.3	13.2	1.3	22.9	13.7
100	2.6	1.1	2.5	Operation Not Recommended					16.2	12.1	1.7	22.0	9.7
	3.8	1.9	4.5						17.2	12.5	1.5	22.4	11.3
	5.1	3.1	7.1						17.3	12.8	1.5	22.4	11.7
110	2.6	1.0	2.4	Operation Not Recommended					14.6	11.6	1.8	20.9	7.9
	3.8	1.9	4.3						15.9	11.9	1.7	21.6	9.4
	5.1	3.0	6.8						16.1	12.2	1.6	21.7	9.8

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.

Performance ISO 13256-1

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	
	Btu/hr	COP	Btu/hr	EER	Btu/hr	COP	Btu/hr	EER	Btu/hr	COP	Btu/hr	EER
Full	22.8	4.6	18.4	15.3	18.6	4.0	20.2	22.0	14.9	3.5	19.1	17.4

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
208/230-1-60	1	8	39	1.5	3.6	0.4	13.5	15.5	20
208/230-3-60	2	#N/A	#N/A	1.5	3.6	0.4	#N/A	#N/A	#N/A

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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1.8 Ton - Single Stage Forced Air Submittal/Performance Data

Contractor: _____ PO: _____
 Engineer: _____
 Project: _____ Date: _____



MA023S Series - RA410

Rated Airflow: 700 Heating / 680 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	3.0	1.1	2.5	Operation Not Recommended									
	4.5	1.9	4.5										
	6.0	3.1	7.2										
30	3.0	1.1	2.6	12.9	1.6	7.4	87.0	2.4	Operation Not Recommended				
	4.5	1.9	4.4										
	6.0	3.0	7.0										
40	3.0	0.9	2.0	16.0	1.5	10.8	91.1	3.1	25.3	15.8	0.9	28.4	27.3
	4.5	1.6	3.7	17.1	1.5	11.9	92.6	3.3	25.9	16.1	0.9	28.8	30.3
	6.0	2.5	5.8	20.0	1.5	14.9	96.4	3.9	24.3	15.6	1.1	28.1	21.9
50	3.0	0.9	2.0	21.5	1.5	16.4	98.4	4.2	25.2	16.4	1.0	28.6	24.8
	4.5	1.5	3.5	20.9	1.5	15.8	97.7	4.1	25.6	16.4	1.0	28.9	26.9
	6.0	2.5	5.7	20.7	1.5	15.6	97.4	4.0	24.0	15.7	1.2	28.1	19.8
60	3.0	0.8	1.9	21.1	1.5	15.9	97.9	4.0	24.8	16.1	1.1	28.6	22.4
	4.5	1.5	3.4	21.6	1.6	16.3	98.6	4.1	25.2	16.5	1.1	28.8	23.9
	6.0	2.4	5.5	22.3	1.6	16.9	99.5	4.1	23.4	15.7	1.3	27.9	17.7
70	3.0	0.8	1.8	23.7	1.6	18.2	101.4	4.3	24.3	16.1	1.2	28.4	20.0
	4.5	1.4	3.3	24.6	1.6	19.0	102.5	4.4	24.5	16.4	1.2	28.5	21.0
	6.0	2.3	5.3	25.0	1.7	19.4	103.1	4.4	22.7	15.5	1.4	27.6	15.7
80	3.0	0.8	1.8	26.5	1.7	20.8	105.1	4.6	23.5	15.9	1.3	28.1	17.7
	4.5	1.4	3.2	27.0	1.7	21.1	105.7	4.6	22.6	15.6	1.5	27.6	15.5
	6.0	2.2	5.1	26.4	1.7	20.5	104.9	4.5	22.8	16.0	1.4	27.6	16.1
90	3.0	0.7	1.7	26.9	1.7	21.0	105.6	4.6	21.7	15.2	1.6	27.1	13.8
	4.5	1.3	3.1	27.0	1.7	21.1	105.7	4.6	22.6	15.6	1.5	27.6	15.5
	6.0	2.1	5.0	26.4	1.7	20.5	104.9	4.5	22.8	16.0	1.4	27.6	16.1
100	3.0	0.7	1.7	26.3	1.8	20.2	104.7	4.3	20.6	14.8	1.7	26.5	12.0
	4.5	1.3	3.1	22.9	1.7	17.0	100.3	3.9	21.6	15.2	1.6	27.0	13.6
	6.0	2.1	5.0	20.6	1.7	14.8	97.2	3.5	21.7	15.5	1.6	27.0	14.0
110	3.0	0.7	1.7	Operation Not Recommended					19.4	14.2	1.9	25.8	10.4
	4.5	1.3	3.0						20.4	14.6	1.7	26.3	11.8
	6.0	2.1	4.8						20.6	15.0	1.7	26.4	12.2
110	3.0	0.7	1.6	Operation Not Recommended					18.1	13.5	2.0	25.0	8.9
	4.5	1.2	2.9						19.1	13.9	1.9	25.5	10.1
	6.0	2.0	4.6						19.3	14.3	1.8	25.6	10.5

