

**1.5 to 6 Ton Vertical Self-Contained Packaged Wall Mount Air Conditioners
 Models MAA1018A - MAA1060A & MGA1072A**



General Description

Used to cool electronic and communication equipment shelters, modular buildings, classrooms and a variety of commercial/industrial structures, Marvair[®] wall mount air conditioners are versatile problem solvers for a wide range of conditions and applications. Due to the high internal heat load in applications such as electronic equipment shelters, cooling is required even when outside temperatures drop below 60°F (15°C). Marvair air conditioners have the necessary controls and components for operation during these (less than 60°F [15°C]) temperatures. All models use the non-ozone depleting R-410A refrigerant.

All Marvair wall mount air conditioners are available with an optional factory installed economizer. When ambient conditions are cool and dry, the economizer uses outside air to cool the shelter. The economizer provides temperature control, energy cost savings, and increased reliability by decreasing the operating hours of the compressor and the condenser fan. To insure proper operation and optimum performance, all economizers are non-removable, factory installed and tested. In addition, factory and field installed accessories can be used to meet specific requirements.

► **High Efficiency Models**

Marvair's energy efficient wall mount air conditioners meet or exceed the US Department of Energy's Btu/h efficiency levels of 11 EER for units less than 65,000 BTU/h cooling capacity and 10 EER for units larger than 65,000 BTU/h. Electronically commutated indoor fan motors combined with highly efficient scroll compressors result in these higher Energy Efficiency Ratios (EER's).



MAA1036AA

Designed, Engineered & Assembled in the USA



Features and Benefits

Built-In Energy Savings

- *Optional Factory Installed Economizer*
- *Four Model Lines to Meet Any Budget and Efficiency Requirements*
- *Available EER of up to 11.50*

R-410A Refrigerant

- *Efficient Heat Release*
- *Non-Ozone Depleting Refrigerant*
- *Synthetic Lubricant*
- *Reduced Compressor Wear*

High Efficiency and Reliability

- *High Efficiency Compressor and Lanced Coil Fins*
- *High/Low Pressure Switches with Lockout & Short Cycle Protection*

Ease of Installation and Service

- *Side Access Panels for Power Connections*
- *Built-In Mounting Flanges and Internal Disconnect*
- *Standard Access Valves and Filters, Status LEDs*

Safety Listed and Energy Certified

All Marvair air conditioners are built to UL standard 1995, 4th edition and CAN/CSA C22.2, No. 236-11. For energy efficiency and performance, the units are tested and rated in accordance to the ANSI/ARI (Air-Conditioning and Refrigeration Institute) Standard 390- 2003 (Single Package Vertical Units). All units meet or exceed the efficiency requirements of ANSI/ASHRAE/IESNA 90.1.2010. Marvair air conditioners are commercial units and are not intended for use in residential applications.

Standard Features

➤ Designed for Operation in Low Ambient Conditions

- Low ambient control cycles condenser fan to maintain proper refrigerant pressures. Allows operation in mechanical cooling (compressor) of our standard air conditioners down to 20°F (-7°C). With the Extreme Duty option, the units will operate down to 0°F (-18°C). Note: low temperature operation is affected by ambient conditions, e.g. wind and humidity.
- Three minute by-pass of the low pressure switch for start-up of compressor when outdoor temperatures are below 55°F (13°C).
- Optional economizer.

➤ Designed for Operation on Generator Power

- All Marvair single & three phase air conditioners are designed to operate on Generator Power. See *Summary Electrical Ratings* for your specific model

➤ High Efficiency

- High efficiency compressor.
- Lanced fins standard on all evaporator and condenser coils.

➤ Remote Alarm Capability

- Dry contacts can be used for remote alarm or notification upon air conditioner lockout.

➤ Built-in Reliability

- High pressure switch and low pressure switch with lockout protects refrigerant circuit.
- Adjustable .03 to ten minute delay on make for short cycle protection.

➤ Ease of Service

- Service access valves are standard.
- Standard 2" (50 mm) pleated filter with a MERV rating of 8 changeable from outside.
- All major components are readily accessible.
- Front Control Panel allows easy access and complies with NEC clearance codes on redundant side-by-side systems.
- LEDs indicate operational status and fault conditions.
- Foil backed insulation on the indoor air path.
- A minimum position potentiometer that can be adjusted to prevent the economizer damper from closing completely. This control ensures that whenever the evaporator fan is operating, fresh air is being introduced into the building.

➤ Thermal Expansion Valve

- Improves performance in hot ambient temperatures. Optional on MGA1072 models.

➤ Rugged Construction

- Copper tube, aluminum fin evaporator & condenser coils.
- Field or factory installed heaters on discharge side of evaporator coil (optional)
- Baked on neutral beige finish over galvanneal steel for maximum cabinet life. (Other finishes are available.)
- A sealed condenser fan motor resists sand and corrosion.

➤ Ease of Installation

- Sloped top with flashing eliminates need of rainhood.
- Built-in mounting flanges facilitate installation and minimize chance of water leaks.
- Supply and return openings exactly match previous models.
- Factory installed disconnect.
- Single Point Power Entry complies with latest edition of U.L. Standard 1995.
- Side access panels on economizer models for easy access to electrical connections.
- Phase monitor on all 3-Phase units to continuously measure the voltage of each of the three phases. Separate sensing of low/high voltage, voltage imbalance including phase loss and phase reversal.

A Marvair® First – Factory Installed Economizer

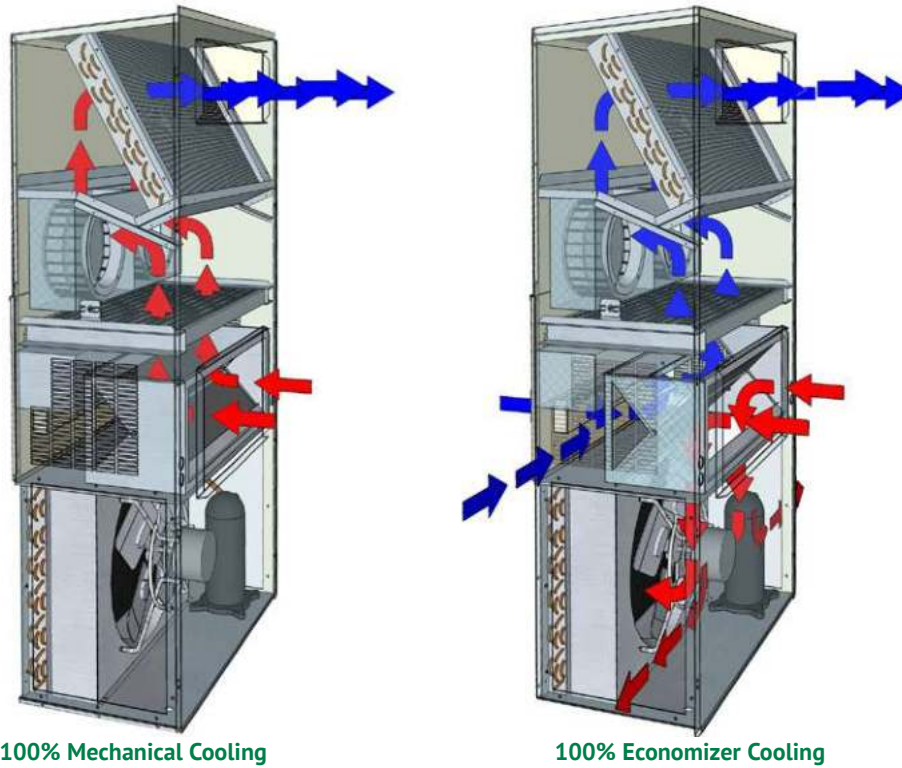
Marvair's wall mount air conditioners have been the industry standard since their introduction in 1986. Tens of thousands of Marvair air conditioners are in operation from the metropolitan areas of North America to the deserts of the Mid-East to the Siberian tundra. Here's how the economizer works:

On a signal from the wall mounted indoor thermostat that cooling is required, either mechanical cooling with the compressor or free cooling with the optional economizer is provided. A factory installed enthalpy controller determines whether the outside air is sufficiently cool and dry to be used for cooling. If suitable, the compressor is locked out and the economizer damper opens to bring in outside air. Integral pressure relief allows the interior air to exit the shelter, permitting outside air to enter the shelter. The temperature at which the economizer opens is adjustable from 63°F (17°C) at 50% Relative Humidity to 73°F (23°C) at 50% Relative Humidity.

After the enthalpy control has activated and outside air is being brought into the building, the mixed air sensor measures the temperature of the air entering the indoor blower and then modulates the economizer damper to mix the right proportion of cool outside air with warm indoor air to maintain 50-63°F (10 - 17°C) air being delivered to the building. This prevents shocking the electronic components with cold outside air. The compressor is not permitted to operate when the economizer is functioning.

If the outside air becomes too hot or humid, the economizer damper closes completely, or to a field selectable minimum open position, and mechanical cooling is activated.

In all Marvair air conditioners, the supply air flow in the economizer mode is the same or greater than the rated air flow. (The rated air flow is the AHRI certified air flow when the unit is in mechanical cooling.) The “full flow” economizer reduces electrical costs by maximizing the use of outside air for cooling.



Savings with an Economizer

The following table shows the annual electrical cost of cooling a 10 ft. x 20 ft. x 9 ft. (3m x 6m x 2.7m) shelter in twelve cities in the US. Costs are shown for an air conditioner without an economizer, for an air conditioner with an economizer and the savings. The savings do not include any demand charges. The savings are based on the electrical usage of a five ton air conditioner and an electric rate of \$.11 per kilowatt-hour, the approximate average commercial rate in the US.

