Comfort-Aire | Century

RESIDENTIAL

MARS 30 PREMIER SPLIT SYSTEMS

PRODUCT CATALOG

Part#: RP3015 | Created: May 16, 2025

Models: MA/MJ/MK 024-060
60Hz - R-454B

Table of Contents

Models:
MA/MJ/MK
024-060

THE MARS 30 PREMIER SPLIT SYSTEM

The MARS Premier Split System showcase superb efficiency ratings, quiet operation, and application flexibility that are synonymous with the MARS family. This category of the MARS family includes:

- MARS 30 (MJ) Premier Indoor Split Series
- MARS (MA) Premier Air Handler
- MARS (MK) Premier Cased Coil

MARS Premier Split Systems surpass ASHRAE 90.1 efficiency standards and utilize R-454B low Global Warming Potential (GWP) refrigerant, setting a high standard for eco-friendly performance.

Available in sizes 2 tons (7.0 kW) through 5 tons (17.6 kW), MARS Premier Split Systems offer application flexibility and a wide range of units for most any installation.

The MARS Premier Split Systems offer an extended-range circuit capable of ground-loop (geothermal) applications as well as open-loop applications. These innovative units incorporate ultra-efficient two-stage unloading scroll compressors, EC variable fan motor (MA), communicating controls, galvanized-steel cabinet construction, thermostat polymer drain pan (MA, MK), and acoustic-type fiber insulation. When paired with the MARS MA Premier Air Handler, the MJ deliver a fully electric-heating and cooling solution. For dual-fuel heating and cooling solutions, the MARS MJ can also be paired with the MARS MK Premier Cased Coil.

The MARS 30 Premier Split Systems are ideal for both new and retrofit applications, offering a perfect fit for remote installations such as second floors, crawl spaces, and attics. MARS 30 Premier Split Systems exemplify innovation and efficiency, making them a versatile choice for various residential and light commercial applications.

Recent EPA mandates require an industry transition to low-GWP refrigerants, such as R-454B which is a gas that is classified as having low-toxicity, low flammability rating. Due to these characteristics, R-454B systems charged with over 62 ounces of refrigerant must contain an integrated Refrigerant Detection System (RDS). In the unlikely event of a system-refrigerant leak, the RDS shuts down compressor operation and runs the unit blower motor to disperse any concentration of leaked refrigerant in compliance with UL 60335-2-40 safety standards. For MARS MA, MJ, and MK, all sizes are required to have a factory-installed RDS.

MARS' double-isolation compressor mounting system makes the MARS Premier Split Systems some of the quietest units on the market. Compressors are mounted using specially engineered sound-tested EPDM grommets to a heavy-gauge mounting plate, which is then isolated from the cabinet base with EPDM grommets to minimize vibration transmission and maximize sound attenuation. Multiple removable access panels and an easily accessible control box make installation and maintenance user friendly. Options such as coated air coil, internal variable-speed pump, modulating water valve, and high-efficiency MERV-rated air filters allow for customizable design solutions.

Intelligent communicating controls provide technicians an interface into the operation of the system in real time without the need for hard tooling. On-board advanced controls communicate the key operating system temperatures allowing technicians to startup, commission, and service equipment. Communication can also be established at the unit via the Wireless Service Tool. Communicating controls also enable the functionality to make system adjustments and capture operating conditions at time of fault. The data is presented in a user-friendly format, enhancing the overall usability of the experience.

MARS' Variable Water Flow technology represents a major advancement in water flow system management efficiency. Variable Water Flow not only builds major water circulation components into the unit for a clean installation, it also intelligently varies water flow to minimize pump energy consumption and improve system reliability.

The heart of Variable Water Flow is either a variable-speed pump or modulating water valve intelligently controlled with DXM2.5 Advanced Communicating Controls. Water flow is automatically varied based on changes in unit capacity level (stage) and source-water temperature to maintain optimum system performance. Variable Water Flow allows the use of direct-return piping, while eliminating external two-way valves and automatic flow regulators - making Variable Water Flow systems inherently self-balancing.

Variable Water Flow systems provide reduced water pumping power compared to traditional fixed-speed pumping systems. They also protect the unit against extreme operating conditions, thus extending the life of the compressor and air coil. Since Variable Water Flow is built inside the unit, it also saves on installation time and makes for a very clean and compact installation. The MARS Premier Split Systems are designed to meet the challenges of today's HVAC demands with one of the most innovative products available on the market.

FEATURES

- Sizes 024 (2 ton, 7 kW) through 060 (5 tons, 17.6 kW)
- Exceeds ASHRAE 90.1 efficiency standards
- Environmentally friendly R-454B low-GWP refrigerant
- Refrigerant Detection System (RDS) factory installed on all sizes (MJ, MA, MK)
- Intelligent variable-speed Constant Volume (CV) EC blower motors for precise airflow control (MA)
- Part-load operation significantly lowers annual operating costs
- Galvanized-steel cabinet construction with Bright White polyester powder coated finish.
- Sound-absorbing glass-fiber insulation
- Unique double-isolation compressor mounting with vibration isolation for quieter operation (MJ)
- Separate compressor and air-handler sections for application flexibility
- TXV metering device
- Field-convertible supply and return configuration (MA, MK)
- Unit Performance Sentinel performance-monitoring system
- DXM2.5 Advanced Communicating Controls:
  - Connect directly to the system with a Wireless Service Tool
  - Provides real-time unit operating conditions
  - Reduces startup, commissioning, and service time by providing key system temperatures electronically
  - Captures operating conditions in the event of a safety shutdown
- Eight standard safety features
- Easy-to-clean thermoset drain pan (MA, MK)
- Anti-short cycle and over/under voltage protection
- Easy-access swing-out control box
- High-pressure, loss-of-charge, and condensate overflow protection
- LED fault and status indication at controller
- Corrosive-resistant aluminum air coil (MA, MK)
- Convenient service-tool access port for controller configuration and diagnostics located on the front corner post.

OPTIONS

- Corrosion-resistant cupro-nickel water-heat exchanger (MJ)
- Domestic Hot Water Generator (HWG) (MJ)
- Variable Water Flow unit-integrated variable-speed water pump (MJ)
- Variable Water Flow unit-integrated modulating water valve for maximum water-flow control (MJ)
- Factory-installed compressor soft starter to reduce inrush currents for more efficient startups (MJ)
- Integrated power disconnect (MJ)

ACCESSORIES

- Wide variety of thermostat options to meet your application needs
- Auxiliary electric heaters (MA)

iGate 2 Communicating Controls Powered by DXM2.5 Advanced Communicating Controls

Models:
MA/MJ/MK
024-060

AN INFORMATION GATEWAY TO MONITOR, CONTROL, AND DIAGNOSE YOUR SYSTEM

MARS' communicating water-source heat pump offers an information gateway into the system. This allows users to interact with their system in clear language, delivering improved reliability and efficiency by monitoring and controlling the system. This makes MARS water-source heat pumps easy to install and service.

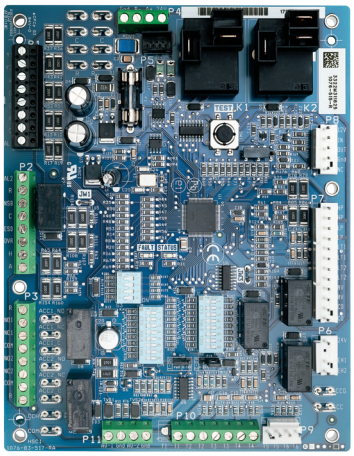
Monitor/Configure – Installers can configure the following from the Wireless Service Tool: unit family, size, accessory configuration, and demand reduction (optional, to limit unit operation during peak times). Users can look up the current system status: temperature sensor readings and operational status of the blower.

Precise Control – DXM2.5 Exclusive - Intelligent, 2-way communication between the DXM2.5 and smart components like the variable CFM constant volume CV EC blower motor. The DXM2.5 uses information received from the smart components and sensors to precisely control unit operation to deliver higher efficiency, reliability and increased comfort.

Diagnostics – While in Service Mode, technicians can access fault description, possible causes and most importantly, the conditions (temp, flow, i/o conditions, configuration) at the time of the fault. Manual Operation mode allows technicians to manually command operation for any of the thermostat outputs, blower speed, to help troubleshoot specific components.

With communicating controls, technicians have a gateway to system information never before available to MARS water-source heat pump products.

DXM2.5



AIRFLOW SELECTION	CFM
HEAT STAGE 1	600
HEAT STAGE 2	750
AUXILIARY HEAT	850
EMERGENCY HEAT	850
COOL STAGE 1	525
COOL STAGE 2	700
COOL DEHUMID 1	425
COOL DEHUMID 2	550
CONTINUOUS FAN	350
HEAT OFF DELAY	60
COOL OFF DELAY	30

◀ PREVIOUS NEXT ▶

POSSIBLE FAULT CAUSES
LOW WATER COIL TEMP

LOW WATER TEMP - HTG

LOW WATER FLOW - HTG

LOW REFRIG CHARGE - HTG

INCORRECT LT1 SETTING

BAD LT1 THERMISTOR

◀ PREVIOUS

FAULT TEMPERATURE CONDITIONS
LT1 LOW WATER TEMP
HEAT 1 11:11 AM 11/14

LT1 TEMP	28.1
LT2 TEMP	97.3
HOT WATER EWT	121.5
COMP DISCHARGE	157.7
LEAVING AIR	92.7
LEAVING WATER	34.9
ENTERING WATER	42.1
CONTROL VOLTAGE	26.4

◀ PREVIOUS

INTERNAL VARIABLE WATER FLOW

Industry-first, built-in Variable Water Flow replaces a traditionally inefficient, external component of the system (water circulation) with an ultra-high-efficient, variable speed, internal water flow system. This saves 70-80% on water circulation compared to traditional single speed pump systems. Multi-unit installations are also much simpler with Variable Water Flow systems, as the units automatically adjust water flow across the system.

Variable Water Flow is enabled by intelligent communicating controls, which facilitates intelligent communication between the thermostat, DXM2.5, sensors, and internal water pump/valve to make true variable water flow a reality.

VARIABLE WATER FLOW IS AVAILABLE IN FOUR VARIATIONS:

1. **Low System Pressure Drop Modulating Valve**

   The high CV motorized valve is used for a multi-unit or central pumping, closed loop application.

2. **High System Pressure Drop Modulating Valve**

   Motorized valve for higher pressure water systems such as a water well or other open loop applications. A cupro-nickel water coil is standard with this option.

3. **High-Head Variable Pump Internal Flow Controller**

   Multi-unit or individual unit for a closed loop application. The Internal Flow Controller includes a variable speed pump, flushing ports, 3-way flushing valves, and an expansion tank.

VARIABLE WATER FLOW DELIVERS THREE MAIN BENEFITS:

1. Easier and quicker unit installation as the flow control is built in to the unit.
2. Superior reliability by varying the water flow to deliver more stable operation.
3. Increased cost savings by varying the flow (and pump watt consumption) to match the unit's mode of operation.

INTERNAL COMPONENTS

All MARS products can be installed more easily and compactly than their predecessors because Variable Water Flow components are internal to the unit. They also save installing contractors labor and time by eliminating the need for an external flow regulator or a bulky external pumping module.

VARIABLE FLOW

Variable Water Flow technology enables variable water flow through the unit, with the DXM2.5 adjusting the pump speed to maintain an installer-set loop ΔT. By controlling the water flow, the system is able to operate at its optimal capacity and efficiency. Variable Water Flow provides a lower flow rate for part load where units typically operate 80% of the time and a higher, more normal flow rate for full load operation.

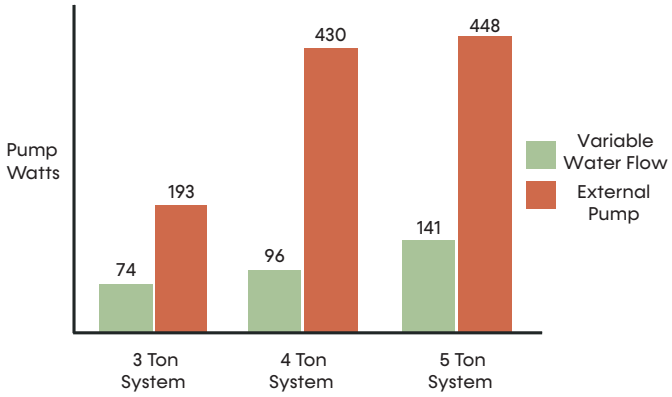
Variable speed pump or motorized modulating valve delivers variable water-flow, controlled by DXM2.5, based on loop water ΔT.

ENERGY SAVINGS WITH WATER CIRCULATION CONTROL

Units with Variable Water Flow deliver greater operating cost savings by varying the water flow to match the unit's operation (ex: lower water flow when unit is in part load operation). Lowering the flow results in lower energy consumption by the water pump (=greater cost savings) in Variable Water Flow units (whether internal or external pump).

In applications using Variable Water Flow with internal variable speed electronically commuted (EC) pump, the EC pump uses fewer watts than a fixed speed (PSC) pump even at full load. The EC pump excels in energy savings in part load, saving 70-80% watts compared to fixed speed pumps (see chart). The EC pump can operate with independent flow rates for both heating and cooling operations allowing for more energy savings.