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.

Performance ISO 13256-1

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	
	Btu/hr	COP	Btu/hr	EER	Btu/hr	COP	Btu/hr	EER	Btu/hr	COP	Btu/hr	EER
Full	26.8	4.7	21.8	15.5	21.7	4.2	24.0	21.7	18.3	3.7	22.7	17.5

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
208/230-1-60	1	8.3	44	1.5	4.3	0.4	14.5	16.6	20
208/230-3-60	2	#N/A	#N/A	1.5	4.3	0.4	#N/A	#N/A	#N/A

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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2.4 Ton - Single Stage Forced Air Submittal/Performance Data

Contractor: _____ PO: _____

Engineer: _____

Project: _____ Date: _____



MA029S Series - RA410

Rated Airflow: 700 Heating / 680 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	3.8	1.0	2.2	13.4	1.8	7.4	87.7	2.2	Operation Not Recommended				
	5.6	2.0	4.7										
	7.5	3.6	8.3										
30	3.8	1.0	2.4	17.0	1.8	10.8	92.5	2.7	34.5	15.8	1.2	38.6	28.2
	5.6	2.0	4.6	18.2	1.8	11.9	94.1	2.9	35.7	16.1	1.1	39.5	31.9
	7.5	3.5	8.0										
40	3.8	0.8	1.8	21.3	1.9	14.9	98.2	3.3	32.5	15.6	1.5	37.5	21.9
	5.6	1.7	3.8	23.0	1.9	16.5	100.5	3.5	33.8	16.0	1.3	38.4	25.1
	7.5	2.9	6.7	24.3	1.9	17.7	102.1	3.7	34.6	16.4	1.3	38.9	27.5
50	3.8	0.8	1.8	26.8	2.0	20.0	105.4	4.0	31.8	15.7	1.6	37.3	19.7
	5.6	1.6	3.7	28.0	2.0	21.1	107.0	4.1	33.0	16.1	1.5	38.1	22.4
	7.5	2.8	6.5	28.8	2.0	21.8	108.1	4.1	33.6	16.5	1.4	38.4	23.9
60	3.8	0.7	1.7	29.7	2.1	22.5	109.2	4.2	30.9	15.7	1.8	36.9	17.5
	5.6	1.6	3.6	31.2	2.1	24.0	111.3	4.3	32.1	16.1	1.6	37.7	19.8
	7.5	2.7	6.3	32.1	2.2	24.8	112.5	4.4	32.5	16.4	1.6	37.8	20.9
70	3.8	0.7	1.7	32.6	2.2	25.1	113.2	4.4	29.8	15.5	1.9	36.4	15.5
	5.6	1.5	3.5	34.7	2.2	27.1	115.9	4.5	31.1	15.9	1.8	37.1	17.5
	7.5	2.6	6.1	35.7	2.3	27.9	117.2	4.6	31.4	16.3	1.7	37.2	18.3
80	3.8	0.7	1.6	35.7	2.3	27.8	117.2	4.5	28.5	15.2	2.1	35.7	13.6
	5.6	1.5	3.4	38.3	2.3	30.3	120.7	4.8	29.8	15.6	1.9	36.4	15.4
	7.5	2.6	5.9	39.4	2.4	31.3	122.1	4.9	30.0	16.0	1.9	36.5	15.9
90	3.8	0.7	1.5	38.9	2.4	30.6	121.4	4.7	26.9	14.8	2.3	34.7	11.7
	5.6	1.4	3.2	42.1	2.5	33.7	125.7	5.0	28.3	15.2	2.1	35.5	13.4
	7.5	2.5	5.7	43.2	2.5	34.7	127.2	5.1	28.5	15.5	2.1	35.5	13.8
100	3.8	0.6	1.5	Operation Not Recommended					25.0	14.2	2.5	33.5	10.0
	5.6	1.4	3.1						26.5	14.6	2.3	34.4	11.5
	7.5	2.4	5.5						26.7	15.0	2.3	34.4	11.9
110	3.8	0.6	1.4	Operation Not Recommended					22.7	13.5	2.7	32.0	8.3
	5.6	1.3	3.0						24.4	13.9	2.5	33.0	9.7
	7.5	2.3	5.3						24.7	14.3	2.5	33.1	10.1

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.