Hours of Operation	Atlanta, GA	Boston, MA	Chicago, IL	Dallas, TX	Denver, CO	Houston, TX
Annual Compressor & Condenser Motor Run Time without Economizer (Hrs.)	6,176	6,016	6,018	6,282	6,022	6,299
Annual Compressor & Condenser Motor Run Time with Economizer (Hrs.)	3,456	1,947	2,106	4,062	1,930	4,495
Run Time Savings with the Economizer (Hrs.)	2,720	4,069	3,912	2,220	4,092	1,804
Annual Costs Saving (\$) of 11.0 EER unit with an Economizer						
Annual Operating Cost 11.0 EER Unit without Economizer (\$)	\$3,150	\$3,068	\$3,069	\$3,204	\$3,072	\$3,212
Annual Operating Cost 11.0 EER with Economizer	\$2,071	\$1,459	\$1,525	\$2,323	\$1,454	\$2,496
Annual Savings using 11.0 EER Unit with Economizer	\$1,079	\$1,609	\$1,544	\$881	\$1,454	\$716

Hours of Operation	Los Angeles, CA	Miami, FL	Phoenix, AZ	Pittsburgh, PA	Seattle, WA	St. Louis, MO
Annual Compressor & Condenser Motor Run Time without Economizer (Hrs.)	6,105	6,434	6,473	6,026	5,999	6,120
Annual Compressor & Condenser Motor Run Time with Economizer (Hrs.)	3,121	6,062	4,799	2,172	1,093	2,896
Run Time Savings with the Economizer (Hrs.)	2,984	372	1,674	3,854	4,906	3,224
Annual Costs Saving (\$) of 11.0 EER unit with an Economizer						
Annual Operating Cost 11.0 EER Unit without Economizer (\$)	\$3,114	\$3,282	\$3,302	\$3,073	\$3,060	\$3,122
Annual Operating Cost 11.0 EER with Economizer	\$1,926	\$3,133	\$2,636	\$1,550	\$1,114	\$1,846
Annual Savings using 11.0 EER Unit with Economizer	\$1,188	\$148	\$666	\$1,523	\$1,946	\$1,275

Shelter Metrics:

- 10' x 20' x 9' building
- Internal heat gain (electronics load): 12,000 watts.
- Building surface area (excluding floor area): 740 ft²
- R-Value of walls and ceiling: R-12
- Internal shelter temperature (Thermostat set point): 75°F

Air Conditioner Metrics:

- Economizer setting: 63°F (dry bulb or enthalpy sensor)
- A/C unit capacity: 60,000 BTUH (5 tons) with 1-stage compressor
- Nominal EER (unit efficiency): 11.0
- Cost of power: \$.11 per KWH

Options for Outside Air for Ventilation

ASHRAE standard 62 requires 30 cfm of outside air per occupant of a classroom. To meet this requirement, Marvair offers ventilation packages for every budget and requirement.

► Configuration “C”: Economizer (Optional)

The economizer reduces the cost of air conditioning by using outside air when acceptable to cool the room. The factory installed Marvair® economizer has integral pressure relief. On a signal from a thermostat that cooling is required, either mechanical cooling with the compressor or free cooling with the economizer is provided. The Marvair economizer is capable of bringing in outside air equal to 100% of the rated cooling capacity of the unit and has built in pressure relief.

An internal enthalpy controller determines whether the outside air is sufficiently cool and dry to be used with cooling. If suitable, the compressor is locked out and the economizer damper opens to bring in outside air. The temperature at which the economizer opens is adjustable from approximately 55°F (13°C) to 73°F (23°C) at 50% RH. If the outside air becomes too hot or humid, the economizer damper closes completely or to a minimum position and mechanical cooling is activated. When used with minimum position potentiometer (optional), the Marvair® economizer can meet requirements of ASHRAE Std. 62.

► Configuration “D/E”: Motorized Fresh Air Damper with Pressure Relief Ventilation (Optional)

Motorized, two position damper (open and closed) includes pressure relief. A 24-volt actuated motor controls the damper. The damper may be controlled from an external input such as a time clock, CO2 sensor, energy management system or a manual switch upon request. Configuration “E” includes independent motorized damper control.

► Configuration “N”: Manual Fresh Air Damper (Standard)

Manual damper capable of up to 15% of rated airflow of outside air; field adjustable, no pressure relief.

► Configuration “Y”: Field Adjustable Manual Damper (Optional)

Manually field adjustable to allow up to 450 cfm, or 40% of the air conditioner’s total rated airflow of outside air.

► Configuration “Z”: Field Adjustable Manual Damper with Pressure Relief (Optional)

Manually adjustable to allow up to 450 cfm, or 40% of the air conditioner’s total rated airflow of outside air and includes pressure relief.

Outside Air Ventilation Schedule

Ventilation Package Designator*	Description	Outside Air Capability	Pressure Relief
C	Economizer	100% of rated air flow of outside air	Yes
D/E	Motorized, two position damper (open and closed) includes pressure relief. A 24-volt actuated motor controls the damper. The damper may be controlled from an external input such as a time clock, CO2 sensor, energy management system or a manual switch upon request.	Up to 450 cfm, but not to exceed 40% of the rated air flow of the air conditioner.	Yes
N	Manual, fixed position damper	0-15% of rated air flow	No
Y	Manual damper, field adjustable	Up to 450 cfm, but not to exceed 40% of the rated air flow of the air conditioner.	No
Z	Manual damper, field adjustable	Up to 450 cfm, but not to exceed 40% of the rated air flow of the air conditioner.	Yes

Controllers and Thermostats

► Controllers

CommStat 6 2/4 Telecom HVAC ControllerP/N 70705

CommStat 6 4/8 Telecom HVAC Controller P/N S/12087-04

CommStat 6 6/12 Telecom HVAC Controller P/N S/12087-06

The CommStat 6 is an HVAC controller, is available in three configurations, and is designed specifically for controlling up to six redundant air conditioners with two stage compressors in a telecommunications shelter or enclosure. The **CommStat 6 2/4** controls up to two single or 2-stage air conditioners (4 Stages max.), the **CommStat 6 4/8** controls up to four single or 2-stage air conditioners (8 Stages max.) and the **CommStat 6 6/12** controls up to six single or 2-stage air conditioners (12 Stages max.)

In addition to the control of the air conditioners, the CommStat 6 has multiple configurable outputs for remote alarms or notification. The CommStat 6 is factory programmed with standard industry set points, but can be configured on site. Settings are retained indefinitely in the event of a power loss.

CommStat 4 Telecom HVAC ControllerP/N S/7846

The CommStat 4 HVAC controller is designed specifically for controlling two redundant air conditioners, heat pumps or air conditioners with 2-stage compressors. The CommStat 4 has seven outputs for remote alarms or notification. Status LED's indicate HEAT, COOL, POWER and the LEAD unit. When a fault is detected, an alarm LED flashes and the LCD screen displays the fault.

The CommStat can be daisy chained with a second CommStat 4 controllers for controlling up to four air conditioners in one shelter. See the CommStat 4 PDS for more details.

CommStat3™ Lead/Lag Microprocessor ControllerP/N S/04581

Solid state controller designed to operate a fully or partially redundant air conditioning system. Ensures equal wear on both air conditioners while allowing the lag unit to assist upon demand. Lead/ lag changeover is factory set at 7 days, but is field programmable in 1/2 day increments from 1/2 to 7 days. The CommStat 3™ Controller has LED's to indicate status & function, digital display of temperature, a comfort override button for energy savings, five alarm relays, a built in temperature sensor and is fully programmable. See the CommStat 3 PDS for more details.

► **Thermostats & Thermostat Guards**

Note: All air conditioners with 2-stage compressors (models HVESA) require a 2-stage cooling thermostat.

ThermostatP/N 50123

Digital thermostat. 1-stage heat, 1-stage cooling. 7 day programmable. Fan switch: Auto & On. Auto-change over. Keypad lockout. Non-volatile program memory.

ThermostatP/N 50107

Digital thermostat. 2-stage heat, 2-stage cooling. 7 day programmable. Fan switch: Auto & On. Auto-change over. Status LED's. Backlit display. Programmable fan. Non-volatile program memory.

Thermostat Guard.....P/N 50092

Thermostat guard for use with the 50123 and 50107 thermostats.

Thermostat.....P/N 50218

Digital, non-programmable thermostat. 1-stage cooling and 1-stage heat. Auto-changeover.

Digital Humidistat.....P/N 50254

To be used with units with hot gas or electric reheat. Programmable dehumidistat and ventilation controller. Permanent memory retention of set points. Humidity sensor can be field calibrated. High & low dehumidification set points. Outdoor temperature and humidity sensor included. °F or °C selectable.

Thermostat.....P/N 50252

Non-programmable digital thermostat with backlit display. 2 stage heat and 2-stage cooling. Auto changeover.

Supply/Return Grilles

► **Supply Grilles**

For MAA1018A - 13" x 5" (330 mm x 125 mm)P/N 80685

For MAA1020A, MAA1024A - 20" x 8" (508 mm x 203 mm).....P/N 80674

For MAA1030A, MAA1036A - 28" x 8" (711 mm x 203 mm)P/N 80675

For MAA1042A, MAA1048A MAA1060A - 30" x 10" (762 mm x 254 mm)P/N 80676

For MAA1060A Reverse Flow - 30" x 16" (762 mm x 406 mm).....P/N 93197

For MGA1072 - 30" x 10" (762 mm x 254 mm)P/N 80676

► **Return Grilles**

For MAA1018A - 13^{3/4}" x 11^{3/4}" (349 mm x 298 mm).....P/N 80680

For MAA1020A, MAA1024A - 20" x 12" (508 mm x 305 mm).....P/N 80677

For MAA1030A, MAA1036A - 28" x 14" (711 mm x 356 mm).....P/N 80678

For MAA1042A, MAA1048A MAA1060A - 30" x 16" (762 mm x 406 mm)P/N 80679

For MAA1060A Reverse Flow - 30" x 10" (762 mm x 254 mm).....P/N 93198

For MGA1072 - 30" x 16" (762 mm x 406 mm)P/N 80679

► **Return Filter Grilles**

Used when filter must be changed from the interior. Not recommended for economizer equipped air conditioners.

Note: Filter used in Return Filter Grille is 1" (25 mm) thick.

For MAA1020A, MAA1024A.....P/N 80671

20" x 12" (508 mm x 305 mm)

For MAA1030A, MAA1036A.....P/N 80672

28" x 14" (711 mm x 356 mm)

For MAA1042A, MAA1048A MAA1060A.....P/N 80673

30" x 16" (762 mm x 406 mm)

Options

Marvair air conditioners were designed and are built to stringent requirements of the communications/electronic shelter. Applications occur that have special requirements. Numerous options are available to meet these special needs.

► Hard Start Kit

Used on single phase equipment to give the compressor higher starting torque under low voltage conditions. (Field installed only) (Note: Not recommended for use on scroll compressors.)

► Dehumidification

Allows the electric heat to operate simultaneously with cooling. See Dehumidification Application Bulletin for details. Note: The electrical characteristics and requirements of air conditioners with the dehumidification option are different from standard air conditioners. Refer to the appropriate Summary Rating Charts for the electrical characteristics of units with Electric Reheat. Units with reheat require a thermostat and a dehumidistat for proper operation.

► Protective Coating Packages

Typically, only non-economizer units are used in corrosive environments, but all Marvair air conditioner are available with corrosion protection. Two corrosion protection packages are offered - one for the condenser section (Coastal Environmental Package) and the other for the entire unit (Coat-All Package).

The Coastal Environmental Package includes:

- Corrosion resistant fasteners
- Sealed or partially sealed condenser fan motor
- Protective coating applied to all exposed internal copper and metal in the condenser section
- Protective coating on the condenser coil (Luvata Insitu®) contains ES2 (embedded stainless steel pigment) technology.