In loop applications, when the motorized modulating valve slows down the water flow during part load operation, the external pump consumes fewer watts, thus saving more energy.



Reference Calculations

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

Constant = 500 for water, 485 for antifreeze

Conversion Table - to convert inch-pound (English) to S-I (Metric)

Airflow	Water Flow	External Static Pressure	Water Pressure Drop
Airflow (L/s) = CFM x 0.472	Water Flow (L/s) = GPM x 0.0631	ESP (Pa) = ESP (in of wg) x 249	PD (kPa) = PD (ft of hd) x 2.99

Legend and Glossary of Abbreviations

Abbreviations	Descriptions
Btuh	Btu (British Thermal Unit) per hour
BMS	Building Management System
CDT	Compressor discharge temperature
CFM	Airflow, cubic feet per minute
COP	Coefficient of performance = Btuh output/Btuh input
CT EC	Electronically commutated constant torque blower motor
CV EC	Electronically commutated constant volume blower motor
DB	Dry bulb temperature, °F
DT	Delta T
EAT	Entering air temperature
EER	Energy efficient ratio = Btuh output/Watt input
ESP	External static pressure, inches w.g.
EWT	Entering water temperature
FPT	Female pipe thread
GPM	Water flow in U.S., gallons per minute
HC	Air heating capacity, Btuh
HE	Total heat of extraction, Btuh
HR	Total heat of rejection, Btuh

Abbreviations	Descriptions
HWG	Hot water generator (desuperheater) capacity, MBtuh
kW	Total power unit input, kilowatts
LAT	Leaving air temperature, °F
LC	Latent cooling capacity, Btuh
LOC	Loss of charge
LWT	Leaving water temperature, °F
MBtuh	1,000 Btu per hour
MPT	Male pipe thread
MWV	Motorized water valve
PSC	Permanent split capacitor
RDS	Refrigerant Detection System
SC	Sensible cooling capacity, Btuh
S/T	Sensible to total cooling ratio
TC	Total cooling capacity, Btuh
TD or delta T	Temperature differential
VFD	Variable frequency drive
WB	Wet bulb temperature, °F
WPD	Waterside pressure drop, psi or feet of head
WSE	Waterside economizer

USE THE FOLLOWING SELECTION STEPS

1. Determine the actual heating and cooling loads at the desired dry bulb and wet bulb conditions.
2. Obtain the following design parameters: Entering water temperature, water flow rate in GPM, airflow in CFM, water flow pressure drop and design wet and dry bulb temperatures. Airflow CFM should be between 300 and 450 CFM per ton. Unit water pressure drop should be kept as close as possible to each other to make water balancing easier. Go to the appropriate tables and find the proper indicated water flow and water temperature.
3. Select a unit based on total and sensible cooling conditions. Select a unit which is closest to, but no larger than, the actual cooling load.
4. Enter tables at the design water flow and water temperature. Read the total and sensible cooling capacities

   Note: interpolation is permissible, extrapolation is not.
5. Read the heating capacity. If it exceeds the design criteria it is acceptable. It is quite normal for water-source heat pumps to be selected on cooling capacity only since the heating output is usually greater than the cooling capacity.
6. Determine the correction factors associated with the variable factors of dry bulb and wet bulb.

   Corrected Total Cooling =
   tabulated total cooling x wet bulb correction.

   Corrected Sensible Cooling =
   tabulated sensible cooling x wet/dry bulb correction.
7. Compare the corrected capacities to the load requirements. Normally if the capacities are within 10% of the loads, the equipment is acceptable. It is better to undersize than oversize, as undersizing improves humidity control, reduces sound levels and extends the life of the equipment.
8. When completed, calculate water temperature rise and assess the selection. If the units selected are not within 10% of the load calculations, then review what effect changing the GPM, water temperature and/or air flow and air temperature would have on the corrected capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure. Remember, when in doubt, undersize slightly for best performance.

EXAMPLE EQUIPMENT SELECTION FOR COOLING

Step 1: Load Determination

Assume we have determined that the appropriate cooling load at the desired dry bulb 80°F and wet bulb 65°F conditions is as follows:

Total Cooling ..... 22,000 Btuh
Sensible Cooling ..... 18,200 Btuh
Entering Air Temp..... 80°F Dry Bulb / 65°F Wet Bulb

Step 2: Design Conditions

Similarly, we have also obtained the following design parameters:

Entering Water Temp .....90°F
Water Flow (Based upon 10°F rise in temp) .4.5 GPM
Airflow ..... 600 CFM

Steps 3, 4, and 5: HP Selection

After making our preliminary selection (MJ024), we enter the tables at design water flow and water temperature and read Total Cooling, Sensible Cooling and Heat of Rejection capacities:

Total Cooling .....22,500 Btuh
Sensible Cooling ..... 16,500 Btuh
Heat of Rejection.....28,800 Btuh

Steps 6 and 7: Entering Airflow Corrections

Next, we determine our correction factors.

Corrected Values		Table		Ent Air		Airflow		Corrected
Corrected Total Cooling	=	22,500	x	0.976	x	0.967	=	21,235
Corrected Sensible Cooling	=	16,500	x	0.919	x	1.089	=	16,513
Corrected Heat of Rejection	=	28,800	x	0.969	x	0.972	=	27,126

Step 8: Water Temperature Rise Calculation and Assessment

Actual Temperature Rise .....12.1°F

When we compare the Corrected Total Cooling and Corrected Sensible Cooling figures with our load requirements stated in Step 1, we discover that our selection is within ±10% of our sensible load requirement. Furthermore, we see that our Corrected Total Cooling figure is within 1,000 Btuh the actual indicated load.

MARS MJ Model Nomenclature

Models:
MA/MJ/MK
024-060

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
M	J	N	0	2	4	A	J	D	0	0	N	0	N	S

PRODUCT NAME
M = R-454B Refrigerant

MODEL TYPE
J = Split Indoor Water-side

FUTURE
N = Not Applicable

SIZE
024 036
048 060

REVISION
A = Current

VOLTAGE
J = 208/230-1-60 with Refrigerant Detection System

CONTROLS

Control	Standard
DXM2.5	D
DXM2.5 with Disconnect	B
DXM2.5 with Soft Starter	4

CABINET
0 = Residential

STANDARD
S = Standard

FUTURE
N = Not Applicable

EXTENDED OPTIONS
0 = Standard
P = HWG and Pump

FUTURE
N = Not Applicable

WATER/HEAT EXCHANGER OPTIONS

Water Option	Standard	Cupro Nickel
None	0	Z
Modulating Valve, Low System Pressure Drop	C	-
Modulating Valve, High System Pressure Drop	-	P
Internal Flow Controller Standard Head with Check Valve[1]	1	-
Internal Flow Controller Standard Head without Check Valve[1]	G	-
Internal Flow Controller High Head with Check Valve	2	-
Internal Flow Controller High Head without Check Valve	H	-

NOTES:
1. Available with sizes 024-036
2. All Open Loop vFlow Water Circuit Options require a Cupro-Nickel Heat Exchanger.
   All Closed Loop vFlow Water Circuit Options require a Standard Heat Exchanger.
   If no Water Circuit Option is selected, then the Heat Exchanger can be either Standard or Cupro-Nickel.

MARS MA and MK Model Nomenclature

MARS MA Model Nomenclature

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
M	A	N	0	2	4	A	J	A	A	N	N	N	V	S

PRODUCT NAME
M = R-454B Refrigerant

MODEL TYPE
A = Split Air Handler

FUTURE
N = Not Applicable

SIZE
024 036
048 060

REVISION
A = Current

VOLTAGE
J = 208/230-1-60 with Refrigerant Detection System

CONTROLS
A = AXM

CABINET

Cabinet Size	Option
18.5" W, 44" H	A[1]
22.5" W, 55" H	B[2]
22.5" W, 59" H	C[3]

FUTURE
N = Not Applicable

FUTURE
N = Not Applicable

FUTURE
N = Not Applicable

BLOWER MOTOR
V = Constant Volume (CV) EC

STANDARD
S = Standard

NOTES:
1. Available with size 024
2. Available with sizes 036 and 048
3. Available with size 060

MARS MK Model Nomenclature

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
M	K	N	0	2	4	A	J	0	A	N	N	N	0	S

PRODUCT NAME
M = R-454B Refrigerant

MODEL TYPE
K = Split Cased Coil

FUTURE
N = Not Applicable

SIZE
024 036
048 060

REVISION
A = Current

VOLTAGE
J = 208/230-1-60 with Refrigerant Detection System

CONTROLS
0 = None

CABINET

Coil Width	Option
17"	A[1]
21"	B[2]
24"	C[3]

FUTURE
N = Not Applicable

FUTURE
N = Not Applicable

FUTURE
N = Not Applicable

BLOWER MOTOR
0 = None

STANDARD
S = Standard

NOTES:
1. Available with size 024
2. Available with sizes 036 and 048
3. Available with size 060

Performance Data: AHRI/ASHRAE/ISO 13256-1

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MA (Part Load) (English IP)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 68°F		Heating 41°F	
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
MJ024	EC	16,700	17.2	19,800	6.1	18,400	30.1	16,300	5.0	18,000	24.7	14,500	4.4
MJ036	EC	27,200	17.7	28,800	5.5	30,200	31.2	24,000	4.7	28,700	23.1	21,000	4.3
MJ048	EC	32,200	17.0	39,000	5.6	38,500	31.3	31,500	4.6	36,800	25.0	27,500	4.1
MJ060	EC	41,300	17.1	45,900	5.3	47,400	28.7	38,200	4.5	45,200	23.8	33,900	4.1

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MA (Full Load) (English IP)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 68°F		Heating 41°F	
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
MJ024	EC	23,200	16.5	27,200	5.5	24,700	25.2	22,500	4.8	23,900	19.0	17,900	4.0
MJ036	EC	36,400	17.3	39,400	5.3	41,800	25.0	33,700	4.7	38,300	18.4	26,900	4.0
MJ048	EC	48,000	16.6	56,100	5.0	51,900	22.2	46,000	4.4	49,000	18.1	35,500	3.7
MJ060	EC	59,700	16.0	63,900	5.0	65,000	22.9	55,100	4.3	60,200	17.6	45,000	3.7

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MK (Part Load) (English IP)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 68°F		Heating 41°F	
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
MJ024	EC	16,400	16.5	19,900	5.9	18,100	28.5	16,400	4.8	18,000	24.0	14,700	4.3
MJ036	EC	26,300	18.4	29,500	5.5	29,500	30.4	24,000	4.6	28,300	24.6	21,600	4.2
MJ048	EC	31,500	16.3	38,400	5.5	38,100	29.0	31,300	4.6	35,300	21.9	28,500	4.0
MJ060	EC	40,800	15.7	46,700	5.2	46,500	25.8	38,900	4.4	44,400	22.0	34,500	4.0

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MK (Full Load) (English IP)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 68°F		Heating 41°F	
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
MJ024	EC	23,000	15.6	27,500	5.2	24,700	23.6	22,800	4.6	23,700	17.8	18,300	3.8
MJ036	EC	36,900	15.8	41,100	5.1	41,000	23.6	33,200	4.4	36,800	18.2	27,300	3.9
MJ048	EC	47,000	15.1	56,500	5.0	51,100	21.0	46,800	4.2	48,500	16.7	36,500	3.6
MJ060	EC	57,300	14.3	65,000	5.0	63,900	20.3	56,200	4.2	59,600	16.1	46,500	3.6

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

Performance Data: AHRI/ASHRAE/ISO 13256-1

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MA (Part Load) (Metric SI)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Full Cooling 20°C		Full Heating 5°C	
		Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
MJ024	EC	5	5.0	6	6.1	5	8.8	5	5.0	5	7.2	4	4.4
MJ036	EC	8	5.2	8	5.5	9	9.1	7	4.7	8	6.8	6	4.3
MJ048	EC	9	5.0	11	5.6	11	9.2	9	4.6	11	7.3	8	4.1
MJ060	EC	12	5.0	13	5.3	14	8.4	11	4.5	13	7.0	10	4.1

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MA (Full Load) (Metric SI)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Full Cooling 20°C		Full Heating 5°C	
		Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
MJ024	EC	7	4.8	8	5.5	7	7.4	7	4.8	7	5.6	5	4.0
MJ036	EC	11	5.1	12	5.3	12	7.3	10	4.7	11	5.4	8	4.0
MJ048	EC	14	4.9	16	4.9	15	6.5	13	4.4	14	5.3	10	3.7
MJ060	EC	17	4.7	19	4.9	19	6.7	16	4.3	18	5.2	13	3.7

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MK (Part Load) (Metric SI)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Full Cooling 20°C		Full Heating 5°C	
		Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
MJ024	EC	5	4.8	6	5.9	5	8.4	5	4.8	5	7.0	4	4.3
MJ036	EC	8	5.4	9	5.5	9	8.9	7	4.6	8	7.2	6	4.2
MJ048	EC	9	4.8	11	5.5	11	8.5	9	4.6	10	6.4	8	4.0
MJ060	EC	12	4.6	14	5.2	14	7.6	11	4.4	13	6.5	10	4.0