Performance ISO 13256-1

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	
	Btu/hr	COP	Btu/hr	EER	Btu/hr	COP	Btu/hr	EER	Btu/hr	COP	Btu/hr	EER
Full	35.1	4.7	28.6	15.3	28.9	4.2	31.8	21.6	19.6	3.2	29.9	17.3

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
208/230-1-60	1	11.2	53	1.5	4.3	0.4	17.4	20.2	30
208/230-3-60	2	#N/A	#N/A	1.5	4.3	0.4	#N/A	#N/A	#N/A

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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2.5 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA030S Series - R410A

Rated Airflow: 1000 Heating / 960 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F									
EWT °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	3.8	1.9	4.5						Operation Not Recommended									
	5.6	2.8	6.4															
	7.5	4.0	9.3	19.8	1.9	13.2	88.3	3.0										
30	3.8	2.1	4.8						Operation Not Recommended									
	5.6	2.7	6.2	21.8	2.0	15.1	90.2	3.3						24.2	22.2	1.1	28.0	21.5
	7.5	3.9	9.1	22.6	2.0	15.8	90.9	3.3						20.3	22.8	1.0	23.8	20.0
40	3.8	1.6	3.7	24.1	2.0	17.2	92.3	3.5	30.1	22.1	1.4	34.8	21.4					
	5.6	2.2	5.2	24.9	2.0	18.0	93.1	3.6	28.1	22.6	1.3	32.5	22.2					
	7.5	3.3	7.6	25.8	2.0	18.8	93.9	3.7	26.0	23.1	1.2	30.0	22.2					
50	3.8	1.5	3.5	27.1	2.1	20.0	95.1	3.8	31.3	22.2	1.5	36.6	20.2					
	5.6	2.2	5.0	28.3	2.1	21.2	96.2	4.0	30.6	22.7	1.4	35.4	21.8					
	7.5	3.2	7.4	29.2	2.1	22.0	97.0	4.1	29.6	23.2	1.3	34.1	22.3					
60	3.8	1.5	3.4	30.2	2.1	22.9	97.9	4.1	31.4	22.2	1.7	37.2	18.4					
	5.6	2.1	4.9	31.8	2.1	24.5	99.5	4.3	31.6	22.7	1.6	36.9	20.4					
	7.5	3.1	7.1	32.8	2.2	25.4	100.3	4.4	31.3	23.2	1.5	36.4	21.1					
70	3.8	1.4	3.3	33.3	2.2	25.7	100.8	4.4	30.6	21.9	1.9	37.0	16.3					
	5.6	2.0	4.7	35.3	2.2	27.7	102.7	4.6	31.5	22.4	1.7	37.4	18.4					
	7.5	3.0	6.9	36.3	2.3	28.6	103.6	4.7	31.6	23.0	1.7	37.2	19.1					
80	3.8	1.4	3.2	36.4	2.3	28.5	103.7	4.6	29.2	21.5	2.1	36.3	14.1					
	5.6	2.0	4.6	38.7	2.3	30.8	105.9	4.9	30.5	22.0	1.9	37.0	16.2					
	7.5	2.9	6.7	39.7	2.4	31.6	106.7	4.9	30.8	22.5	1.8	37.0	16.8					
90	3.8	1.3	3.1	39.3	2.4	31.0	106.4	4.7	27.6	20.9	2.3	35.4	12.0					
	5.6	1.9	4.4	41.9	2.5	33.5	108.8	5.0	29.0	21.4	2.1	36.1	13.9					
	7.5	2.8	6.4	42.8	2.5	34.2	109.6	5.0	29.2	21.9	2.0	36.2	14.4					
100	3.8	1.3	3.0	Operation Not Recommended					26.2	20.1	2.6	34.9	10.2					
	5.6	1.8	4.2						27.2	20.6	2.3	35.1	11.7					
	7.5	2.7	6.2						27.4	21.1	2.3	35.1	12.2					
110	3.8	1.2	2.9	Operation Not Recommended					25.3	19.1	2.9	35.1	8.9					
	5.6	1.8	4.1						25.7	19.6	2.6	34.5	9.9					
	7.5	2.6	6.0						25.8	20.2	2.5	34.3	10.3					

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.