The Coat all Package includes all of the above, plus:

- Protective coating on the evaporator coil (Luvata Insitu®) contains ES2 (embedded stainless steel pigment) technology
- Protective coating on exterior and interior components and sheet metal. (**Note:** the internal sheet metal which is insulated, bottom outside panel, and the internal control box are not coated)

► Protective Coil Coatings

The Condenser Coil or the Evaporator Coil or Both can be coated. Coating the Evaporator Coil in not common. For harsh conditions, e.g., power plants, paper mills or sites where the unit will be exposed to salt water, the coils should be protected by a protective coating. **Note:** Cooling capacity may be reduced by up to 5% on units with coated coils.

► External Low Noise Blower (ELNB)

A field installed kit that consists of a condenser air hood, centrifugal blowers, controls and a compressor jacket to reduce the sound level by up to 6 dbA of Marvair air conditioners. Available for models 2.5 - 5 ton models. See External Low Noise Blower Product Data Sheet for details.

► Wall Mount Air Conditioner Transition Curb

Economizer equipped models only – A sheet metal curb that enables 3.5,4 and 5 ton air conditioner to replace an 2.5 or 3 ton unit. Curb transitions supply and return openings of the 3-1/2, 4 and 5 ton units to the smaller openings.

► Hot Gas By-Pass (Non-Economizer Models)

Non-Economizer Models Only – Used in specialty applications; i.e., Magnetic Resonance Imaging (MRI) buildings, to prevent magnetic voltage disturbance caused by compressor cycling. Hot gas by-pass option packages are available to allow operation to 20°F (-7°C). Please refer to Hot Gas By-pass Application Bulletin for details. Not available on 1.5 and 2 ton models.

► High Filtration

Selected units are built with larger blowers/motors for use with higher efficiency filters with MERV ratings of 11, 13 and 14 when tested to ASHRAE 52.2. Units with economizers have a prefilter on the outside air. Contact your Marvair representative for specific models.

► Color

Marvair air conditioners are available in six different cabinet colors -the standard Marvair® beige, white, gray, Carlsbad Canyon (brown), Mesa Tan and pebble gray. The standard cabinet's sides, top and front panels are constructed of 20 gauge painted steel. As an option, these panels can be built of 16 gauge steel in beige & gray or .050 stucco aluminum. When the 16 gauge painted steel or the aluminum is used, only the side, top and front panels are 16 gauge or aluminum. Contact your Marvair representative for color chips. The cabinet can also be constructed of type 316 stainless steel. Two stainless steel cabinet constructions are available- the complete cabinet, including most internal sheet metal or only the exterior sheet metal. Custom colors are also available; contact Marvair for details.

► Extended Warranty

A first-year labor (Silver), and a two-year labor (Gold) are available. See www.marvair.com for optional warranty details.

➤ **Dirty Filter Indicator**

A factory installed option that measures the difference in pressure across the internal filter and illuminates a LED when the pressure exceeds the desired difference.

➤ **Compressor Sound Jacket**

To reduce sound of compressor.

➤ **Lockable Disconnect Access Cover Plate**

The access plate to the service disconnect switch can be equipped with a lockable cover.

➤ **Washable Filter**

Spun aluminum construction allows cleaning of filters with water.

➤ **Hot Gas Reheat (HGR)**

A Hot Gas Reheat coil and controls allow the indoor humidity of the controlled environment to be maintained at or below a certain humidity set point. These units do not have the ability to add humidity to the room. Dehumidification is achieved by operating mechanical cooling in conjunction with a hot gas reheat coil.

➤ **Right & Left Side Compressor Location**

The air conditioners can be built with the compressor on the opposite side to facilitate service access when two units are installed side by side. On 1.5 - 3 ton models, the standard location for the compressor is on the right hand side. On 3.5 - 5 ton models, the standard location for the compressor is on the left hand side.

➤ **Extreme Duty Package**

Allows Marvair® air conditioners to operate in extremely cold and hot ambient conditions. The Extreme Duty Package is always factory installed and is available on all air conditioners. Units without an economizer will operate from 0°F to 131°F (-18°C to 55°C). Economizer equipped units will operate from -40°F to 131°F (-29°C to 55°C).

➤ **Desert Duty Package**

The Desert Duty package is a factory installed package of components and cabinet modifications which permit operation in harsh environments. Cabinet modifications include a slotted panel in the base pan to improve condenser air flow and provide access to the compressor and condenser fan motor. To prevent sand and dust infiltration, the electrical control box is sealed. A closed loop design on non-economizer units insures that no outside air is introduced into the shelter. **Note:** Units with an economizer may be ordered with the Desert Duty Package. If the air conditioner is required with the Desert Duty Package, sand intrusion into the shelter should be considered. Units without an economizer will operate from 20°F to 131°F (-7°C to 55°C). Economizer equipped units will operate from -40°F to 131°F (-29°C to 55°C).

➤ **Anti-Microbial Light**

A germicidal UV light destroys toxic bacteria, viruses and mold on the indoor air coil.

➤ **Cold Plasma Air Purification Device**

Installed inside the unit, this device neutralizes odors, kills mold, bacteria and viruses. It also helps to control allergens*, asthma*, smoke and airborne particles.

*These statements are based on customer testimonials and have not been evaluated by the FDA.

➤ **MERV 13 Return Air Filters**


Factory installed two inch (51 cm) MERV 13 filters. Ultra high filtration material that removes most airborne mold, spores and dust. Replaces standard MERV 7 return air filters.

Remote Access Data Points

Through the Ethernet connection, the network operations center can monitor and change various data points in the HVAC system and the shelter.

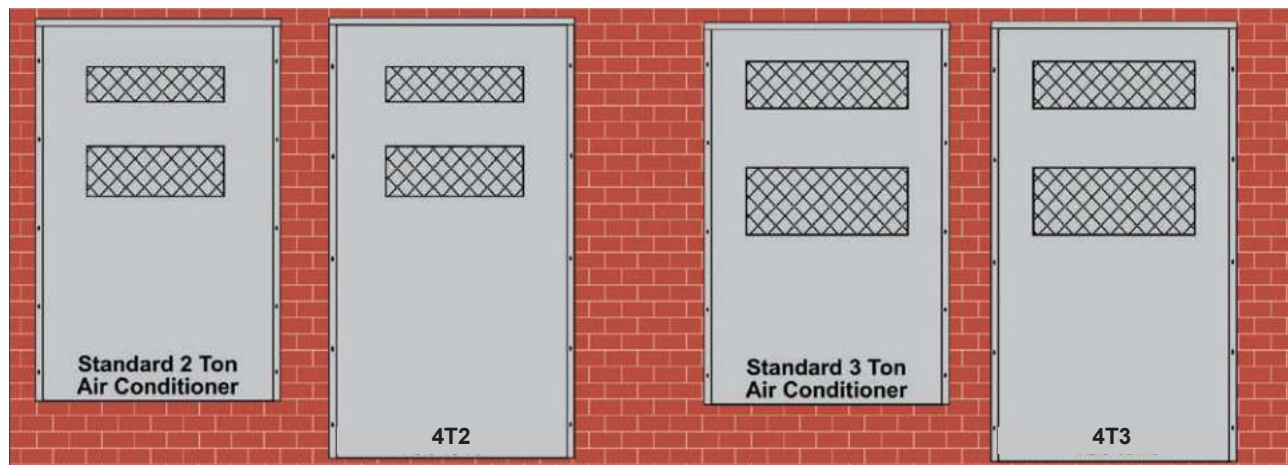
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| <p>Data Points which can be monitored and changed:</p> <ul style="list-style-type: none"> • First Stage Cooling Set Point Temperature • Second Stage Cooling Set Point Differential Temperature • First Stage Heating Set Point Temperature • Second Stage Heating Set Point Differential Temperature | <ul style="list-style-type: none"> • Inside Temperature - Average Last Hour • Outside Temperature - Average Last Hour • Outside Humidity - Average Last Hour • Dew point - Average Last Hour • Unit 1 & Unit 2 Mechanical Cooling Time - Last Hour • Unit 1 & Unit 2 Mechanical Cooling Requests - Last Hour • Unit 1 & Unit 2 Free Air Cooling Time - Last Hour • Unit 1 & Unit 2 Free Air Cooling Requests - Last Hour • Unit 1 & Unit 2 Heating Time - Last Hour • Unit 1 & Unit 2 Heating Requests - Last Hour |
| <p>Data points which can only be monitored:</p> <ul style="list-style-type: none"> • Inside Temperature - Current • Outside Temperature - Current • Outside Humidity - Current • Dew point - Current | |

Dry Contacts Alarm Outputs

 A dry contact is provided for each HVAC unit to indicate HVAC unit failure to the shelter alarm block. Unit failure is defined as 1) a high pressure lockout or 2) a low pressure lockout. This dry contact is a normally open contact.

Back Panel Adapters for 5 Ton Air Conditioners

These back panel adapters are factory installed on the non-economizer 4 or 5 ton air conditioners and to match the supply and return air openings on Marvair 2 and 3 ton air conditioners. This allows 4 or 5 ton units to be quickly and easily installed. No cutting or sawing of the shelter is required. The 4T2 back panel has supply and return openings that match the openings of 2 ton wall mounted air conditioners. The 4T3 back panel has supply and return openings that match the openings of Marvair's 3 ton air conditioners. In addition to matching the openings of Marvair units, the back panels will also match the openings of other brands.



Control Box

The internal control board used in Marvair air conditioners simplifies wiring, consolidates several of the electrical functions onto one device and improves the reliability of the air conditioner. In addition, the control board has LED's that indicate operational status and fault conditions.

► LED Indicator Lights

COLOR	TYPE	STATUS	DESCRIPTION
Green	Power	Constant On	24 VAC power has been applied
Red	Status	Constant On	Normal operation
		1 Blink	High pressure switch has opened twice
		2 Blinks	Low pressure switch has opened twice
		3 Blinks	Freeze stat (optional) - indoor coil temperature is below 35°F (1°C)

► Modes of Operation

Normal Start-up: On a call for cooling, and the with the high pressure switch closed, the cooling system (compressor, indoor blower motor and outdoor fan motor) will be energized. (Note: See the Delay on Make feature). The cooling system will remain energized during the three minute low pressure switch bypass cycle. If the low pressure is closed, the cooling system will continue to operate after the three-minute bypass. If the low pressure switch is open after the three-minute bypass, the cooling system will be de-energized.