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

ASHRAE/AHRI/ISO 13256-1 MJ with MARS MK (Full Load) (Metric SI)

Model	Motor Type	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Full Cooling 20°C		Full Heating 5°C	
		Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
MJ024	EC	7	4.6	8	5.2	7	6.9	7	4.6	7	5.2	5	3.8
MJ036	EC	11	4.6	12	5.1	12	6.9	10	4.4	11	5.3	8	3.9
MJ048	EC	14	4.4	17	4.7	15	6.2	14	4.2	14	4.9	11	3.6
MJ060	EC	17	4.2	19	4.7	19	6.0	16	4.2	17	4.7	14	3.6

- Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
- Heating capacities based upon 68°F DB, 59°F WB entering air temperature
- Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution
- All ratings based upon operation at lower voltage of dual-voltage rated models

600 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										4.50	0.9	2.1	10.8	1.12	6.9	2.8	16.8	1.1
30	1.30	0.1	0.2	17.0	10.7	0.71	19.4	23.8	60.0	0.8	2.25	0.3	0.6	11.8	1.11	8.0	3.1	22.6	1.2
											3.37	0.6	1.3	12.3	1.11	8.5	3.3	24.7	1.3
											4.50	0.8	1.9	12.8	1.11	9.0	3.4	25.8	1.3
40	2.05	0.3	0.6	18.3	11.9	0.65	20.5	28.3	60.0	0.8	2.25	0.2	0.5	14.9	1.09	11.2	4.0	34.6	1.4
											3.37	0.5	1.2	15.4	1.09	11.7	4.2	37.8	1.5
											4.50	0.8	1.8	15.9	1.09	12.2	4.3	39.3	1.5
50	2.25	0.3	0.6	18.4	12.4	0.72	20.8	25.5	69.3	1.0	2.25	0.2	0.5	15.9	1.08	12.2	4.3	38.7	1.6
	3.37	0.5	1.2	18.5	12.3	0.68	20.8	27.4	62.8	0.8	3.37	0.5	1.1	16.4	1.08	12.7	4.4	42.1	1.7
	4.50	0.8	1.8	18.5	12.1	0.63	20.7	29.4	59.6	0.8	4.50	0.8	1.8	17.0	1.08	13.3	4.6	43.9	1.7
60	2.25	0.2	0.6	18.3	12.8	0.82	21.1	22.5	79.6	1.4	2.25	0.2	0.4	17.9	1.08	14.2	4.8	46.8	1.8
	3.37	0.5	1.2	18.4	12.7	0.77	21.0	23.9	73.0	1.1	3.37	0.5	1.1	18.4	1.08	14.7	5.0	50.9	1.8
	4.50	0.8	1.8	18.5	12.6	0.73	21.0	25.5	69.7	1.0	4.50	0.7	1.7	18.9	1.08	15.3	5.1	52.9	1.9
70	2.25	0.2	0.5	18.0	13.0	0.93	21.1	19.3	89.6	1.9	2.25	0.1	0.3	19.8	1.09	16.0	5.3	55.1	1.9
	3.37	0.5	1.1	18.0	12.9	0.89	21.1	20.3	83.0	1.5	3.37	0.4	1.0	20.3	1.09	16.5	5.4	59.8	2.0
	4.50	0.7	1.7	18.1	12.8	0.84	21.0	21.5	79.7	1.3	4.50	0.7	1.6	20.8	1.09	17.1	5.6	62.1	2.1
80	2.25	0.2	0.4	17.4	12.9	1.07	21.0	16.3	99.6	2.6	2.25	0.1	0.1	21.4	1.12	17.6	5.6	63.6	2.1
	3.37	0.4	1.0	17.4	12.8	1.02	20.9	17.1	93.0	2.1	3.37	0.3	0.8	21.9	1.12	18.1	5.8	68.7	2.1
	4.50	0.7	1.6	17.5	12.7	0.98	20.8	17.9	89.7	1.9	4.50	0.6	1.4	22.5	1.12	18.7	5.9	71.3	2.1
90	2.25	0.2	0.4	16.6	12.7	1.22	20.7	13.6	109.4	3.4	1.86	0.1	0.2	22.6	1.16	18.6	5.7	70.0	2.1
	3.37	0.4	0.9	16.6	12.5	1.18	20.7	14.2	102.9	2.8									
	4.50	0.7	1.5	16.7	12.4	1.13	20.6	14.8	99.6	2.6									
100	2.25	0.1	0.3	15.7	12.3	1.39	20.5	11.3	119.3	4.3	1.24	0.1	0.2	22.6	1.16	18.6	5.7	70.0	2.1
	3.37	0.4	0.9	15.8	12.2	1.35	20.4	11.7	112.8	3.7									
	4.50	0.6	1.5	15.9	12.0	1.30	20.3	12.2	109.6	3.4									
110	2.25	0.1	0.3	14.9	11.8	1.58	20.3	9.4	129.3	5.4	0.93	0.1	0.2	22.6	1.16	18.6	5.7	70.0	2.1
	3.37	0.4	0.8	15.0	11.7	1.54	20.2	9.7	122.8	4.7									
	4.50	0.6	1.4	15.0	11.6	1.49	20.1	10.1	119.6	4.4									
120	2.25	0.1	0.2	14.1	11.4	1.79	20.2	7.9	139.4	6.7	0.74	0.1	0.2	22.6	1.16	18.6	5.7	70.0	2.1
	3.37	0.4	0.8	14.2	11.2	1.74	20.1	8.1	132.9	5.9									
	4.50	0.6	1.4	14.3	11.1	1.70	20.1	8.4	129.6	5.5									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

800 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										6.00	1.4	3.1	15.0	1.47	10.0	3.0	16.5	1.5
30	1.86	0.1	0.2	24.1	15.3	1.13	27.9	21.4	60.0	1.4	3.00	0.3	0.7	16.7	1.47	11.6	3.3	21.9	1.6
											4.50	0.9	2.0	17.1	1.48	12.0	3.4	24.4	1.8
											6.00	1.4	3.3	17.5	1.49	12.4	3.4	25.7	1.8
40	2.80	0.4	0.8	24.3	15.6	1.08	28.0	22.5	60.0	1.4	3.00	0.2	0.5	20.5	1.52	15.3	4.0	34.3	2.0
											4.50	0.8	1.8	20.9	1.53	15.7	4.0	37.7	2.1
											6.00	1.3	3.1	21.3	1.53	16.1	4.1	39.4	2.2
50	3.00	0.4	0.9	24.5	16.2	1.18	28.6	20.7	69.8	1.5	3.00	0.2	0.4	21.8	1.53	16.6	4.2	38.5	2.4
	4.50	0.8	1.9	24.4	15.9	1.13	28.2	21.7	63.1	1.4	4.50	0.7	1.7	22.2	1.54	17.0	4.2	42.1	2.5
	6.00	1.3	2.9	24.3	15.7	1.07	27.9	22.7	59.7	1.4	6.00	1.3	3.0	22.6	1.55	17.3	4.3	44.0	2.6
60	3.00	0.3	0.7	24.5	16.8	1.30	28.9	18.9	80.1	1.9	3.00	0.1	0.2	24.5	1.58	19.1	4.5	46.7	2.7
	4.50	0.8	1.8	24.4	16.6	1.24	28.6	19.6	73.3	1.6	4.50	0.7	1.5	24.9	1.59	19.4	4.6	51.0	2.9
	6.00	1.2	2.8	24.3	16.3	1.19	28.3	20.4	69.8	1.4	6.00	1.2	2.8	25.2	1.60	19.8	4.6	53.1	3.0
70	3.00	0.3	0.6	24.3	17.3	1.44	29.2	16.9	90.3	2.4	3.00	0.1	0.1	27.1	1.63	21.5	4.9	55.0	3.1
	4.50	0.7	1.7	24.1	17.0	1.38	28.8	17.5	83.4	2.0	4.50	0.6	1.4	27.4	1.64	21.9	4.9	59.8	3.3
	6.00	1.2	2.7	24.0	16.8	1.32	28.5	18.1	79.9	1.9	6.00	1.2	2.7	27.8	1.65	22.2	5.0	62.3	3.4
80	3.00	0.2	0.6	23.8	17.6	1.59	29.2	14.9	100.4	3.1	3.00	0.1	0.3	29.6	1.69	23.8	5.1	63.3	3.4
	4.50	0.7	1.6	23.7	17.3	1.54	28.9	15.4	93.5	2.6	4.50	0.7	1.6	30.0	1.70	24.2	5.2	68.7	3.5
	6.00	1.1	2.6	23.5	17.0	1.48	28.6	15.9	90.0	2.4	6.00	1.3	2.9	30.4	1.71	24.6	5.2	71.4	3.5
90	3.00	0.2	0.5	23.1	17.6	1.77	29.1	13.0	110.5	3.8	2.59	0.1	0.2	31.8	1.75	25.9	5.3	70.0	3.5
	4.50	0.7	1.5	23.0	17.3	1.72	28.8	13.4	103.5	3.3									
	6.00	1.1	2.6	22.8	17.0	1.66	28.5	13.8	100.0	3.0									
100	3.00	0.2	0.4	22.2	17.2	1.97	28.9	11.2	120.4	4.6	1.72	0.1	0.2	31.8	1.75	25.9	5.3	70.0	3.5
	4.50	0.6	1.4	22.1	16.9	1.92	28.6	11.5	113.5	4.0									
	6.00	1.1	2.5	21.9	16.7	1.86	28.3	11.8	110.0	3.8									
110	3.00	0.1	0.3	21.1	16.5	2.20	28.6	9.6	130.4	5.5	1.29	0.1	0.2	31.8	1.75	25.9	5.3	70.0	3.5
	4.50	0.6	1.4	21.0	16.2	2.14	28.3	9.8	123.4	4.9									
	6.00	1.0	2.4	20.9	15.9	2.09	28.0	10.0	120.0	4.6									
120	3.00	0.1	0.2	19.8	15.3	2.45	28.2	8.1	140.3	6.5	1.03	0.1	0.2	31.8	1.75	25.9	5.3	70.0	3.5
	4.50	0.6	1.3	19.7	15.0	2.39	27.9	8.2	133.4	5.8									
	6.00	1.0	2.3	19.6	14.7	2.34	27.5	8.4	129.9	5.5									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

900 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										6.75	5.2	12.1	17.4	1.79	11.3	2.8	16.5	1.6
30	2.18	1.4	3.1	29.0	18.3	1.10	32.7	26.3	60.0	1.2	3.38	2.1	4.9	18.3	1.58	12.9	3.4	22.0	1.7
											5.06	3.4	7.7	18.7	1.59	13.3	3.5	24.5	1.8
											6.75	4.6	10.6	19.2	1.60	13.7	3.5	25.7	1.9
40	3.40	1.7	3.8	30.8	21.9	0.96	34.0	32.0	60.0	1.2	3.38	1.3	3.0	22.1	1.52	17.0	4.3	34.5	2.0
											5.06	2.5	5.8	22.6	1.53	17.4	4.3	37.8	2.1
											6.75	3.7	8.6	23.1	1.54	17.8	4.4	39.5	2.2
50	3.38	1.5	3.4	31.3	22.8	1.05	34.9	30.0	71.6	1.3	3.38	1.1	2.4	23.6	1.54	18.4	4.5	38.6	2.3
	5.06	2.5	5.8	31.1	22.6	1.00	34.5	30.9	64.2	1.2	5.06	2.3	5.2	24.1	1.55	18.8	4.6	42.2	2.4
	6.75	3.6	8.2	30.8	22.4	0.96	34.1	32.0	60.5	1.2	6.75	3.5	8.1	24.6	1.55	19.2	4.6	44.1	2.5
60	3.38	1.2	2.8	31.2	23.3	1.19	35.2	26.3	81.8	1.9	3.38	0.7	1.6	26.8	1.61	21.3	4.9	46.8	2.6
	5.06	2.2	5.2	30.9	23.2	1.14	34.8	27.1	74.3	1.4	5.06	1.9	4.4	27.2	1.62	21.7	4.9	51.0	2.7
	6.75	3.3	7.6	30.7	23.0	1.10	34.4	27.9	70.6	1.3	6.75	3.1	7.2	27.7	1.62	22.2	5.0	53.2	2.8
70	3.38	1.0	2.2	30.3	23.1	1.38	35.0	21.9	91.7	2.7	3.38	0.4	1.0	30.0	1.69	24.2	5.2	55.0	2.8
	5.06	2.0	4.6	30.0	22.9	1.34	34.6	22.4	84.3	2.1	5.06	1.6	3.8	30.4	1.70	24.6	5.3	59.8	2.9
	6.75	3.0	7.0	29.8	22.7	1.30	34.2	22.9	80.6	1.8	6.75	2.8	6.6	30.9	1.70	25.1	5.3	62.2	3.0
80	3.38	0.7	1.7	28.9	22.2	1.62	34.5	17.8	101.4	3.7	3.38	0.3	0.7	33.0	1.74	27.1	5.6	63.2	3.0
	5.06	1.8	4.1	28.7	22.1	1.58	34.1	18.2	94.1	2.9	5.06	1.5	3.5	33.5	1.75	27.5	5.6	68.6	3.1
	6.75	2.8	6.5	28.4	21.9	1.54	33.7	18.5	90.5	2.6	6.75	2.7	6.3	33.9	1.76	27.9	5.7	71.3	3.1
90	3.38	0.6	1.3	27.3	21.2	1.89	33.7	14.5	111.0	4.9	2.96	0.1	0.2	35.5	1.72	29.6	6.0	70.0	3.1
	5.06	1.6	3.7	27.0	21.0	1.84	33.3	14.7	103.9	4.0									
	6.75	2.6	6.1	26.8	20.8	1.80	32.9	14.9	100.3	3.6									
100	3.38	0.4	1.0	25.6	20.1	2.15	33.0	11.9	120.7	6.3	1.97	0.1	0.2	35.5	1.72	29.6	6.0	70.0	3.1
	5.06	1.5	3.4	25.4	20.0	2.11	32.6	12.0	113.6	5.2									
	6.75	2.5	5.8	25.1	19.8	2.07	32.1	12.1	110.1	4.8									
110	3.38	0.4	0.9	24.1	19.4	2.41	32.4	10.0	130.5	7.9	1.48	0.1	0.2	35.5	1.72	29.6	6.0	70.0	3.1
	5.06	1.4	3.3	23.9	19.3	2.37	32.0	10.1	123.5	6.7									
	6.75	2.4	5.7	23.6	19.1	2.33	31.6	10.2	120.0	6.2									
120	3.38	0.4	0.9	23.1	19.4	2.64	32.1	8.8	140.5	9.7	1.18	0.1	0.2	35.5	1.72	29.6	6.0	70.0	3.1
	5.06	1.4	3.3	22.8	19.2	2.59	31.7	8.8	133.5	8.5									
	6.75	2.5	5.7	22.6	19.1	2.55	31.3	8.9	130.0	7.8									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