Performance ISO 13256-1

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	35.8	4.8	29.4	16.0	29.4	4.2	31.0	22.0	23.8	3.6	30.6	18.2

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
208/230-1-60	1	12.9	59	1.5	4.3	0.4	19.1	22.3	35
208/230-3-60	2	#N/A	#N/A	1.5	4.3	0.4	#N/A	#N/A	#N/A

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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

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3 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA036S Series - R410A

Rated Airflow: 1150 Heating / 1100 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	23.4	2.2	16.0	88.9	3.1	Operation Not Recommended				
	6.8	2.1	4.9										
	9.0	2.8	6.6										
30	4.5	1.8	4.2	26.0	2.2	18.4	91.0	3.4	39.6	25.5	1.3	44.0	30.2
	6.8	2.0	4.7						40.4	26.1	1.2	44.5	33.7
	9.0	2.8	6.4						27.0	2.3	19.2	91.7	3.5
40	4.5	1.4	3.2	28.7	2.3	20.9	93.1	3.7	38.4	25.3	1.6	43.9	23.8
	6.8	1.7	3.9						39.4	25.9	1.4	44.4	27.2
	9.0	2.3	5.3						30.6	2.3	22.7	94.7	3.8
50	4.5	1.3	3.1	32.1	2.4	24.0	95.9	4.0	38.0	25.4	1.8	44.0	21.4
	6.8	1.7	3.8						39.1	26.0	1.6	44.6	24.3
	9.0	2.2	5.2						34.6	2.4	26.3	97.8	4.2
60	4.5	1.3	3.0	35.7	2.5	27.3	98.7	4.2	37.3	25.4	2.0	44.0	19.0
	6.8	1.6	3.7						38.4	26.0	1.8	44.5	21.6
	9.0	2.2	5.0						38.8	2.5	30.2	101.2	4.5
70	4.5	1.3	2.9	39.4	2.6	30.7	101.7	4.5	36.3	25.1	2.2	43.7	16.7
	6.8	1.6	3.6						37.5	25.7	2.0	44.2	19.0
	9.0	2.1	4.9						43.3	2.6	34.4	104.8	4.9
80	4.5	1.2	2.8	43.4	2.7	34.3	104.9	4.8	34.9	24.6	2.4	43.1	14.5
	6.8	1.5	3.5						36.2	25.2	2.2	43.7	16.6
	9.0	2.0	4.7						48.1	2.7	38.8	108.7	5.2
90	4.5	1.2	2.7	47.5	2.8	38.0	108.2	5.0	33.1	23.9	2.7	42.2	12.5
	6.8	1.4	3.3						34.6	24.5	2.4	42.8	14.3
	9.0	2.0	4.5						53.2	2.8	43.6	112.8	5.5
100	4.5	1.1	2.6	Operation Not Recommended					30.9	23.0	2.9	40.9	10.5
	6.8	1.4	3.2						32.6	23.6	2.7	41.7	12.2
	9.0	1.9	4.4						32.8	24.2	2.6	41.7	12.6
110	4.5	1.1	2.5	Operation Not Recommended					28.3	21.9	3.3	39.4	8.7
	6.8	1.3	3.1						30.2	22.5	3.0	40.3	10.1
	9.0	1.8	4.2						30.5	23.1	2.9	40.4	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.

Performance ISO 13256-1

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	42.5	4.9	34.9	16.4	34.7	4.3	38.0	23.5	28.3	3.8	36.3	18.7

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
208/230-1-60	1	17.3	96.7	1.5	4.3	0.4	23.5	27.8	45
208/230-3-60	2	12.8	95	1.5	4.3	0.4	19.0	22.2	35
460-3-60	3	6.4	45	1.5	4.3	0.4	12.6	14.2	20

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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3.5 Ton - Single Stage Forced Air Submittal/Performance Data