Lockout Mode: If either the high or low pressure switch opens twice on the same call for cooling, the control board enters into and indicates the lockout mode. In the lockout mode, the compressor is turned off, the alarm output is energized and the status LED's will blink to indicate which fault has occurred. If there is a call for air flow, the indoor blower will remain energized. When the lockout condition has cleared, the unit will reset if the demand of the thermostat is removed or when power is reset. The lockout circuit is factory wired for normally open contacts. The user can select either normally closed or normally open remote alarm dry contacts.

Delay on Make: On initial power up or on resumption of power, the air conditioner will wait .03 to 10 minutes from a call for cooling before allowing the contactor to energize.

► Ambient Temperature Operating Ranges

Basic Model	Special Option	TEMPERATURE RANGES
Non-Economizer	Base Unit	20°F - 131°F (-7°C - 55°C)
	Desert Duty	20°F - 131°F (-7°C - 55°C)
	Extreme Duty	0°F - 131°F (-18°C - 55°C)
Economizer-Equipped	Base Unit	-40°F - 131°F (-29°C - 55°C)
	Desert Duty	-40°F - 131°F (-29°C - 55°C)
	Extreme Duty	-40°F - 131°F (-29°C - 55°C)

Model Identification

Example	M	A	A	1	0	3	6	A	D	0	5	0	C	+	+	+	+	1	E	A	+	A	1	1	+	+	+	+	+	+
Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

1	Unit Designation/Family	M = Marvair Wall Mount S = Stock Unit
2	Energy Efficiency Ratio (EER)	A = 11 G = 10
3	Refrigerant Type	A = R-410a
4	Compressor Type/Quantity	1 = Single
5	Unit Capacity/Nominal Cooling (BTUH)	018 = 18,000 042 = 42,000
6		020 = 20,000 048 = 48,000
7		024 = 24,000 060 = 60,000
8		030 = 30,000 072 = 72,000
9	System Type	A = Air Conditioner
9	Power Supply (Volts-Phase-Hz)	A = 208/230-1-60 D = 460-3-60 C = 208/230-3-60 Z = 575-3-60
10	Heat Designation @ Rated Voltage	000 = No Heat 080 = 8KW
11		022 = 2.2KW 090 = 9KW
12		036 = 3.6KW 100 = 10KW
12		040 = 4KW 120 = 12KW
12	050 = 5KW 150 = 15KW	060 = 6KW
13	Ventilation Configuration	A = Solid Front Door C = Economizer D = Motorized Damper w/Pressure Relief E = Motorized Damper w/Pressure Relief & Independent Motorized Damper Control N = Barometric Damper w/15% OSA Y = Manual Damper w/No Pressure Relief Z = Manual Damper w/Pressure Relief + = None \$ = Special
14	Dehumidification	G = Hot Gas Reheat R = Electric Reheat T = Electric Reheat w/Humidity Control + = None \$ = Special
15	Controls	A = Power Fail Alarm w/Additional Lockouts C = 24V EMS Relay Kit D = 24V EMS Relay Kit w/Factory Installed T-Stat E = Factory Installed T-Stat + = None \$ = Special
16	Operating Condition	A = Evaporator Freeze Sensor (EFS) C = EFS w/Hot Gas Bypass D = Desert Duty E = Extreme Duty F = Desert Duty w/Hard Start G = Desert Duty w/EFS H = Desert Duty w/Hard Start & EFS J = Extreme Duty w/Hard Start K = Extreme Duty w/EFS M = Extreme Duty w/Hard Start & EFS N = Hard Start P = Hard Start w/Low Ambient & CCH Q = Hard Start w/Low Ambient & Fan Cycle Control (FCC) R = Crank Case Heater (CCH) T = Hard Start w/EFS U = Hard Start w/Hot Gas Bypass V = Hard Start w/Low Ambient & CCH & EFS W = Low Ambient w/CCH X = Hot Gas Bypass Y = Low Ambient w/CCH & FCC Z = Low Ambient w/CCH & EFS 1 = Low Ambient w/FCC 2 = Low Ambient w/FCC & EFS 3 = CCH w/Hot Gas Bypass + = None \$ = Special

17	Indoor Air Quality Features	D = Dry Bulb Sensor E = Dry Bulb Sensor w/Dirty Filter G = Dirty Filter Sensor + = None \$ = Special
18	Air Flow	1 = Top Supply/Bottom Return 2 = Center Supply (Reverse) 3 = Bottom Supply/Top Return (Counter) 4 = Top Panel Discharge 5 = Centrifugal Blowers 6 = 3T3 7 = 3T5 8 = 4T2 9 = 4T3 A = 3T2 \$ = Special
19	Compressor Location	C = Center - All 6 ton units and above D = Left Hand - All 3 1/2 to 5 ton units E = Right Hand - All 1 1/2 to 3 ton units
20	Filter Option	A = 2" Pleated (MERV 8, AC/HP-C) C = 2" Charcoal D = MERV 11 High Filtration Package E = MERV 13 High Filtration Package F = Filter Access Through Return Air Grille W = Aluminum Washable + = None \$ = Special
21	Corrosion Protection	A = Condenser Coil Only C = Evaporator Coil Only D = Both Coils Condenser & Evaporator E = All Coils Cond/Evap/Reheat F = Coat All G = Coastal Package & Evaporator Coil K = Coastal Package + = None \$ = Special
22	Engineering Revision Level	A1
23		
24	Cabinet Color	1 = Marvair Beige 2 = Gray 3 = Carlsbad Canyon 4 = White 5 = Stainless Steel Exterior 6 = Dark Bronze 7 = .050 Aluminum Stucco 8 = Mesa Tan 9 = Pebble Gray A = Stainless Steel - Unit \$ = Custom Color (Powder Coat)
25	Sound Attenuation	2 = Compressor Blanket + = None
26	Security Option	A = Lockable Access Plate/Tamper Proof C = Tamper Proof Screws D = Lockable Access Plate w/Tamper Proof + = None \$ = Special
27	Fastener/Drain Pan Option	A = Stainless Steel Fasteners C = Stainless Steel Drain Pan D = Stainless Steel Fasteners & Drain Pan + = None \$ = Special
28	Unused	+ = None \$ = Special
29	Unused	+ = None \$ = Special
30	Special Variation	+ = None \$ = Special Configuration Not Covered by Model Nomenclature

Note: Not all options are available with all configurations. Contact your Marvair sales representative for configuration details and feature compatibility.

Marvair High Efficiency Wall Mount Air Conditioner Performance Data

Certified Efficiency and Capacity Ratings at ANSI/AHRI Standard 390 for Air Conditioners with Single Stage Compressor



Model Number	MAA1018A	MAA1020A	MAA1024A				MAA1030A				MAA1036A				MAA1042A				MAA1048A				MAA1060A				MGA1072A							
	A	A	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z				
Cooling BTUH¹	17,500	20,000	24,000				29,000				35,000				41,000				45,000				54,600				66,000				70,000			
EER²	11.00	11.00	11.00				11.00				11.00				11.50				11.00				11.00				10.00							
Rated Air Flow (CFM³)	660	760	850				1,070				1,200				1,250				1,400				1,750				1,925							

¹Cooling rated at 95°F (35°C) outdoor and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air ²EER=Energy Efficiency Ratio
³CFM=Cubic Feet per Minute
Ratings are with no outside air. Performance will be affected by altitude.
Ratings are at 230 volts for 208/230 volt units ("A" & "C" models) and 460 volts for "D" models. Operation of units at a different voltage from that of the rating point will affect performance and air flow.

Sensible Total Heat Ratio @ 95°F (35°C) Outside Air Dry Bulb - Air Conditioners with Single Stage Compressor

Model Number	MAA1018A	MAA1020A	MAA1024A				MAA1030A				MAA1036A				MAA1042A				MAA1048A				MAA1060A				MGA1072A							
	A	A	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z	A	C	D	Z				
Total Capacity	17,500	20,000	24,000				29,000				35,000				41,000				45,000				54,600				66,000				70,000			
Sensible Heat Ratio	0.77	0.78	0.74				0.75				0.71				0.70				0.71				0.71				0.69							
Sensible Capacity	13,500	15,600	17,700				22,000				25,000				29,000				32,000				39,000				45,500				48,300			
Rated Air Flow (CFM¹)	660	760	850				1,070				1,200				1,300				1,500				1,750				1,925							

¹CFM=Cubic Feet per Minute
Sensible heat ratios based upon ANSI/AHRI std. 390 outdoor air conditions of 95°F (35°C) and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air.

Electrical Characteristics - Compressor, Fan & Blower Motors - Air Conditioner with Single Stage Compressor

BASIC MODEL	COMPRESSOR				OUTDOOR FAN MOTOR				INDOOR FAN MOTOR (ECM)			
	Type	VOLTS-HZ-PH	RLA ¹	LRA ²	VOLTS-HZ-PH	RPM ³	FLA ⁴	HP ⁵	VOLTS-HZ-PH	RPM ³	FLA ⁴	HP ⁵
MAA1018AA	SCROLL	208/230-60-1	7.7	48.0	208/230-60-1	1200	2.8	1/5	208/230-60-1	825	2.2	1/4
MAA1020AA		208/230-60-1	10.9	62.9	208/230-60-1	1200	3.5	1/3	208/230-60-1	1500	2.8	1/3
MAA1024AA		208/230-60-1	12.8	64.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1500	2.8	1/3
MAA1030AA		208/230-60-1	14.1	72.2	208/230-60-1	1200	3.5	1/3	208/230-60-1	1200	4.3	1/2
MAA1036AA		208/230-60-1	16.7	109.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1050	4.3	1/2
MAA1042AA		208/230-60-1	17.0	123.9	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	4.3	1/2
MAA1048AA		208/230-60-1	19.5	130.0	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MAA1060AA		208/230-60-1	24.3	144.2	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MGA1072AA		208/230-60-1	30.8	178.0	208/230-60-1	825	2.5	1/2	208/230-60-1	1075	5.2	3/4
MAA1024AC	SCROLL	208/230-60-3	8.3	58.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1500	2.8	1/3
MAA1030AC		208/230-60-3	9.0	71.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1200	4.3	1/2
MAA1036AC		208/230-60-3	11.2	84.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1200	4.3	1/2
MAA1042AC		208/230-60-3	13.6	83.1	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	4.3	1/2
MAA1048AC		208/230-60-3	13.7	83.1	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MAA1060AC		208/230-60-3	15.9	110.0	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MGA1072AC		208/230-60-3	22.4	149.0	208/230-60-1	825	2.5	1/2	208/230-60-1	1075	5.2	3/4
MAA1024AD	SCROLL	460-60-3	3.5	28.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1500	2.8	1/3
MAA1030AD		460-60-3	5.8	38.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1200	4.3	1/2
MAA1036AD		460-60-3	5.6	44.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1050	4.3	1/2
MAA1042AD		460-60-3	6.1	41.0	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	4.3	1/2
MAA1048AD		460-60-3	6.2	41.0	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MAA1060AD		460-60-3	7.7	52.0	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MGA1072AD		460-60-3	10.6	75.0	208/230-60-1	825	2.5	1/2	208/230-60-1	1075	5.2	3/4
MAA1024AZ	SCROLL	575-3-60	3.3	23.7	208/230-60-1	1200	3.5	1/3	208/230-60-1	1500	2.8	1/3
MAA1030AZ		575-3-60	3.8	36.5	208/230-60-1	1200	3.5	1/3	208/230-60-1	1200	4.3	1/2
MAA1036AZ		575-3-60	3.8	34.0	208/230-60-1	1200	3.5	1/3	208/230-60-1	1050	4.3	1/2
MAA1042AZ		575-3-60	4.8	33.0	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	4.3	1/2
MAA1048AZ		575-3-60	4.8	33.0	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MAA1060AZ		575-3-60	5.7	38.9	208/230-60-1	1200	5.3	1/2	208/230-60-1	1050	6.8	3/4
MGA1072AZ		575-3-60	7.7	54.0	208/230-60-1	825	2.5	1/2	208/230-60-1	1075	5.2	3/4

¹RLA = Rated Load Amps ²LRA = Locked Rotor Amps ³RPM = Revolutions per Minute ⁴FLA = Full Load Amps ⁵HP = Horsepower
The 460 volt units will have a step down transformer for the 230 volt motors.