1,200 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										9.00	8.9	20.6	25.8	2.29	18.0	3.3	15.8	1.9
30	3.03	2.1	4.8	39.5	25.5	1.74	45.5	22.7	60.0	1.8	4.50	2.6	6.1	25.7	2.18	18.3	3.5	21.5	2.2
											6.75	4.9	11.3	26.5	2.19	19.0	3.5	24.1	2.4
											9.00	7.2	16.6	27.2	2.21	19.7	3.6	25.4	2.4
40	4.77	2.2	5.2	41.7	28.4	1.75	47.7	23.8	60.0	1.8	4.50	0.8	1.7	31.0	2.25	23.3	4.0	34.2	2.7
											6.75	3.0	7.0	31.7	2.26	24.0	4.1	37.6	2.8
											9.00	5.3	12.2	32.5	2.28	24.7	4.2	39.3	2.9
50	4.50	1.7	4.0	41.8	29.6	1.90	48.3	22.0	72.4	1.8	4.50	0.3	0.7	33.2	2.30	25.4	4.2	38.3	3.1
	6.75	3.6	8.2	41.8	29.2	1.83	48.0	22.8	64.8	1.8	6.75	2.6	6.0	33.9	2.32	26.0	4.3	42.0	3.3
	9.00	5.4	12.4	41.8	28.8	1.77	47.8	23.7	61.1	1.8	9.00	4.9	11.3	34.7	2.33	26.7	4.4	43.8	3.4
60	4.50	1.4	3.1	41.2	30.1	2.05	48.1	20.1	82.3	2.5	4.50	0.1	0.2	37.7	2.42	29.4	4.6	46.4	3.6
	6.75	3.2	7.3	41.2	29.7	1.98	47.9	20.8	74.8	2.0	6.75	2.0	4.7	38.4	2.43	30.1	4.6	50.7	3.8
	9.00	5.0	11.5	41.1	29.3	1.91	47.7	21.5	71.0	1.8	9.00	4.3	9.9	39.1	2.45	30.8	4.7	52.9	3.9
70	4.50	1.1	2.7	39.8	29.8	2.21	47.3	18.0	92.0	3.2	4.50	0.1	0.2	41.6	2.51	33.0	4.8	54.7	4.1
	6.75	3.0	6.8	39.8	29.4	2.15	47.1	18.6	84.6	2.7	6.75	1.8	4.2	42.3	2.53	33.7	4.9	59.6	4.3
	9.00	4.8	11.0	39.8	29.0	2.08	46.9	19.2	80.9	2.4	9.00	4.1	9.5	43.0	2.54	34.4	5.0	62.0	4.4
80	4.50	1.1	2.5	38.0	29.0	2.40	46.2	15.8	101.5	4.1	4.50	0.1	0.2	44.1	2.55	35.5	5.1	63.5	4.5
	6.75	2.9	6.6	38.0	28.6	2.34	46.0	16.3	94.3	3.5	6.75	2.0	4.6	44.9	2.56	36.1	5.1	68.8	4.6
	9.00	4.7	10.8	38.0	28.2	2.27	45.7	16.7	90.6	3.1	9.00	4.3	9.9	45.6	2.58	36.8	5.2	71.4	4.6
90	4.50	1.1	2.5	36.1	27.9	2.63	45.1	13.7	111.1	5.1	3.56	0.1	0.2	44.0	2.46	35.6	5.2	70.0	4.6
	6.75	2.9	6.7	36.1	27.5	2.56	44.8	14.1	104.0	4.5									
	9.00	4.7	10.8	36.1	27.1	2.49	44.6	14.5	100.4	4.1									
100	4.50	1.1	2.6	34.5	26.8	2.90	44.3	11.9	120.9	6.3	2.37	0.1	0.2	44.0	2.46	35.6	5.2	70.0	4.6
	6.75	2.9	6.8	34.4	26.5	2.83	44.1	12.2	113.9	5.5									
	9.00	4.7	10.9	34.4	26.1	2.76	43.9	12.5	110.3	5.1									
110	4.50	1.2	2.7	33.3	26.1	3.21	44.3	10.4	131.1	7.7	1.78	0.1	0.2	44.0	2.46	35.6	5.2	70.0	4.6
	6.75	3.0	6.8	33.3	25.7	3.15	44.1	10.6	124.0	6.7									
	9.00	4.8	11.0	33.3	25.3	3.08	43.8	10.8	120.4	6.4									
120	4.50	1.1	2.6	33.1	26.0	3.59	45.4	9.2	141.8	9.2	1.42	0.1	0.2	44.0	2.46	35.6	5.2	70.0	4.6
	6.75	2.9	6.8	33.1	25.6	3.52	45.1	9.4	134.4	8.2									
	9.00	4.7	10.9	33.1	25.2	3.45	44.9	9.6	130.8	7.7									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

1,200 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										9.00	2.1	4.9	18.3	2.14	11.0	2.5	17.4	2.3
30	2.78	0.1	0.2	36.9	24.9	1.42	41.8	26.0	60.0	1.4	4.50	0.6	1.3	22.1	2.16	14.7	3.0	23.2	2.4
											6.75	1.3	2.9	23.0	2.17	15.5	3.1	25.2	2.4
											9.00	2.0	4.5	23.8	2.18	16.4	3.2	26.2	2.4
40	4.37	0.4	1.0	39.2	27.5	1.31	43.7	29.9	60.0	1.4	4.50	0.4	1.0	29.6	2.21	22.0	3.9	34.8	2.5
											6.75	1.1	2.6	30.4	2.22	22.9	4.0	37.9	2.5
											9.00	1.8	4.2	31.3	2.22	23.7	4.1	39.5	2.5
50	4.50	0.5	1.0	39.2	28.6	1.48	44.2	26.5	70.5	1.4	4.50	0.4	0.9	31.9	2.22	24.3	4.2	38.8	2.6
	6.75	1.1	2.6	39.4	28.2	1.38	44.1	28.5	63.6	1.4	6.75	1.1	2.5	32.7	2.23	25.1	4.3	42.2	2.7
	9.00	1.8	4.2	39.5	27.9	1.29	44.0	30.7	60.2	1.4	9.00	1.8	4.2	33.6	2.24	25.9	4.4	44.0	2.7
60	4.50	0.4	1.0	38.9	29.2	1.66	44.5	23.4	80.6	2.0	4.50	0.4	0.8	36.3	2.25	28.6	4.7	46.8	2.7
	6.75	1.1	2.5	39.0	28.9	1.57	44.4	24.9	73.7	1.5	6.75	1.1	2.4	37.1	2.26	29.4	4.8	50.9	2.8
	9.00	1.8	4.1	39.2	28.5	1.47	44.2	26.6	70.2	1.4	9.00	1.8	4.1	38.0	2.27	30.2	4.9	53.0	2.8
70	4.50	0.4	0.9	37.8	29.1	1.88	44.2	20.1	90.5	2.7	4.50	0.3	0.8	40.4	2.29	32.6	5.2	54.8	2.8
	6.75	1.1	2.5	38.0	28.7	1.78	44.1	21.3	83.6	2.2	6.75	1.0	2.4	41.3	2.29	33.5	5.3	59.6	3.0
	9.00	1.8	4.1	38.2	28.4	1.69	44.0	22.6	80.2	1.9	9.00	1.7	4.0	42.2	2.30	34.3	5.4	62.0	3.0
80	4.50	0.4	0.9	36.3	28.3	2.13	43.5	17.0	100.3	3.6	4.50	0.3	0.7	44.5	2.33	36.5	5.6	63.0	3.1
	6.75	1.1	2.5	36.4	27.9	2.04	43.4	17.9	93.5	2.9	6.75	1.0	2.3	45.4	2.34	37.4	5.7	68.4	3.2
	9.00	1.7	4.0	36.6	27.6	1.94	43.3	18.9	90.1	2.7	9.00	1.7	4.0	46.2	2.35	38.2	5.8	71.1	3.2
90	4.50	0.4	0.9	34.3	27.0	2.42	42.5	14.2	109.9	4.7	4.01	0.1	0.2	48.2	2.39	40.1	5.9	70.0	3.2
	6.75	1.1	2.4	34.5	26.7	2.32	42.4	14.9	103.2	3.9									
	9.00	1.7	4.0	34.7	26.3	2.23	42.3	15.6	99.9	3.6									
100	4.50	0.4	0.8	32.0	25.5	2.74	41.4	11.7	119.5	6.0	2.67	0.1	0.2	48.2	2.39	40.1	5.9	70.0	3.2
	6.75	1.0	2.4	32.2	25.2	2.64	41.2	12.2	113.0	5.1									
	9.00	1.7	4.0	32.4	24.8	2.55	41.1	12.7	109.7	4.8									
110	4.50	0.3	0.8	29.7	23.9	3.09	40.2	9.6	129.1	7.4	2.00	0.1	0.2	48.2	2.39	40.1	5.9	70.0	3.2
	6.75	1.0	2.4	29.8	23.6	3.00	40.1	10.0	122.7	6.5									
	9.00	1.7	3.9	30.0	23.2	2.90	39.9	10.4	119.5	6.1									
120	4.50	0.3	0.7	27.3	22.4	3.48	39.1	7.8	138.8	9.1	1.60	0.1	0.2	48.2	2.39	40.1	5.9	70.0	3.2
	6.75	1.0	2.3	27.4	22.1	3.38	39.0	8.1	132.5	8.1									
	9.00	1.7	3.9	27.6	21.7	3.29	38.8	8.4	129.3	7.6									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