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



MA042S Series - R410A

Rated Airflow: 1400 Heating / 1320 Cooling

Magnum Series

Water Source Heat Pump

WATER/BRINE				Heating - EAT 70°F					Cooling - EAT 80/67°F				
EWT °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	5.3	1.8	4.1	Operation Not Recommended									
	7.9	2.4	5.6										
	10.5	3.5	8.2										
30	5.3	1.9	4.4	26.2	2.6	17.4	87.3	3.0	46.9	30.6	1.5	52.1	30.5
	7.9	2.4	5.4	29.5	2.6	20.5	89.5	3.3	47.8	31.3	1.4	52.6	34.0
	10.5	3.4	7.9	30.9	2.7	21.8	90.5	3.4	48.3	31.8	1.3	52.8	34.0
40	5.3	1.5	3.4	32.3	2.7	23.1	91.4	3.5	45.5	30.3	1.9	51.9	24.0
	7.9	2.0	4.6	35.2	2.7	25.9	93.3	3.8	46.7	31.0	1.7	52.5	27.4
	10.5	2.9	6.6	36.4	2.8	26.9	94.1	3.8	47.4	31.8	1.6	52.8	29.9
50	5.3	1.4	3.3	38.1	2.8	28.5	95.2	4.0	45.0	30.5	2.1	52.2	21.5
	7.9	1.9	4.4	39.8	2.8	30.1	96.3	4.1	46.3	31.2	1.9	52.8	24.5
	10.5	2.8	6.4	41.1	2.9	31.2	97.1	4.2	46.8	31.9	1.8	52.9	26.2
60	5.3	1.4	3.2	42.4	2.9	32.4	98.0	4.3	44.2	30.5	2.3	52.1	19.1
	7.9	1.9	4.3	44.7	2.9	34.6	99.6	4.4	45.6	31.2	2.1	52.7	21.7
	10.5	2.7	6.2	46.1	3.0	35.9	100.5	4.5	45.9	31.9	2.0	52.8	22.9
70	5.3	1.3	3.1	46.9	3.0	36.5	101.0	4.5	43.1	30.1	2.6	51.8	16.8
	7.9	1.8	4.1	49.9	3.1	39.5	103.0	4.8	44.5	30.8	2.3	52.4	19.1
	10.5	2.6	6.0	51.4	3.1	40.9	104.0	4.9	44.8	31.6	2.2	52.4	20.0
80	5.3	1.3	3.0	51.6	3.2	40.8	104.1	4.8	41.4	29.6	2.8	51.1	14.6
	7.9	1.7	4.0	55.5	3.2	44.7	106.7	5.1	43.0	30.3	2.6	51.8	16.6
	10.5	2.5	5.8	57.2	3.2	46.2	107.8	5.2	43.2	31.0	2.5	51.8	17.3
90	5.3	1.2	2.9	56.5	3.3	45.3	107.4	5.0	39.4	28.7	3.2	50.1	12.5
	7.9	1.7	3.9	61.5	3.3	50.2	110.7	5.4	41.1	29.4	2.9	50.9	14.3
	10.5	2.4	5.6	63.3	3.4	51.9	111.9	5.5	41.3	30.2	2.8	50.8	14.8
100	5.3	1.2	2.8	Operation Not Recommended					36.8	27.6	3.5	48.7	10.5
	7.9	1.6	3.7						38.7	28.4	3.2	49.6	12.2
	10.5	2.4	5.4						39.0	29.1	3.1	49.6	12.6
110	5.3	1.1	2.7	Operation Not Recommended					33.7	26.3	3.9	47.0	8.7
	7.9	1.6	3.6						35.9	27.0	3.5	48.0	10.1
	10.5	2.3	5.2						36.3	27.7	3.4	48.0	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.

Performance ISO 13256-1

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	50.5	4.9	41.5	16.5	41.2	4.3	45.1	23.7	32.5	3.7	43.0	18.8

Electrical Specification

Voltage	Elect. Symbol	Compressor		Source Pump	Fan Motor FLA	HWG Pump FLA	Total Unit FLA	Min. Ampacity*	Max. Fuse/ Breaker*
		RLA	LRA						
208/230-1-60	1	20	115	1.5	4.3	0.4	26.2	31.2	50
208/230-3-60	2	12.8	95	1.5	4.3	0.4	19.0	22.2	35
460-3-60	3	6.4	45	1.5	4.3	0.4	12.6	14.2	20

*Where calculations are based on:

MCA = 1.25 x RLA compressor + Fan FLA + Pump FLA

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 if some of the cells in the above table are blank

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