**Summary Electrical Ratings (Wire and Circuit Breaker Sizing) -
 Air Conditioners with Single stage Compressors & Ventilation Configurations:
 Manual Damper, up to 15% Outside Air (“N”)
 Economizer, Outside Air with Pressure Relief (“C”)
 Motorized Damper, up to 450 CFM of Outside Air with Pressure Relief (“D”)
 Manual Damper, up to 450 CFM of Outside Air (“Y”)
 Manual Damper, up to 15% Outside Air with Pressure Relief (“Z”)**

ELECTRIC HEAT		000 = None		022 = 2.2 kw		036 = 3.6 kw		040 = 4 kw		050 = 5 kw		060 = 6 kw		080 = 8 kw		090 = 9 kw		100 = 10 kw		120 = 12 kw		150 = 15 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³	
		MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²
MAA1018AA	208/230-1-60	14.60	20	14.6	20	21	25																
MAA1020AA	208/230-1-60	19.93	30					23.70	30	28.80	30	34.10	35	44.40	45			54.90	60				
MAA1024AA	208/230-1-60	22.30	35					23.70	35	28.80	35	34.10	35	44.40	45			54.90	60				
MAA1030AA	208/230-1-60	25.43	35					25.40	35	30.30	35	35.60	40	45.90	50			56.40	60	66.80	70	82.40	90
MAA1036AA	208/230-1-60	28.68	45					28.70	45	30.30	45	35.60	45	45.90	50			56.40	60	66.80	70	82.40	90
MAA1042AA	208/230-1-60	30.85	45							30.90	45	35.6	45	45.90	50			56.40	60	66.80	70	82.40	90
MAA1048AA	208/230-1-60	36.48	60							36.50	60	38.1	60	48.40	60			58.90	60	69.30	70	84.90	90
MAA1060AA	208/230-1-60	42.48	60							42.50	60	38.1	60	48.40	60			58.90	60	69.30	70	84.90	90
MGA1072AA	208/230-1-60	46.60	70							46.60	70	36.5	70	46.80	70			57.30	70	67.70	70	83.30	90
MAA1024AC	208/230-3-60	16.68	25									20.80	25			30.00	35			38.90	40		
MAA1030AC	208/230-3-60	19.05	25									22.30	25			31.40	35			40.40	45	49.40	50
MAA1036AC	208/230-3-60	21.80	30									22.30	30			31.40	35			40.40	45	49.40	50
MAA1042AC	208/230-3-60	26.60	40									26.60	40			31.40	40			40.40	45	49.40	50
MAA1048AC	208/230-3-60	29.23	40									29.23	40			33.90	40			42.90	45	51.90	60
MAA1060AC	208/230-3-60	31.98	45									31.98	45			33.90	45			42.90	45	51.90	60
MGA1072AC	208/230-3-60	35.70	60									35.70	60			35.70	60			41.30	60	50.30	60
MAA1024AD	460-3-60	7.50	15									10.40	15			14.90	15			19.40	20	23.90	25
MAA1030AD	460-3-60	11.20	15									11.20	15			15.70	20			20.20	25	24.70	25
MAA1036AD	460-3-60	11.00	15									11.20	15			15.70	20			20.20	25	24.70	25
MAA1042AD	460-3-60	12.40	15									12.40	15			15.70	20			20.20	25	24.70	25
MAA1048AD	460-3-60	13.80	15									13.80	15			16.90	20			21.40	25	25.90	30
MAA1060AD	460-3-60	15.70	20									15.70	20			16.90	20			21.40	25	25.90	30
MGA1072AD	460-3-60	17.10	25									17.10	25			17.10	25			20.60	30	25.10	30
MAA1024AZ	575-3-60	6.70	15									8.40	15			12.00	15			15.50	20		
MAA1030AZ	575-3-60	7.90	15									9.10	15			12.70	15			16.20	20	19.80	25
MAA1036AZ	575-3-60	7.90	15									9.10	15			12.70	15			16.20	20	19.80	25
MAA1042AZ	575-3-60	9.80	15									9.80	15			12.70	15			16.20	20	19.80	25
MAA1048AZ	575-3-60	11.00	15									11.00	15			13.70	15			17.20	20	20.80	25
MAA1060AZ	575-3-60	12.00	15									12.00	15			13.70	15			17.20	20	20.80	25
MGA1072AZ	575-3-60	12.70	20									12.70	20			13.00	20			16.50	20	20.10	25

¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse or HACR Breaker Size ³SPPE = Single Point Power Entry
 MCA & MFS are calculated at 230 volts on the ACA & ACC models. The 460 volts ACD models are calculated at 460 volts. This chart should only be used as a guideline for estimating conductor size and overcurrent protection. For the requirements of specific units, always refer to the data label on the unit.

**Summary Electrical Ratings (Wire and Circuit Breaker Sizing) -
Air Conditioners with Electric Reheat ("R") with Single stage Compressors
and Ventilation Configurations:**

Manual Damper, up to 15% Outside Air ("N")

Economizer, Outside Air with Pressure Relief ("C")

Motorized Damper, up to 450 CFM of Outside Air with Pressure Relief ("D")

Manual Damper, up to 450 CFM of Outside Air ("Y")

Manual Damper, up to 15% Outside Air with Pressure Relief ("Z")

ELECTRIC HEAT		000 = None		022 = 2.2 kw		036 = 3.6 kw		040 = 4 kw		050 = 5 kw		060 = 6 kw		080 = 8 kw		090 = 9 kw		100 = 10 kw		120 = 12 kw		150 = 15 kw		
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		SPPE ³		
		MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²	
MAA1018AA	208/230-1-60	14.60	20	26.1	30	33.40	35																	
MAA1020AA	208/230-1-60	19.93	30					40.83	45	45.93	50	51.23	60	61.53	70			72.03	80					
MAA1024AA	208/230-1-60	22.30	35					43.20	45	48.30	50	53.60	60	63.90	70			74.40	80					
MAA1030AA	208/230-1-60	25.43	35					46.33	50	51.43	60	56.73	60	67.03	70			77.53	80	87.93	90	103.53	110	
MAA1036AA	208/230-1-60	28.68	45					49.58	50	54.68	60	59.98	70	70.28	80			80.78	90	91.18	100	106.78	110	
MAA1042AA	208/230-1-60	30.85	45							56.85	60	62.20	70	72.50	80			82.95	90	93.35	100	108.95	110	
MAA1048AA	208/230-1-60	36.48	60							62.48	70	67.80	70	78.10	80			88.58	90	98.98	100	114.58	120	
MAA1060AA	208/230-1-60	42.48	60							68.48	70	73.80	80	84.10	90			94.58	100	104.98	110	120.58	125	
MGA1072AA	208/230-1-60	46.60	70							72.60	80	77.90	80	88.20	90			98.70	100	109.10	110	124.70	130	
MAA1024AC	208/230-3-60	16.68	25									34.68	35			43.80	45			52.78	60	61.78	70	
MAA1030AC	208/230-3-60	19.05	25										37.05	40			46.20	50			55.15	60	64.15	70
MAA1036AC	208/230-3-60	21.80	30										39.80	40			48.90	50			57.90	60	66.90	70
MAA1042AC	208/230-3-60	26.60	40										44.60	45			53.70	60			62.70	70	71.70	80
MAA1048AC	208/230-3-60	29.23	40										47.23	50			56.30	60			65.33	70	74.33	80
MAA1060AC	208/230-3-60	31.98	45										49.98	60			59.10	60			68.08	70	77.08	80
MGA1072AC	208/230-3-60	35.70	60										53.70	60			62.80	70			71.80	80	80.80	90
MAA1024AD	460-3-60	7.50	15									16.50	20			21.00	25			25.50	30	30.00	35	
MAA1030AD	460-3-60	11.20	15										20.20	25			24.70	25			29.20	30	33.70	35
MAA1036AD	460-3-60	11.00	15										20.00	25			24.50	25			29.00	30	33.50	35
MAA1042AD	460-3-60	12.40	15										21.40	25			25.90	30			30.40	35	34.90	35
MAA1048AD	460-3-60	13.80	15										22.80	25			27.30	30			31.80	35	36.30	40
MAA1060AD	460-3-60	15.70	20										24.70	25			29.20	30			33.70	35	38.20	40
MGA1072AD	460-3-60	17.10	25										26.10	30			30.60	35			35.10	40	39.60	45
MAA1024AZ	575-3-60	6.70	15									13.90	15			17.50	20			21.00	25	24.60	25	
MAA1030AZ	575-3-60	7.90	15										15.20	20			18.80	20			22.30	25	25.90	30
MAA1036AZ	575-3-60	7.90	15										15.20	20			18.80	20			22.30	25	25.90	30
MAA1042AZ	575-3-60	9.80	15										17.10	20			20.70	25			24.20	25	27.80	30
MAA1048AZ	575-3-60	11.00	15										18.30	20			21.70	25			25.20	30	28.80	30
MAA1060AZ	575-3-60	12.00	15										19.30	20			22.90	25			26.40	30	30.00	35
MGA1072AZ	575-3-60	12.70	20										20.00	25			23.60	25			27.10	30	30.70	35