1,600 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										12.00	3.7	8.5	30.2	3.16	19.5	2.8	16.6	3.0
30	3.81	0.2	0.4	48.9	31.7	2.44	57.2	20.0	60.0	2.3	6.00	0.9	2.2	33.3	3.13	22.6	3.1	22.1	3.2
											9.00	2.1	5.0	34.7	3.15	23.9	3.2	24.4	3.2
											12.00	3.4	7.8	36.1	3.18	25.3	3.3	25.6	3.3
40	6.05	0.8	2.0	52.4	35.7	2.36	60.5	22.2	60.0	2.3	6.00	0.7	1.5	41.9	3.24	30.8	3.8	34.3	3.4
											9.00	1.9	4.3	43.3	3.26	32.2	3.9	37.5	3.5
											12.00	3.1	7.1	44.7	3.29	33.5	4.0	39.2	3.6
50	6.00	0.8	1.8	53.0	37.1	2.59	61.8	20.5	71.5	2.4	6.00	0.6	1.4	44.7	3.29	33.5	4.0	38.4	3.7
	9.00	1.9	4.5	52.9	36.7	2.47	61.3	21.4	64.2	2.3	9.00	1.8	4.2	46.1	3.32	34.8	4.1	41.9	3.8
	12.00	3.1	7.2	52.8	36.2	2.36	60.8	22.4	60.6	2.3	12.00	3.0	7.0	47.6	3.34	36.1	4.2	43.7	3.9
60	6.00	0.7	1.7	52.8	37.9	2.81	62.4	18.8	81.7	2.9	6.00	0.6	1.3	50.3	3.42	38.6	4.3	46.6	4.1
	9.00	1.9	4.4	52.7	37.5	2.70	61.9	19.5	74.3	2.5	9.00	1.8	4.1	51.7	3.45	39.9	4.4	50.7	4.2
	12.00	3.0	7.0	52.6	37.0	2.58	61.4	20.4	70.7	2.3	12.00	3.0	6.9	53.1	3.47	41.3	4.5	52.8	4.3
70	6.00	0.7	1.6	51.5	37.6	3.07	62.0	16.8	91.6	3.7	6.00	0.5	1.3	55.7	3.57	43.5	4.6	54.8	4.5
	9.00	1.8	4.3	51.4	37.2	2.95	61.5	17.4	84.3	3.1	9.00	1.8	4.1	57.2	3.60	44.9	4.7	59.6	4.7
	12.00	3.0	6.9	51.3	36.7	2.83	61.0	18.1	80.6	2.9	12.00	3.0	6.9	58.6	3.63	46.2	4.7	62.0	4.7
80	6.00	0.7	1.5	49.5	36.5	3.35	60.9	14.8	101.3	4.5	6.00	0.5	1.2	61.1	3.74	48.3	4.8	63.1	4.8
	9.00	1.8	4.2	49.4	36.1	3.23	60.4	15.3	94.1	3.9	9.00	1.7	4.0	62.5	3.77	49.7	4.9	68.4	5.0
	12.00	3.0	6.9	49.3	35.6	3.12	59.9	15.8	90.5	3.6	12.00	3.0	6.8	64.0	3.79	51.0	4.9	71.1	5.0
90	6.00	0.6	1.5	47.0	34.9	3.67	59.5	12.8	110.9	5.6	5.25	0.1	0.2	65.8	3.90	52.5	4.9	70.0	5.0
	9.00	1.8	4.1	46.9	34.5	3.56	59.0	13.2	103.8	4.9									
	12.00	3.0	6.8	46.8	34.0	3.44	58.5	13.6	100.3	4.6									
100	6.00	0.6	1.4	44.4	33.1	4.04	58.2	11.0	120.6	6.9	3.50	0.1	0.2	65.8	3.90	52.5	4.9	70.0	5.0
	9.00	1.8	4.1	44.3	32.7	3.92	57.7	11.3	113.6	6.1									
	12.00	2.9	6.8	44.2	32.2	3.81	57.2	11.6	110.1	5.7									
110	6.00	0.6	1.4	42.1	31.5	4.45	57.2	9.5	130.4	8.5	2.62	0.1	0.2	65.8	3.90	52.5	4.9	70.0	5.0
	9.00	1.7	4.0	42.0	31.1	4.33	56.7	9.7	123.5	7.5									
	12.00	2.9	6.7	41.9	30.6	4.22	56.3	9.9	120.0	7.0									
120	6.00	0.5	1.3	40.3	30.4	4.92	57.0	8.2	140.5	10.4	2.10	0.1	0.2	65.8	3.90	52.5	4.9	70.0	5.0
	9.00	1.7	3.9	40.2	30.0	4.80	56.5	8.4	133.6	9.1									
	12.00	2.9	6.6	40.1	29.5	4.68	56.1	8.6	130.1	8.6									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

1,500 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										12.00	3.3	7.6	23.4	2.62	14.5	2.6	17.5	2.8
30	3.39	0.5	1.2	45.3	31.8	1.64	50.9	27.7	60.0	1.8	6.00	1.1	2.4	27.9	2.60	19.0	3.1	23.4	2.9
											9.00	2.2	5.1	28.7	2.61	19.8	3.2	25.4	2.9
											12.00	3.3	7.7	29.5	2.61	20.6	3.3	26.4	2.9
40	5.27	0.6	1.4	47.4	34.4	1.55	52.7	30.5	60.0	1.8	6.00	0.6	1.5	35.4	2.60	26.5	4.0	35.8	3.0
											9.00	1.8	4.1	36.2	2.60	27.3	4.1	38.7	3.1
											12.00	2.9	6.7	37.0	2.60	28.1	4.2	40.1	3.1
50	6.00	0.7	1.7	47.7	35.6	1.71	53.5	27.9	68.6	1.8	6.00	0.4	1.0	37.6	2.61	28.7	4.2	40.0	3.2
	9.00	1.7	3.9	47.5	35.0	1.62	53.0	29.3	62.3	1.8	9.00	1.6	3.6	38.4	2.61	29.5	4.3	43.2	3.3
	12.00	2.7	6.2	47.3	34.3	1.54	52.5	30.8	59.1	1.8	12.00	2.7	6.2	39.2	2.61	30.3	4.4	44.7	3.3
60	6.00	0.6	1.3	47.1	36.4	1.96	53.8	24.1	78.7	2.3	6.00	0.1	0.2	41.7	2.62	32.7	4.7	48.6	3.4
	9.00	1.5	3.6	46.9	35.7	1.87	53.3	25.1	72.4	1.9	9.00	1.2	2.7	42.5	2.62	33.5	4.7	52.2	3.5
	12.00	2.5	5.8	46.7	35.1	1.79	52.8	26.2	69.2	1.9	12.00	2.3	5.3	43.3	2.62	34.3	4.8	54.0	3.6
70	6.00	0.5	1.1	45.6	36.1	2.26	53.3	20.2	88.6	3.2	6.00	0.1	0.2	45.6	2.65	36.6	5.0	57.3	3.7
	9.00	1.4	3.3	45.4	35.5	2.17	52.8	20.9	82.3	2.7	9.00	0.8	1.9	46.4	2.65	37.4	5.1	61.3	3.8
	12.00	2.4	5.6	45.2	34.8	2.08	52.3	21.7	79.1	2.4	12.00	2.0	4.6	47.2	2.65	38.2	5.2	63.4	3.9
80	6.00	0.4	1.0	43.4	35.2	2.60	52.3	16.7	98.3	4.2	6.00	0.1	0.2	49.6	2.69	40.4	5.4	65.9	4.0
	9.00	1.4	3.2	43.2	34.5	2.51	51.8	17.2	92.1	3.6	9.00	0.7	1.7	50.4	2.70	41.2	5.5	70.4	4.2
	12.00	2.4	5.5	43.0	33.9	2.42	51.3	17.7	89.0	3.3	12.00	1.9	4.3	51.2	2.70	42.0	5.6	72.7	4.3
90	6.00	0.4	0.9	40.8	33.8	2.97	51.0	13.8	107.9	5.4	4.37	0.1	0.2	53.0	2.75	43.7	5.7	70.0	4.0
	9.00	1.4	3.1	40.6	33.2	2.88	50.5	14.1	101.8	4.7									
	12.00	2.3	5.4	40.4	32.5	2.80	50.0	14.5	98.8	4.4									
100	6.00	0.4	0.8	38.2	32.3	3.37	49.7	11.3	117.6	6.8	2.91	0.1	0.2	53.0	2.75	43.7	5.7	70.0	4.0
	9.00	1.3	3.1	38.0	31.7	3.29	49.2	11.6	111.6	6.0									
	12.00	2.3	5.3	37.8	31.0	3.20	48.7	11.8	108.6	5.6									
110	6.00	0.3	0.7	35.8	31.0	3.79	48.7	9.4	127.4	8.5	2.18	0.1	0.2	53.0	2.75	43.7	5.7	70.0	4.0
	9.00	1.3	3.0	35.6	30.4	3.71	48.2	9.6	121.5	7.6									
	12.00	2.3	5.2	35.4	29.7	3.62	47.8	9.8	118.5	7.1									
120	6.00	0.2	0.5	33.9	30.2	4.23	48.3	8.0	137.4	10.3	1.75	0.1	0.2	53.0	2.75	43.7	5.7	70.0	4.0
	9.00	1.2	2.7	33.7	29.6	4.14	47.8	8.1	131.5	9.3									
	12.00	2.2	5.0	33.5	28.9	4.06	47.3	8.3	128.5	8.8									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

1,500 CFM Rated Airflow

EWT °F	WPD			Cooling - EAT 80/67°F						HWG Cap	WPD			HEATING - EAT 70°F					
	FLOW GPM	PSI	FT	TC	SC	Power kW	HR	EER	LWT		FLOW GPM	PSI	FT	HC	Power kW	HE	COP	LWT	HWG Cap
20	Operation Not Recommended										15.00	7.1	16.3	40.0	3.84	26.9	3.1	16.2	3.5
30	4.29	0.9	2.0	54.8	38.4	2.83	64.4	19.4	60.0	2.8	7.50	1.7	4.0	43.2	3.88	30.0	3.3	21.6	3.7
											11.25	3.6	8.4	44.5	3.89	31.2	3.3	24.2	3.8
											15.00	5.5	12.7	45.8	3.91	32.4	3.4	25.5	3.8
40	7.42	1.3	3.1	64.2	44.8	2.93	74.2	21.9	60.0	2.8	7.50	0.3	0.7	51.6	4.03	37.9	3.8	34.5	4.0
											11.25	2.2	5.1	52.9	4.04	39.1	3.8	37.7	4.1
											15.00	4.1	9.4	54.2	4.06	40.3	3.9	39.4	4.2
50	7.50	1.2	2.7	67.3	48.0	3.27	78.5	20.6	71.8	2.8	7.50	0.1	0.2	54.3	4.08	40.4	3.9	38.8	4.3
	11.25	2.8	6.4	66.3	46.8	3.12	76.9	21.2	64.3	2.8	11.25	1.9	4.4	55.6	4.10	41.6	4.0	42.3	4.5
	15.00	4.3	10.0	65.2	45.6	2.97	75.4	21.9	60.5	2.8	15.00	3.8	8.7	56.9	4.12	42.9	4.1	44.0	4.6
60	7.50	0.9	2.2	68.7	50.1	3.62	81.0	19.0	82.5	3.4	7.50	0.1	0.2	59.6	4.20	45.2	4.2	47.4	4.7
	11.25	2.5	5.8	67.6	48.8	3.47	79.5	19.5	74.7	2.9	11.25	1.6	3.6	60.8	4.22	46.4	4.2	51.4	4.9
	15.00	4.1	9.5	66.6	47.6	3.33	78.0	20.0	70.8	2.7	15.00	3.4	7.9	62.1	4.23	47.7	4.3	53.4	5.0
70	7.50	0.8	1.9	67.2	50.0	3.96	80.6	17.0	92.5	4.3	7.50	0.1	0.2	64.5	4.32	49.7	4.4	56.1	5.1
	11.25	2.4	5.6	66.1	48.8	3.81	79.1	17.4	84.7	3.7	11.25	1.4	3.3	65.7	4.33	51.0	4.4	60.5	5.4
	15.00	4.0	9.2	65.1	47.5	3.66	77.6	17.8	80.8	3.4	15.00	3.3	7.6	67.0	4.35	52.2	4.5	62.7	5.5
80	7.50	0.8	1.9	63.8	48.5	4.30	78.5	14.8	101.9	5.4	7.50	0.1	0.2	69.0	4.42	53.9	4.6	64.9	5.7
	11.25	2.4	5.5	62.8	47.3	4.15	76.9	15.1	94.3	4.7	11.25	1.4	3.1	70.3	4.44	55.1	4.6	69.7	5.7
	15.00	4.0	9.2	61.7	46.1	4.01	75.4	15.4	90.5	4.3	15.00	3.2	7.5	71.6	4.46	56.4	4.7	72.1	5.7
90	7.50	0.8	1.8	59.7	46.4	4.69	75.7	12.7	111.3	6.7	5.64	0.1	0.2	71.8	4.49	56.4	4.7	70.0	5.7
	11.25	2.4	5.5	58.6	45.2	4.54	74.1	12.9	103.9	5.8									
	15.00	4.0	9.1	57.6	43.9	4.39	72.6	13.1	100.2	5.4									
100	7.50	0.7	1.7	55.8	44.3	5.14	73.4	10.9	120.7	8.1	3.76	0.1	0.2	71.8	4.49	56.4	4.7	70.0	5.7
	11.25	2.3	5.4	54.8	43.1	4.99	71.8	11.0	113.5	7.2									
	15.00	3.9	9.0	53.8	41.9	4.85	70.3	11.1	109.9	6.7									
110	7.50	0.6	1.4	53.4	43.1	5.70	72.8	9.4	130.7	9.7	2.82	0.1	0.2	71.8	4.49	56.4	4.7	70.0	5.7
	11.25	2.2	5.1	52.3	41.9	5.55	71.2	9.4	123.5	8.7									
	15.00	3.8	8.8	51.3	40.6	5.40	69.7	9.5	119.9	8.2									
120	7.50	0.4	0.9	53.3	43.4	6.38	75.1	8.4	141.6	11.5	2.26	0.1	0.2	71.8	4.49	56.4	4.7	70.0	5.7
	11.25	2.0	4.5	52.2	42.1	6.23	73.5	8.4	134.1	10.4									
	15.00	3.5	8.2	51.2	40.9	6.09	72.0	8.4	130.4	9.9									

- Interpolation is permissible; extrapolation is not.
- All entering air conditions are 80°F (26.6°C) DB and 67°F (19.4°C) WB in cooling, and 70°F (21°C) DB in heating.
- AHRI/ISO certified conditions are 80.6°F (27°C) DB and 66.2°F (19°C) WB in cooling and 68°F (20°C) DB in heating.
- Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
- All performance is based upon the lower voltage of dual voltage rated units.
- Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
- Operation below 50°F (10.0°C) EWT is based upon 15% methanol antifreeze solution.
- Operation below 60°F (15.5°C) EWT requires optional insulated water/refrigerant circuit.
- See performance correction tables for operating conditions other than those listed above.
- See Performance Data Selection Notes for operation in the shaded areas.
- Regular Cooling operation with an EWT of less than 50°F (10.0°C) is not recommended unless variable water flow is available.
- Regular Heating operation with an EWT of more than 90°F (32°C) is not recommended unless variable water flow is available.
- For quiet operation and long term reliability, it is recommended that systems be designed to avoid continuous operation in the outlined areas.
- Performance capacities shown in thousands of Btuh.