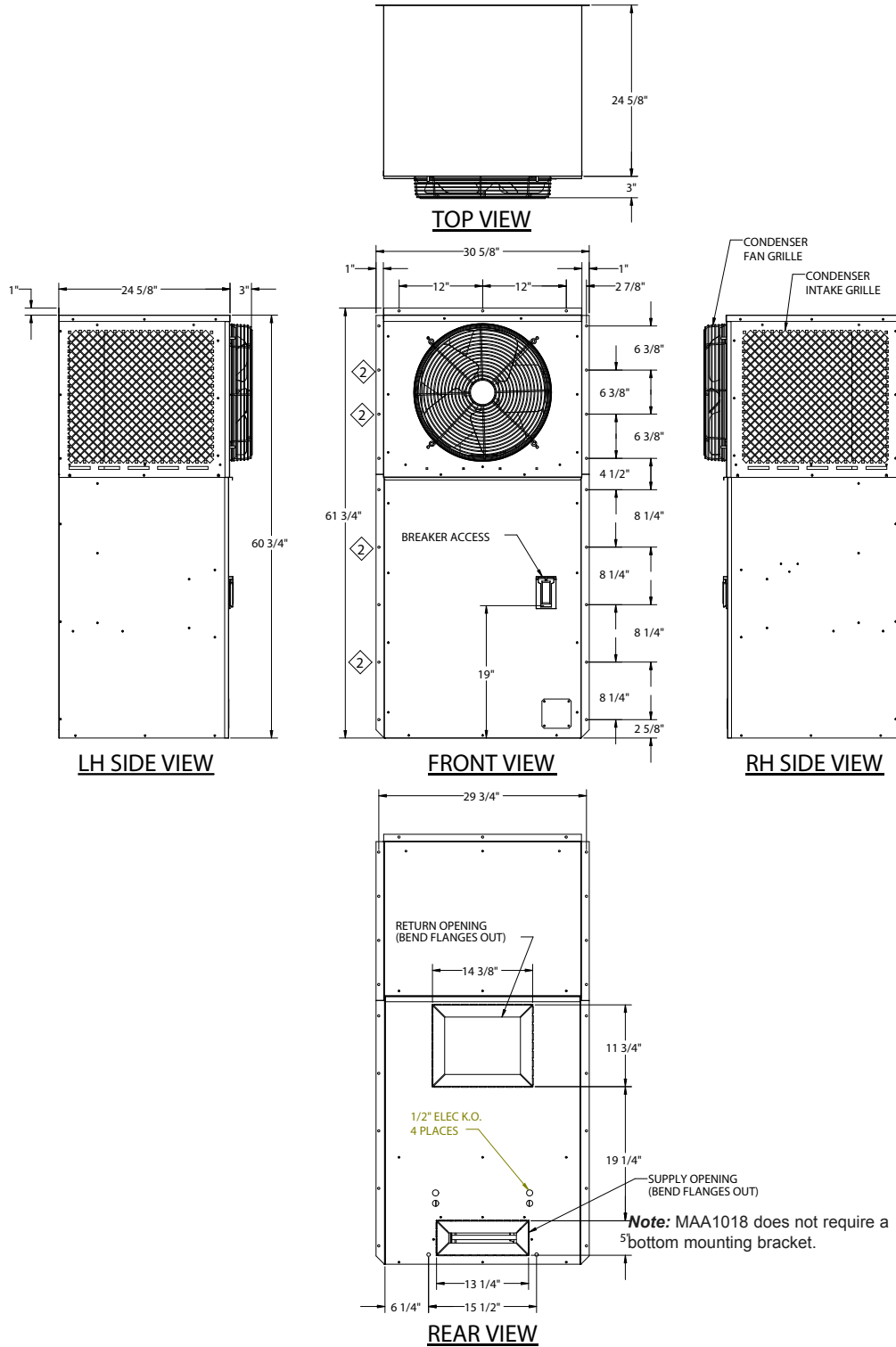
¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse or HACR Breaker Size ³SPPE = Single Point Power Entry
MCA & MFS are calculated at 230 volts on the ACA & ACC models. The 460 volts ACD models are calculated at 460 volts. This chart should only be used as a guideline for estimating conductor size and overcurrent protection. For the requirements of specific units, always refer to the data label on the unit.

**Unit Load Amps -
Air Conditioners with Single stage Compressors and Ventilation Configurations:
Manual Damper, up to 15% Outside Air (“N”)
Economizer, Outside Air with Pressure Relief (“C”)
Motorized Damper, up to 450 CFM of Outside Air with Pressure Relief (“D”)
Manual Damper, up to 450 CFM of Outside Air (“Y”)
Manual Damper, up to 15% Outside Air with Pressure Relief (“Z”)**

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT AMPS		LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) (1) ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT (2) SHADED VALUES (12 & 15 kW) UTILIZE TWO CIRCUITS											TOTAL MAXIMUM HEATING AMPS INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS											
		AC ¹	IBM ²	Heating Kilowatts											Heating Kilowatts											
				2.2	3.6	04	05	06	08	09	10	12	15	2.2	3.6	04	05	06	08	09	10	12	15			
MAA1018AA	208/230-1-60	14.60	2.2	9.20	15.00											11.40	17.20									
MAA1020AA	208/230-1-60	17.20	2.8			16.70	20.80	25.00	33.33		41.67							19.50	23.60	27.80	36.13		44.47			
MAA1024AA	208/230-1-60	19.10	2.8			16.70	20.80	25.00	33.33		41.67							19.50	23.60	27.80	36.13		44.47			
MAA1030AA	208/230-1-60	21.90	4.3			16.70	20.80	25.00	33.33		41.67	50.00	62.50					21.00	25.13	29.30	37.63		45.97	54.30	66.80	
MAA1036AA	208/230-1-60	24.50	4.3			16.70	20.80	25.00	33.33		41.67	50.00	62.50					21.00	25.13	29.30	37.63		45.97	54.30	66.80	
MAA1042AA	208/230-1-60	26.60	4.3				20.80	25	33.33		41.67	50.00	62.50					25.13	29.30	37.63		45.97	54.30	66.80		
MAA1048AA	208/230-1-60	31.60	4.3				20.80	25	33.33		41.67	50.00	62.50					25.13	29.30	37.63		45.97	54.30	66.80		
MAA1060AA	208/230-1-60	36.40	6.8				20.80	25	33.33		41.67	50.00	62.50					27.63	31.80	40.13		48.47	56.80	69.30		
MGA1072AA	208/230-1-60	38.90	5.2				20.80	25	33.33		41.70	50.00	62.70					26.00	30.20	38.53		48.50	56.80	69.50		
MAA1024AC	208/230-3-60	14.60	2.8				14.43		21.65		28.86	36.08								17.23		24.45	31.66	38.88		
MAA1030AC	208/230-3-60	16.80	4.3				14.43		21.65		28.86	36.08								18.73		25.95	33.16	40.38		
MAA1036AC	208/230-3-60	19.00	4.3				14.43		21.65		28.86	36.08								18.73		25.95	33.16	40.38		
MAA1042AC	208/230-3-60	23.20	4.3				14.43		21.65		28.86	36.08								18.73		25.95	33.16	40.38		
MAA1048AC	208/230-3-60	25.80	4.3				14.43		21.65		28.86	36.08								18.73		25.95	33.16	40.38		
MAA1060AC	208/230-3-60	28.00	6.8				14.43		21.65		28.86	36.08								21.23		28.45	35.66	42.88		
MGA1072AC	208/230-3-60	30.10	5.2				14.40		21.70		28.90	36.08								19.60		26.90	34.10	41.21		
MAA1024AD	460-3-60	6.65	1.4				7.22		10.83		14.43	18.04								8.62		12.23	15.83	19.44		
MAA1030AD	460-3-60	9.70	2.2				7.22		10.83		14.43	18.04								9.37		12.98	16.58	20.19		
MAA1036AD	460-3-60	9.50	2.2				7.22		10.83		14.43	18.04								9.37		12.98	16.58	20.19		
MAA1042AD	460-3-60	10.90	2.2				7.22		10.83		14.43	18.04								9.37		12.98	16.58	20.19		
MAA1048AD	460-3-60	12.25	2.2				7.22		10.83		14.43	18.04								9.37		12.98	16.58	20.19		
MAA1060AD	460-3-60	13.75	3.4				7.22		10.83		14.43	18.04								10.62		14.23	17.83	21.44		
MGA1072AD	460-3-60	14.65	2.6				7.20		10.83		14.43	18.04								9.80		13.43	17.03	20.64		
MAA1024AZ	575-3-60	5.91	1.1				5.80		8.70		11.50									6.95		9.85	12.65			
MAA1030AZ	575-3-60	6.98	1.8				5.80		8.70		11.50	14.40								7.56		10.46	13.26	16.16		
MAA1036AZ	575-3-60	7.00	1.8				5.80		8.70		11.50	14.40								7.56		10.46	13.26	16.16		
MAA1042AZ	575-3-60	8.74	1.8				5.80		8.70		11.50	14.40								7.56		10.46	13.26	16.16		
MAA1048AZ	575-3-60	9.76	1.8				5.80		8.70		11.50	14.40								7.56		10.46	13.26	16.16		
MAA1060AZ	575-3-60	10.66	2.8				5.80		8.70		11.50	14.40								8.59		11.49	14.29	17.19		
MGA1072AZ	575-3-60	11.02	2.1				5.80		8.70		11.50	14.40								7.90		10.80	13.60	16.50		

¹AC = Air Conditioner Unit Amps ²IBM = Indoor Blower Motor
Heating kW is rated at 240 volts on the ACA & ACC models. Derate heater output by 25% for operation at 208 volts. Heating kW is rated at 480 volts on the ACD models.
Total heating and cooling amps includes all motors. Three phase models contain single phase motor loads. Loads are not equally balanced on each phase and values shown are maximum phase loads.