Blower Performance: CV EC Standard Unit

CV EC MOTOR ADVANTAGE

A major benefit of the CV EC motor over other blower motor types is its ability to adjust airflow remotely through a compatible communicating thermostat or locally with a Wireless Service Tool. Airflow levels can be adjusted in increments of 25 CFM from the unit's minimum and maximum CFM range (see the Blower Performance: CV EC Blower Motor Standard Unit table for details).

Blower Performance: CV EC Blower Motor Standard Unit

Model	Max ESP (in. wg)	Fan Motor (hp)	Airflow Range	Cooling Mode		Dehumid Mode		Heating Mode		Fan Only Mode	Aux/ Emerg Mode
				Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1		
MA024	1	1/2	Minimum	600	450	600	450	600	450	300	700
			Default	750	575	650	500	750	575	350	850
			Maximum	850	650	800	600	850	850	850	1,000
MA036	0.9	1/2	Minimum	900	600	900	600	900	600	450	1,350
			Default	1,125	750	975	650	1,125	750	525	1,350
			Maximum	1,250	950	1,200	800	1,250	1,250	1,250	1,500
MA048	1	1	Minimum	1,200	900	1,200	900	1,200	900	600	1,350
			Default	1,500	1,125	1,300	975	1,500	1,125	700	1,500
			Maximum	1,700	1,300	1,600	1,200	1,700	1,700	1,700	2,000
MA060	0.7	1	Minimum	1,500	1,200	1,500	1,200	1,500	1,200	750	1,500
			Default	1,875	1,500	1,625	1,300	1,875	1,500	875	1,875
			Maximum	2,100	1,700	2,000	1,600	2,100	2,100	2,100	2,300

MJ Standard with Modulating Valve

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor A				Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
				MCC	RLA	LRA	Qty			
MJ024	J	208/230-1-60	187/252	16.0	10.3	62.0	1	10.3	12.9	20
MJ036	J	208/230-1-60	187/252	22.7	14.6	76.0	1	14.6	18.3	30
MJ048	J	208/230-1-60	187/252	28.6	18.3	138.0	1	18.3	22.9	40
MJ060	J	208/230-1-60	187/252	34.8	22.3	149.0	1	22.3	27.9	50

MJ with HWG Pump

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor A				HWG Pump FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
				MCC	RLA	LRA	Qty				
MJ024	J	208/230-1-60	187/252	16.0	10.3	62.0	1	0.28	10.6	13.2	20
MJ036	J	208/230-1-60	187/252	22.7	14.6	76.0	1	0.28	14.9	18.5	30
MJ048	J	208/230-1-60	187/252	28.6	18.3	138.0	1	0.28	18.6	23.2	40
MJ060	J	208/230-1-60	187/252	34.8	22.3	149.0	1	0.28	22.6	28.2	50

MJ with Standard Head Flow Controller

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor A				GEO Pump FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
				MCC	RLA	LRA	Qty				
MJ024	J	208/230-1-60	187/252	16.0	10.3	62.0	1	0.64	10.9	13.5	20
MJ036	J	208/230-1-60	187/252	22.7	14.6	76.0	1	0.64	15.2	18.9	30
MJ048	J	208/230-1-60	187/252	28.6	18.3	138.0	1	0.64	18.9	23.5	40
MJ060	J	208/230-1-60	187/252	34.8	22.3	149.0	1	0.64	22.9	28.5	50

MJ with High Head Flow Controller

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor A				UPMXL Pump FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
				MCC	RLA	LRA	Qty				
MJ024	J	208/230-1-60	187/252	16.0	10.3	62.0	1	1.44	11.7	14.3	20
MJ036	J	208/230-1-60	187/252	22.7	14.6	76.0	1	1.44	16.0	19.7	30
MJ048	J	208/230-1-60	187/252	28.6	18.3	138.0	1	1.44	19.7	24.3	40
MJ060	J	208/230-1-60	187/252	34.8	22.3	149.0	1	1.44	23.7	29.3	50

MJ with Standard Head Flow Controller and HWG Pump

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor A				GEO Pump FLA	HWG Pump FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
				MCC	RLA	LRA	Qty					
MJ024	J	208/230-1-60	187/252	16.0	10.3	62.0	1	0.64	0.28	11.2	13.8	20
MJ036	J	208/230-1-60	187/252	22.7	14.6	76.0	1	0.64	0.28	15.5	19.2	30
MJ048	J	208/230-1-60	187/252	28.6	18.3	138.0	1	0.64	0.28	19.2	23.8	40
MJ060	J	208/230-1-60	187/252	34.8	22.3	149.0	1	0.64	0.28	23.2	28.8	50

MJ with High Head Flow Controller and HWG Pump

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor A				UPMXL Pump FLA	HWG Pump FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
				MCC	RLA	LRA	Qty					
MJ024	J	208/230-1-60	187/252	16.0	10.3	62.0	1	1.44	0.28	12.0	14.6	20
MJ036	J	208/230-1-60	187/252	22.7	14.6	76.0	1	1.44	0.28	16.3	20.0	30
MJ048	J	208/230-1-60	187/252	28.6	18.3	138.0	1	1.44	0.28	20.0	24.6	40
MJ060	J	208/230-1-60	187/252	34.8	22.3	149.0	1	1.44	0.28	24.0	29.6	50

MA Standard

Model	Voltage Code	Rated Voltage	Voltage Min/Max	Fan Motor FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
MA024	J	208/230-1-60	187/252	4.20	4.20	5.3	15
MA036	J	208/230-1-60	187/252	5.90	5.90	7.4	15
MA048	J	208/230-1-60	187/252	5.90	5.90	7.4	15
MA060	J	208/230-1-60	187/252	7.50	7.50	9.4	15

Part Load Performance: Correction Tables

Cooling Corrections

Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F								Power	Heat of Rejection
		65	70	75	80	85	90	95	100		
45	0.876	1.302	1.389	*	*	*	*	*	*	0.981	0.895
50	0.883	1.099	1.241	*	*	*	*	*	*	0.985	0.901
55	0.903	0.871	1.060	1.271	*	*	*	*	*	0.989	0.918
60	0.935	0.617	0.844	1.079	1.319	*	*	*	*	0.993	0.945
65	0.979		0.595	0.849	1.096	1.342	*	*	*	0.998	0.982
67	1.000		0.486	0.747	1.000	1.245	1.481	*	*	1.000	1.000
70	1.035			0.583	0.842	1.090	1.327	1.552	*	1.003	1.030
75	1.105				0.552	0.811	1.057	1.290	1.510	1.008	1.086

- * = Sensible capacity equals total capacity.

Entering Air Heating Correction

Entering Air DB°F	Heating Capacity	Power	Heat of Extraction
40	1.084	0.732	1.161
45	1.073	0.764	1.14
50	1.060	0.802	1.117
55	1.046	0.846	1.090
60	1.031	0.893	1.061
65	1.016	0.945	1.031
68	1.006	0.978	1.013
70	1.000	1.000	1.000
75	0.995	1.058	0.968
80	0.968	1.117	0.936

- AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1 and Heating - 68°F DB/59°F WB entering air temperature

Airflow Correction

Airflow	Heating				Cooling			
% of Nominal	Htg Cap	Power	Heat of Extraction	Total Cap	Sens Cap	S/T	Power	Heat of Rejection
60.00	0.946	1.153	0.896	0.925	0.788	0.852	0.913	0.922
68.75	0.959	1.107	0.924	0.946	0.829	0.876	0.926	0.942
75.00	0.969	1.078	0.942	0.96	0.861	0.897	0.937	0.955
81.25	0.977	1.053	0.959	0.972	0.895	0.921	0.950	0.968
87.50	0.985	1.032	0.974	0.983	0.930	0.946	0.965	0.979
93.75	0.993	1.014	0.988	0.992	0.965	0.973	0.982	0.990
100.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106.25	1.006	0.989	1.011	1.007	1.033	1.027	1.020	1.009
112.50	1.012	0.982	1.019	1.012	1.064	1.052	1.042	1.018
118.75	1.018	0.979	1.027	1.016	1.092	1.075	1.066	1.025
125.00	1.022	0.977	1.033	1.018	1.116	1.096	1.091	1.032
130.00	1.026	0.975	1.038	1.019	1.132	1.110	1.112	1.037

Full Load Performance: Correction Tables

Cooling Corrections

Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F								Power	Heat of Rejection
		65	70	75	80	85	90	95	100		
45	0.832	1.461	1.603	*	*	*	*	*	*	0.946	0.853
50	0.850	1.174	1.357	*	*	*	*	*	*	0.953	0.870
55	0.880	0.902	1.115	1.331	*	*	*	*	*	0.964	0.896
60	0.922		0.875	1.103	1.329	*	*	*	*	0.977	0.932
65	0.975		0.639	0.869	1.096	1.320	*	*	*	0.993	0.979
67	1.000		0.545	0.774	1.000	1.223	1.444	*	*	1.000	1.000
70	1.040			0.630	0.853	1.075	1.297	1.517	*	1.010	1.036
75	1.117				0.601	0.821	1.046	1.275	1.510	1.032	1.100

- * = Sensible capacity equals total capacity.

Entering Air Heating Correction

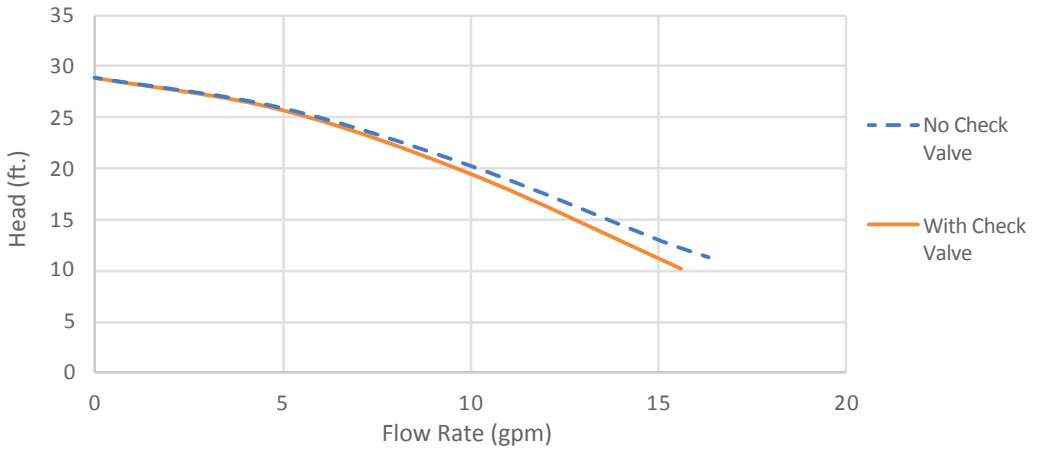
Entering Air DB°F	Heating Capacity	Power	Heat of Extraction
40	1.052	0.779	1.12
45	1.043	0.808	1.102
50	1.035	0.841	1.084
55	1.027	0.877	1.065
60	1.019	0.915	1.045
65	1.010	0.957	1.023
68	1.004	0.982	1.010
70	1.000	1.000	1.000
75	0.989	1.045	0.974
80	0.976	1.093	0.946

- AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1 and Heating - 68°F DB/59°F WB entering air temperature

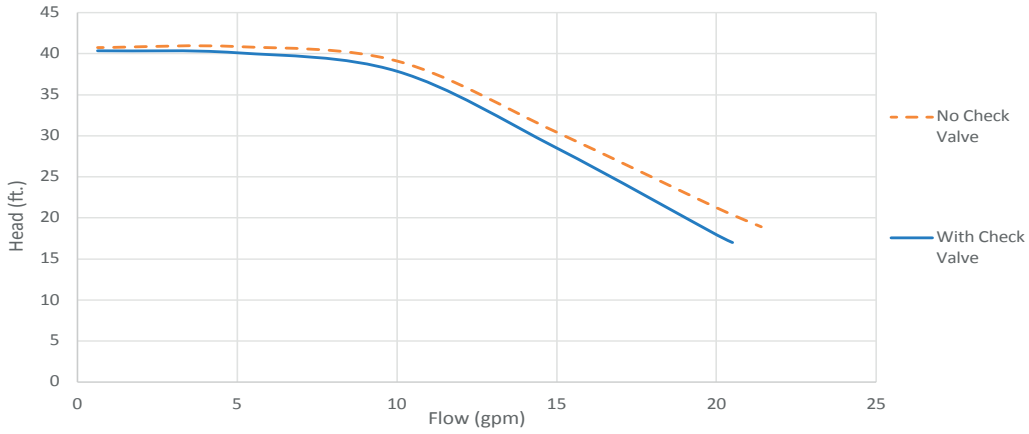
Airflow Correction

Airflow	Heating				Cooling			
% of Nominal	Htg Cap	Power	Heat of Extraction	Total Cap	Sens Cap	S/T	Power	Heat of Rejection
60.00	0.946	1.153	0.896	0.925	0.788	0.852	0.913	0.922
68.75	0.959	1.107	0.924	0.946	0.829	0.876	0.926	0.942
75.00	0.969	1.078	0.942	0.96	0.861	0.897	0.937	0.955
81.25	0.977	1.053	0.959	0.972	0.895	0.921	0.950	0.968
87.50	0.985	1.032	0.974	0.983	0.930	0.946	0.965	0.979
93.75	0.993	1.014	0.988	0.992	0.965	0.973	0.982	0.990
100.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106.25	1.006	0.989	1.011	1.007	1.033	1.027	1.020	1.009
112.50	1.012	0.982	1.019	1.012	1.064	1.052	1.042	1.018
118.75	1.018	0.979	1.027	1.016	1.092	1.075	1.066	1.025
125.00	1.022	0.977	1.033	1.018	1.116	1.096	1.091	1.032
130.00	1.026	0.975	1.038	1.019	1.132	1.110	1.112	1.037

Standard Head Variable Pump Performance



High Head Variable Pump Performance



Antifreeze Correction Table

Antifreeze Type	Antifreeze %	Cooling EWT 90°F			Heating EWT 30°F		WPD Corr. Fct. EWT 30°F
		Total Cap	Sens Cap	Power	Htg Cap	Power	
Water	0	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.995	0.995	1.003	0.989	0.997	1.070
	15	0.986	0.986	1.009	0.968	0.990	1.210
	25	0.978	0.978	1.014	0.947	0.983	1.360
Methanol	5	0.997	0.997	1.002	0.989	0.997	1.070
	15	0.990	0.990	1.007	0.968	0.990	1.160
	25	0.982	0.982	1.012	0.949	0.984	1.220
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.140
	15	0.994	0.994	1.005	0.944	0.983	1.300
	25	0.986	0.986	1.009	0.917	0.974	1.360
Ethylene Glycol	5	0.998	0.998	1.002	0.993	0.998	1.040
	15	0.994	0.994	1.004	0.980	0.994	1.120
	25	0.988	0.988	1.008	0.966	0.990	1.200

MARS MJ Physical Data

Model Size	024	036	048	060
Compressor (1 each)	Scroll			
Factory Charge R-454B - (oz.)[1]	60	96	100	136
Refrigerant Leak Detection System	R[2]	R[2]	R[2]	R[2]
Number of Sensors	1	1	1	1
Water Connection Size				
Swivel (NPSH)	1"	1"	1"	1"
MJ Weight				
Weight - Operating lbs.	233	251	280	295
Weight - Packaged lbs.	248	266	295	310
Hot Water Generator				
Swivel (MJ)	1	1	1	1

- All dimensions displayed above are in inches unless otherwise marked.
- All units have TXV expansion device
- NPSH = National Pipe Straight Hose
- O = Optional, R = Required

1. The factory charge is sized for a nominal 25 ft (7.62 m) line set. See the IOM for more information.
2. RDS is required on all MARS MJ sizes

MARS MA Physical Data

Model	024	036	048	060
Water Connection Size				
Liquid I.D. (in.)	3/8	3/8	3/8	3/8
Suction I.D. (in.)	3/4	7/8	7/8	7/8
Refrigerant Leak Detection System	R[1]	R[1]	R[1]	R[1]
Number of Sensors	1	1	1	1
Fan Motor - CV EC				
Filter Standard 1" Throwaway	16 x 20	20 x 20		20 x 24
Weight - Operating lbs.	80	173	180	198
Weight - Packaged lbs.	96	198	218	236

1. The RDS is factory installed on all MARS MA sizes.

MARS MK Physical Data

Model Size	024	036	048	060
Refrigerant Circuit				
Liquid I.D. (in.)	3/8	3/8	3/8	3/8
Suction I.D. (in.)	3/4	7/8	7/8	7/8
Refrigerant Leak Detection System	R[1]	R[1]	R[1]	R[1]
Number of Sensors	1	1	1	1
Cased Coil Dimensions				
A - Width - in.	17 1/2	21	21	24 1/2
B - Coil Height (in.)	14 1/2	25 7/8	25 7/8	30
C- Height (in.)	20	28	28	32
Weight				
Coil Weight lbs.	43	71	71	100
Shipping Weight lbs.	48	78	78	110

1. The RDS is factory installed on all MARS MK sizes.

Unit Maximum Water Working Pressure

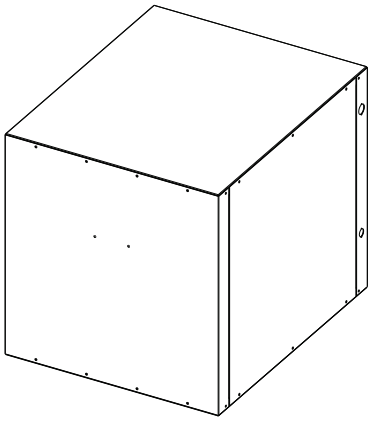
Options	Max Pressure PSIG [kPa]
Base Unit	300 [2,068]
Internal Modulating Valve	300 [2,068]

MARS MJ Dimensional Data

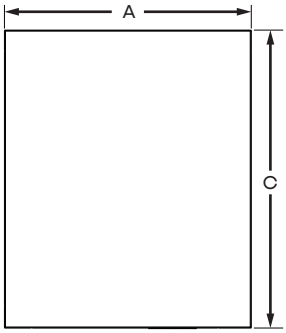
Models:
MA/MJ/MK
024-060

Model		Overall Cabinet			Water Connections							Refrigerant Connection				Electrical Knockouts			
		A Width	B Height	C Depth	1 Water In/ Out Swivel	2 HWG In/ Out Swivel	D1 Water In	D2 Water In	E Water Out	F HWG In	G HWG Out	3 Suction	4 Liquid	H Suction	I Liquid	J	K	L	M
024	in	25.4	26.3	30.6	1"	1"	2.0	3.8	8.4	15.4	18.7	7/8"	3/8"	23.6	21.8	4.4	5.9	7.4	1.7
	cm	64.5	66.8	165.1	1"	1"	5.1	9.7	21.3	39.1	47.5	7/8"	3/8"	59.9	55.4	11.2	15.0	18.8	4.3
036	in	25.4	26.3	30.6	1"	1"	2.0	3.8	8.4	15.4	18.7	7/8"	3/8"	23.6	21.8	4.4	5.9	7.4	1.7
	cm	64.5	66.8	165.1	1"	1"	5.1	9.7	21.3	39.1	47.5	7/8"	3/8"	59.9	55.4	11.2	15.0	18.8	4.3
048	in	25.4	26.3	30.6	1"	1"	2.0	3.8	8.4	15.4	18.7	7/8"	3/8"	23.6	21.8	4.4	5.9	7.4	1.7
	cm	64.5	66.8	165.1	1"	1"	5.1	9.7	21.3	39.1	47.5	7/8"	3/8"	59.9	55.4	11.2	15.0	18.8	4.3
060	in	25.4	26.3	30.6	1"	1"	2.0	3.8	8.4	15.4	18.7	7/8"	1/2"	23.6	21.8	4.4	5.9	7.4	1.7
	cm	64.5	66.8	165.1	1"	1"	5.1	9.7	21.3	39.1	47.5	7/8"	1/2"	59.9	55.4	11.2	15.0	18.8	4.3

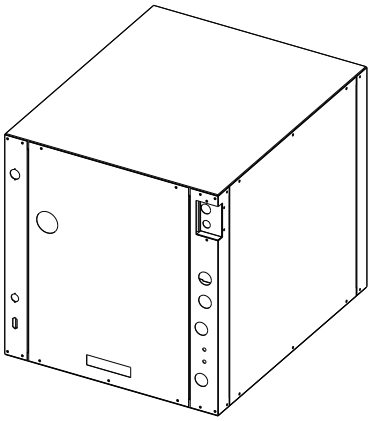
ISO BACK



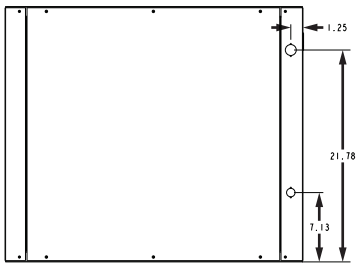
TOP



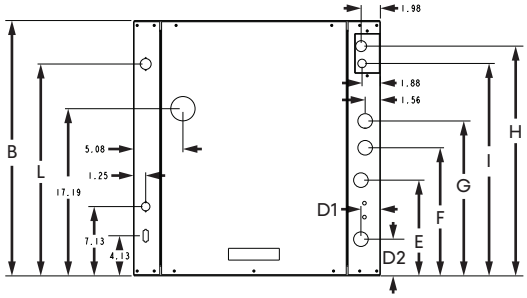
ISO FRONT



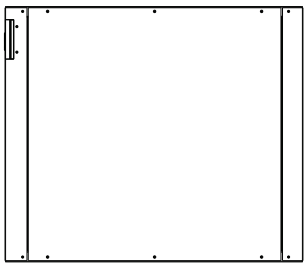
LEFT



FRONT



RIGHT

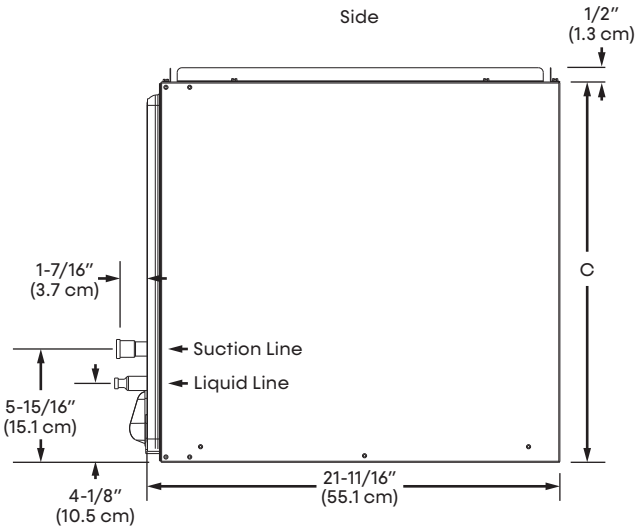


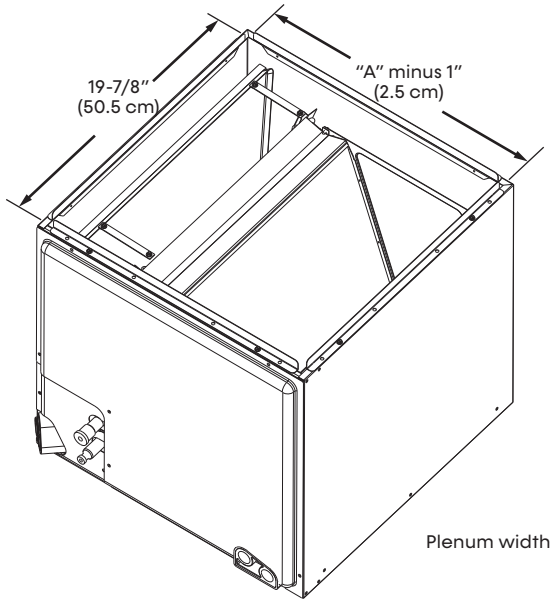
MARS MK Dimensional Data

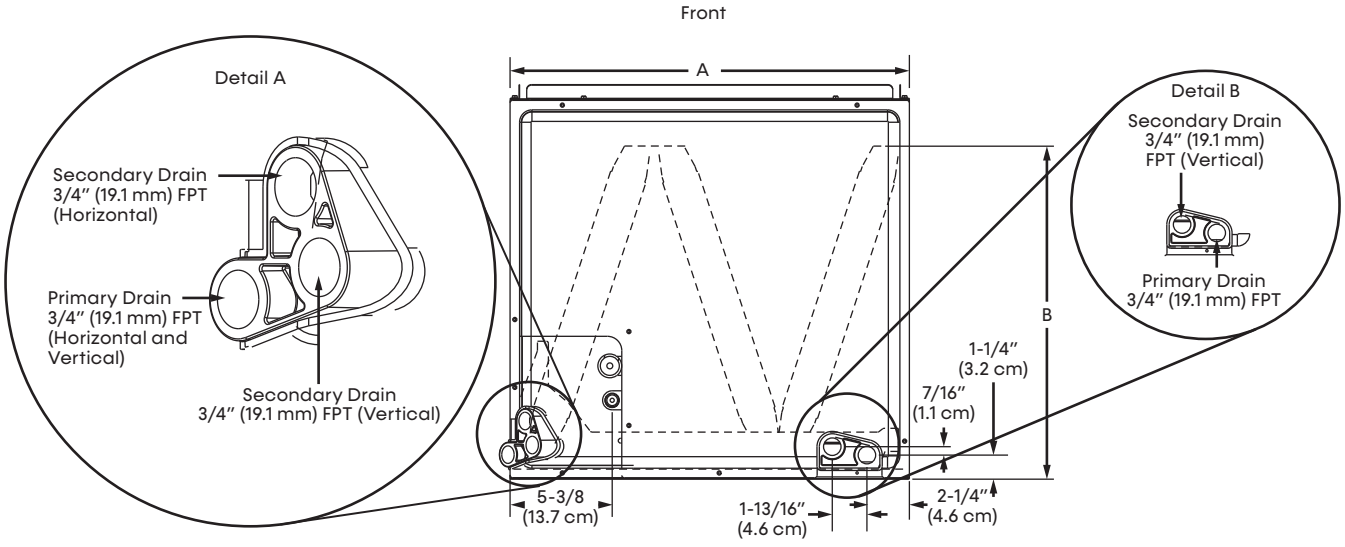
Model Size	024	036	048	060
Refrigerant Circuit				
Liquid I.D. (in.)	3/8	3/8	3/8	3/8
Suction I.D. (in.)	3/4	7/8	7/8	7/8
Refrigerant Leak Detection System	R[1]	R[1]	R[1]	R[1]
Number of Sensors	1	1	1	1
Cased Coil Dimensions				
A - Width - in.	17 1/2	21	21	24 1/2
B - Coil Height (in.)	14 1/2	25 7/8	25 7/8	30
C- Height (in.)	20	28	28	32
Weight				
Coil Weight lbs.	43	71	71	100
Shipping Weight lbs.	48	78	78	110