Dimensional Data - MAA1018A



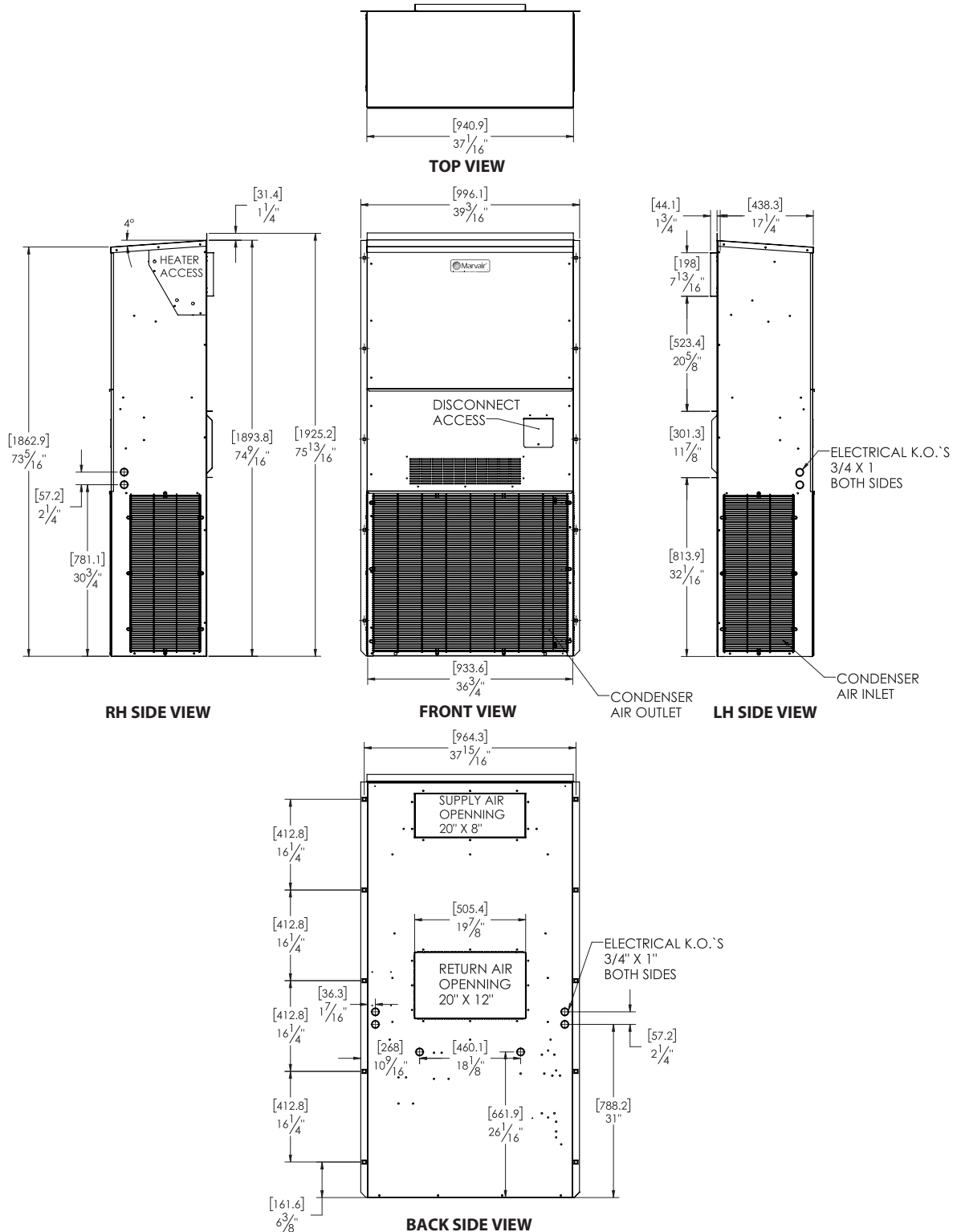
Installation Weight

MAA1018A	Base
Pounds	265
Kilograms	120

Filter Size

MAA1018A	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	14 x 12 x 1	356 x 305 x 25	P/80122	1	N/A

Dimensional Data - MAA1020A, MAA1024A



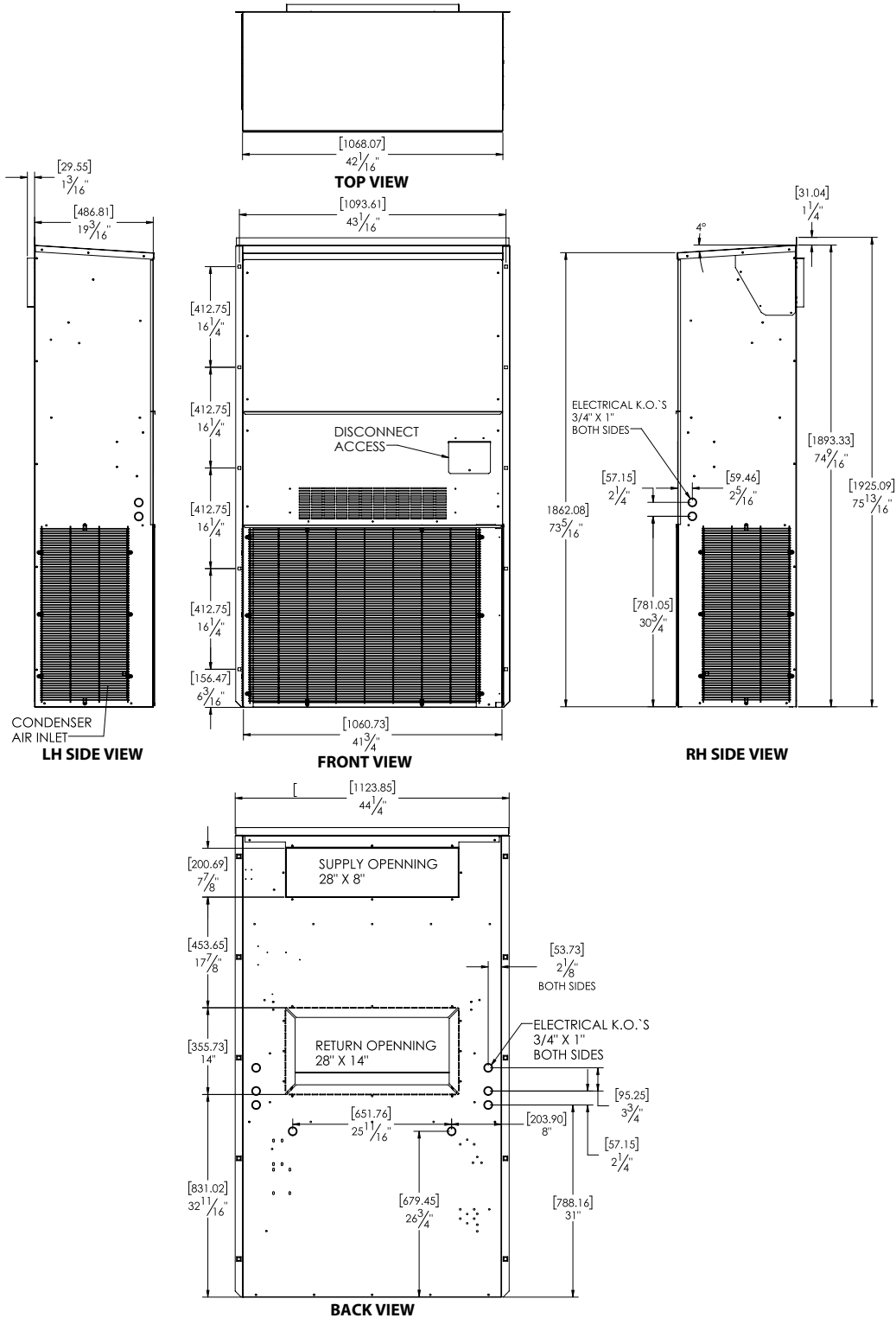
Installation Weight

MAA1020A & MAA1024A	Base	w/Economizer	w/3 Phase	w/Economizer & 3 Phase
Pounds	337	357	356	376
Kilograms	153	162	161	171

Filter Size

MAA1020A & MAA1024A	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	16 x 25 x 2	406 x 635 x 51	80137	1	8

Dimensional Data - MAA1030A, MAA1036A



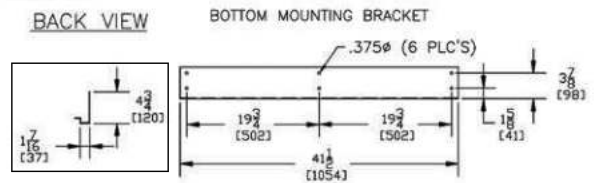
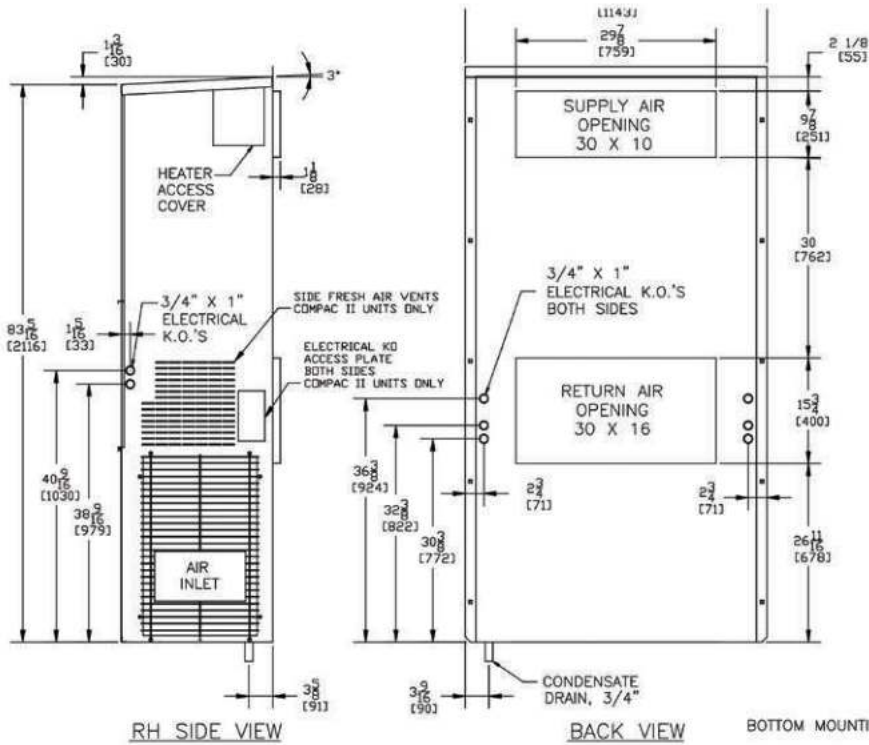
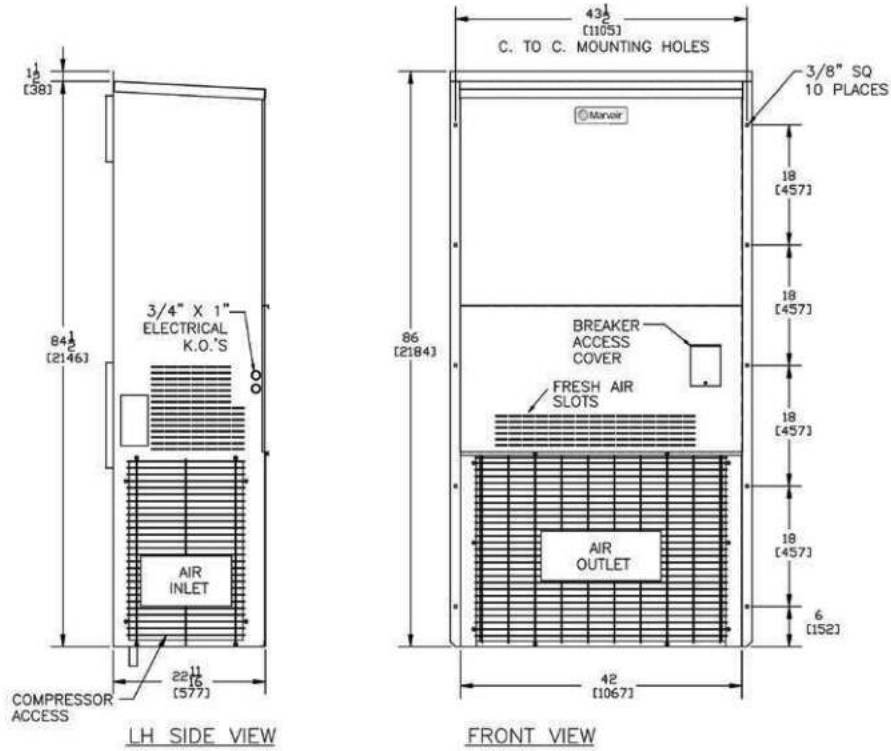
Installation Weight

MAA1030A & MAA1036A	Base	w/Economizer	w/3 Phase	w/Economizer & 3 Phase
Pounds	397	419	416	438
Kilograms	180	190	189	199

Filter Size

MAA1030A & MAA1036A	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	18 x 30 x 2	457 x 762 x 51	93184	1	8

Dimensional Data - MAA1042A, MAA1048A



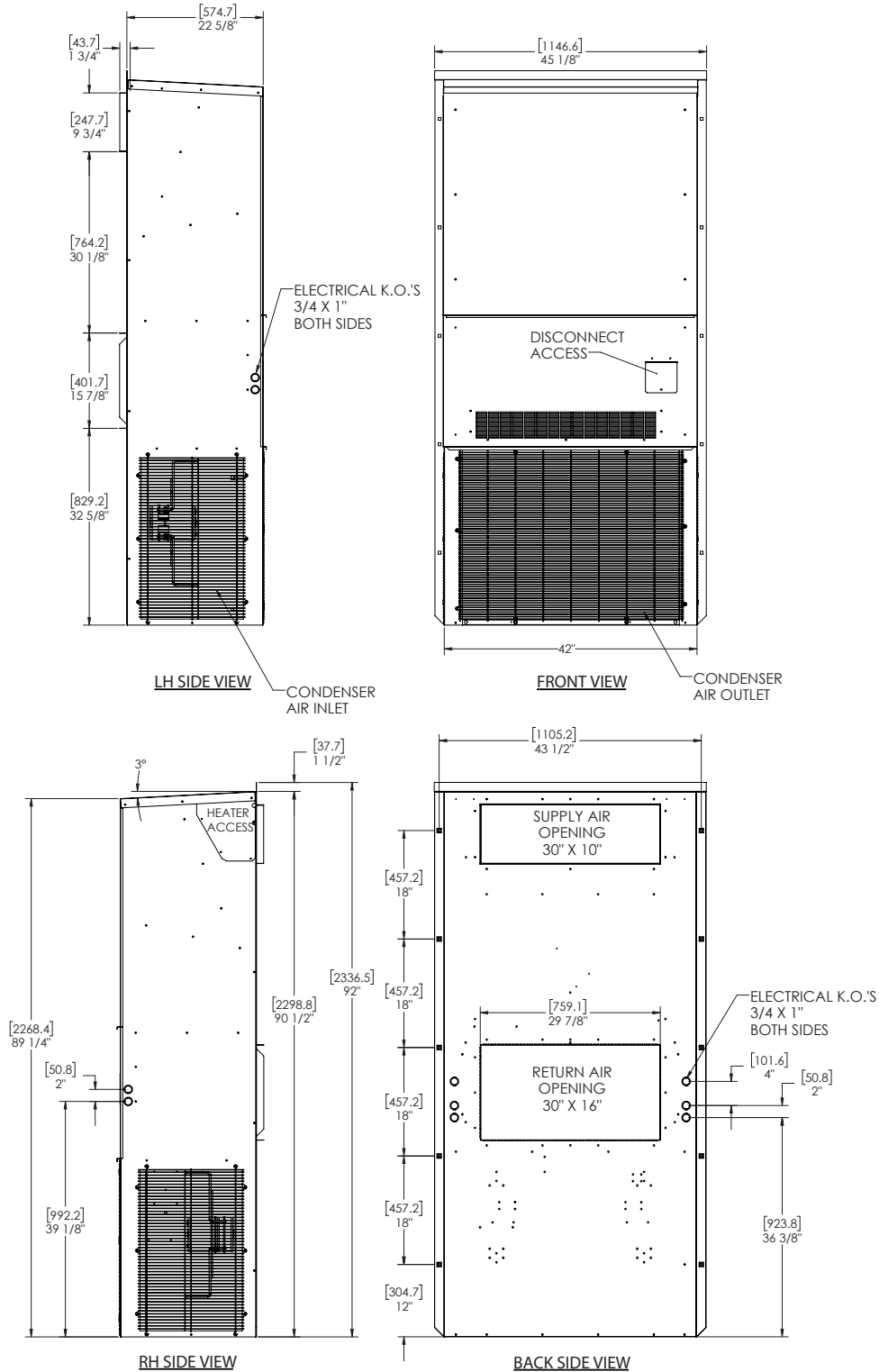
Installation Weight

MAA1042A & MAA1048A	Base	w/Economizer	w/3 Phase	w/Economizer & 3 Phase
Pounds	453	476	491	514
Kilograms	205	216	223	233

Filter Size

MAA1042A & MAA1048A	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	36 1/2 x 22 x 2	927 x 559 x 51	80162	1	8

Dimensional Data - MAA1060A



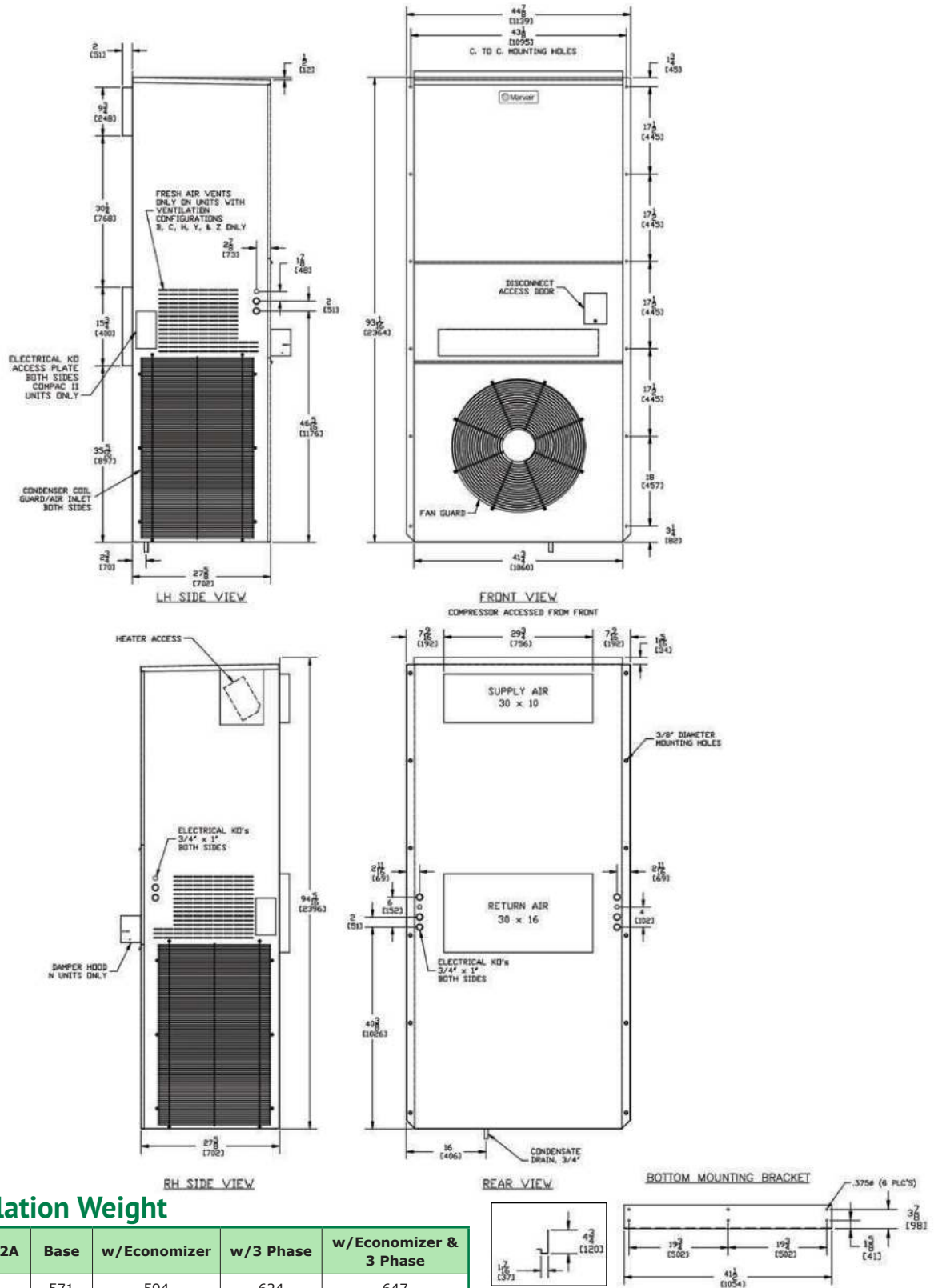
Installation Weight

MAA1060A	Base	w/Economizer	w/3 Phase	w/Economizer & 3 Phase
Pounds	469	492	522	545
Kilograms	213	223	237	247

Filter Size

MAA1060A	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	18 x 24 x 2	457 x 610 x 51	81257	2	8

Dimensional Data - MGA1072A



Installation Weight

MGA1072A	Base	w/Economizer	w/3 Phase	w/Economizer & 3 Phase
Pounds	571	594	624	647
Kilograms	259	269	283	293

Filter Size

MGA1072A	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	18 x 24 x 2	457 x 610 x 51	81257	2	8

Notes



Please consult the Marvair® website at www.marvair.com for the latest product literature. Detailed dimensional data is available upon request. A complete warranty statement can be found in each product's Installation/Operation Manual, on our website or by contacting Marvair at 229-273-3636. As part of the Marvair continuous improvement program, specifications are subject to change without notice.



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