1. The RDS is factory installed on all MARS MK sizes.

NOTES:
- Flanges are provided for field installation
- Casing top and bottom openings are the same direction



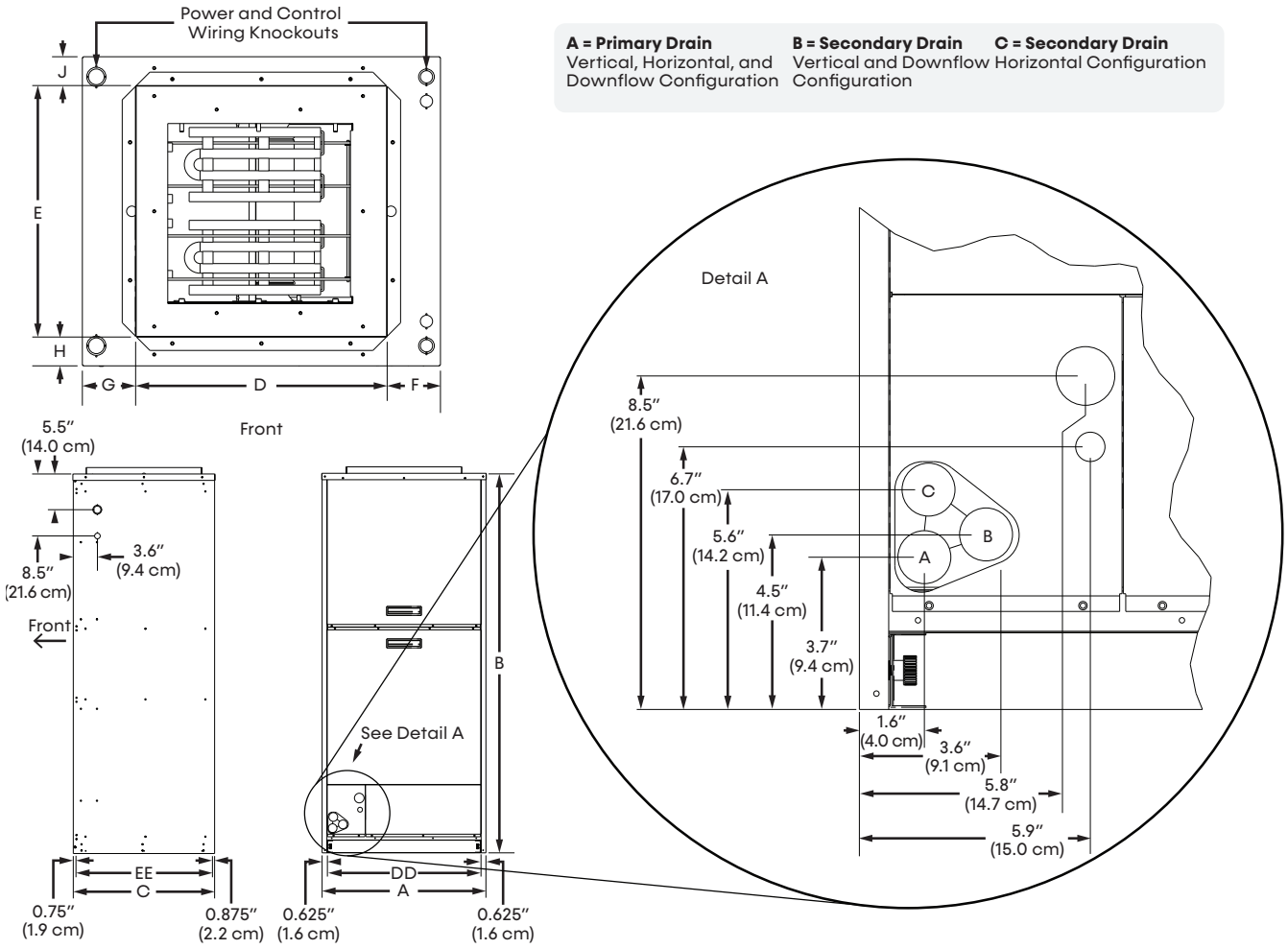




MARS MA Dimensional Data

Models:
MA/MJ/MK
024-060

Cabinet Size		Overall Cabinet			Supply Air Opening		Return Air Opening		F	G	H	J
		A Width	B Height	C Depth	D Width	E Depth	DD Width	EE Depth				
MA024	in.	18.5	44.0	22.0	14.0	14.0	17.3	20.4	2.3	2.3	4.1	4.1
	cm.	47.0	111.8	55.9	35.6	35.5	43.9	51.8	5.8	5.8	10.3	10.3
MA036 MA048	in.	22.0	55.0	22.0	18.0	18.0	20.8	20.4	2.1	2.1	2.1	2.1
	cm.	55.9	139.7	55.9	45.7	45.7	52.8	51.8	5.2	5.2	5.2	5.2
MA060	in.	25.5	59.0	22.0	18.0	18.0	24.3	20.4	3.8	3.8	2.1	2.1
	cm.	64.8	149.9	55.9	45.7	45.7	61.7	51.8	9.9	9.9	5.2	5.2



A = Primary Drain Vertical, Horizontal, and Downflow Configuration

B = Secondary Drain Vertical and Downflow Configuration

C = Secondary Drain Horizontal Configuration

MINIMUM INSTALLATION AREA

Minimum installation area for units that do not have a blower (e.g. w-w) where you do not need mechanical/natural ventilation.

Model	Charge (oz)	Minimum Installation Area ft² [A_{min}]			
		Floor	Window	Wall	Ceiling
MJ024	60	290	115	66	54
MJ036	96	743	231	105	87
MJ048	106	906	282	117	96
MJ060	136	1,492	464	153	123

A_{min}	=	Minimum area where the unit is installed where ventilation is not required.
h_{inst} (floor)	=	0.0 ft (0.0 m)
h_{inst} (window)	=	3.3 ft (1.0 m)
h_{inst} (wall)	=	5.9 ft (1.8 m)
h_{inst} (ceiling)	=	7.2 ft (2.2 m)

Minimum area where the unit can be installed if it has a blower so that you do not need mechanical/natural ventilation.

Model	Charge (oz)	Minimum Installation Area ft² [A_{min}]			
		Floor	Window	Wall	Ceiling
MA/MK024	60	206	115	66	54
MA/MK036	96	330	184	106	87
MA/MK048	106	364	203	117	96
MA/MK060	136	467	261	150	123

A_{min}	=	Minimum area where unit is installed when unit has incorporated airflow.
h_{inst} (floor)	=	0.0 ft (0.0 m)
h_{inst} (window)	=	3.3 ft (1.0 m)
h_{inst} (wall)	=	5.9 ft (1.8 m)
h_{inst} (ceiling)	=	7.2 ft (2.2 m)

Minimum CFM of unit that has a blower needed for mitigation mode.

Model	Charge (oz)	Minimum CFM [Q_{min}]
MA/MK024	60	101.5
MA/MK036	96	162.4
MA/MK048	106	179.3
MA/MK060	136	230.0

Q_{min}	=	Minimum CFM provided by unit

Minimum area and CFM requirements for the conditioned space (with a blower).

Model	Charge (oz)	Conditioned Area	
		TA_{min} ft²	Q_{min} (ft²/min)
MA/MK024	60	101.5	3.07
MA/MK036	96	162.4	4.92
MA/MK048	106	179.3	5.43
MA/MK060	136	230.0	6.97

TA_{min}	=	Minimum conditioned area for venting leaked refrigerant
Q_{min}	=	Minimum ventilation flow rate for conditioned space if space is less than TA_{min}

Minimum area of opening for natural ventilation to the outdoors (with or without a blower).

Model	Charge (oz)	A_{nv} in²
MA/MK/MJ024	60	104.0
MA/MK/MJ036	96	131.6
MA/MK/MJ048	106	138.3
MA/MK/MJ060	136	156.6

A_{nv}	=	Minimum natural ventilation area opening to the outdoors

Minimum Installation Area

When the openings for connected rooms or natural ventilation are required, the following conditions shall be applied:

- The area of any openings above 11.8 inches (300 mm) from the floor shall not be considered in determining compliance with Anv_{min}.
- At least 50% of the required opening area Anv_{min} shall be below 7.8 inches (200 mm) from the floor.
- The bottom of the lowest openings shall not be higher than the point of release when the unit is installed and not more than 3.9 inches (100 mm) from the floor.
- Openings are permanent openings which cannot be closed.
  - For openings extending to the floor, the height shall not be less than 0.78 inch (20 mm) above the surface of the floor covering.
- A second higher opening shall be provided. The total size of the second opening shall not be less than 50% of minimum opening area for Anv_{min} and shall be at least 3.3 ft (1.5 m) above the floor.

ACCESSORIES AND OPTIONS

Hot Water Generator

An optional insulated heat-reclaiming desuperheater coil of vented double-wall copper construction suitable for potable water shall be provided. The coil, hot-water circulating pump, and associated controls shall be factory mounted inside the unit cabinet. Sensors mounted on the compressor-discharge line and the potable water inlet shall transmit temperatures to the unit microprocessor where internal logic will determine when hot-water generation is feasible. The microprocessor shall cycle the pump periodically during unit operation to sample the DHW tank temperature. The microprocessor shall include multiple temperature set points to select from for hot water generation control.

Cupro-Nickel Heat Exchanger

An optional corrosion-resistant CuNi coaxial heat exchanger shall be factory installed in lieu of standard copper construction.

Thermostat (field installed)

An electronic communicating LCD thermostat shall be provided. The thermostat shall offer three stages of heating and two stages of cooling with precise temperature control and have a four-wire connection to the unit. The thermostat shall be capable of manual or automatic change-over operation and shall operate in standard or programmable mode. An integrated humidity-control feature shall be included to control a humidifier and/or a dehumidifier. The thermostat shall include a utility demand reduction feature to be initiated by an independent time program or an external input.

The thermostat shall have a comprehensive installation setup menu to include configuration of the unit CFM for each mode of operation and configuration of the water flow rate through the unit, including variation of the water flow rate based on the stage of unit operation.

The thermostat shall display system faults with probable cause and troubleshooting guidance. Comprehensive service diagnostics menus shall display, system inputs, system outputs, configuration settings, Geo-source inlet and outlet temperatures, compressor-discharge line temperature, liquid line temperature, leaving air temperature, and entering potable-water temperature (on units equipped with a Hot Water Generator). The thermostat shall allow for immediate manual control of all DXM2.5 outputs at the thermostat for rapid troubleshooting.

Auxiliary Heater (field installed)

An external, field-installed electric heater shall provide supplemental and/or emergency heating capability when used with the three-stage heating thermostat.

Date	Item	Action
05/16/25	All	Created

Due to ongoing product improvements, specifications, and dimensions are subject to change and correction without notice or incurring obligations. Determining the application and suitability for use of any product is the responsibility of the installer. Additionally, the installer is responsible for verifying dimensional data on the actual product prior to beginning any installation preparations.

Incentive and rebate programs have precise requirements as to product performance and certification. All products meet applicable regulations in effect on date of manufacture; however, certifications are not necessarily granted for the life of a product. Therefore, it is the responsibility of the applicant to determine whether a specific model qualifies for these incentive/rebate programs.

1900 Wellworth Ave. | Jackson, MI 49203
Phone: 517.787.2100
www.marsdelivers.com

RP3015