

**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



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 measures 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

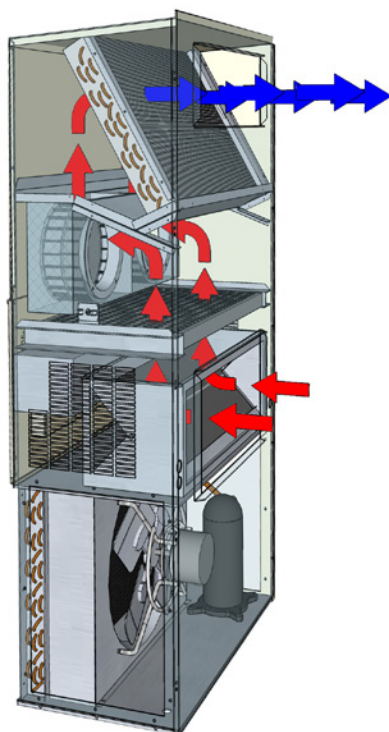
Marvair's wall mount air conditioners have been the industry standard since their introduction in 1986. Tens of thousands of Marvair air conditioners are in operation from the metropolitan areas of North America to the deserts of the Mid-East to the Siberian tundra. Here's how the economizer works:

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.

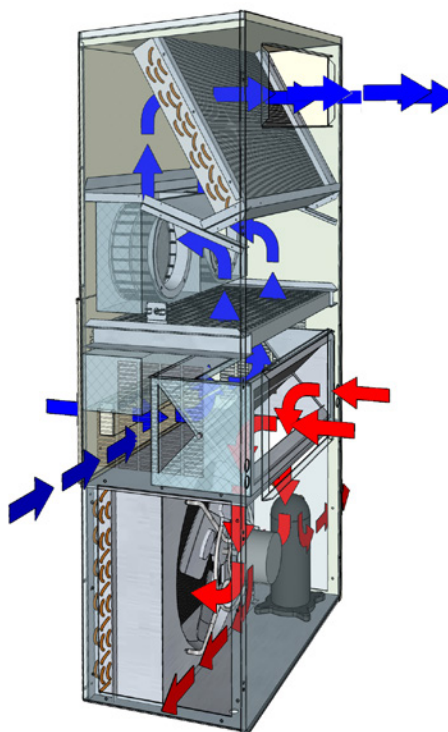
After the enthalpy control has activated and outside air is being brought into the building, the mixed air sensor measures the temperature of the air entering the indoor blower and then modulates the economizer damper to mix the right proportion of cool outside air with warm indoor air to maintain 50-63°F (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.



100% Mechanical Cooling



100% Economizer 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, MAA1024A "B2" - 20" x 8" (508 mm x 203 mm)P/N 80674

For MAA1030A, MAA1030A "B2", MAA1036A, MAA1036A "B2" - 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 - 13¾" x 11¾" (349 mm x 298 mm).....P/N 80680

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

For MAA1024A "B2" - 22½" x 14½" (562 mm x 359 mm).....P/N 80671

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

For MAA1030A "B2", MAA1036A "B2" - 30½" x 16½" (765 mm x 410 mm)P/N 80672

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. Recommended for use with MAA1024A/1030A/1036A "B2".

For MAA1020A, MAA1024A, MAA1024A "B2".....P/N 80671
20" x 12" (508 mm x 305 mm)

For MAA1030A, MAA1030A "B2", MAA1036A, MAA1036A "B2"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 is 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 a 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. 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.

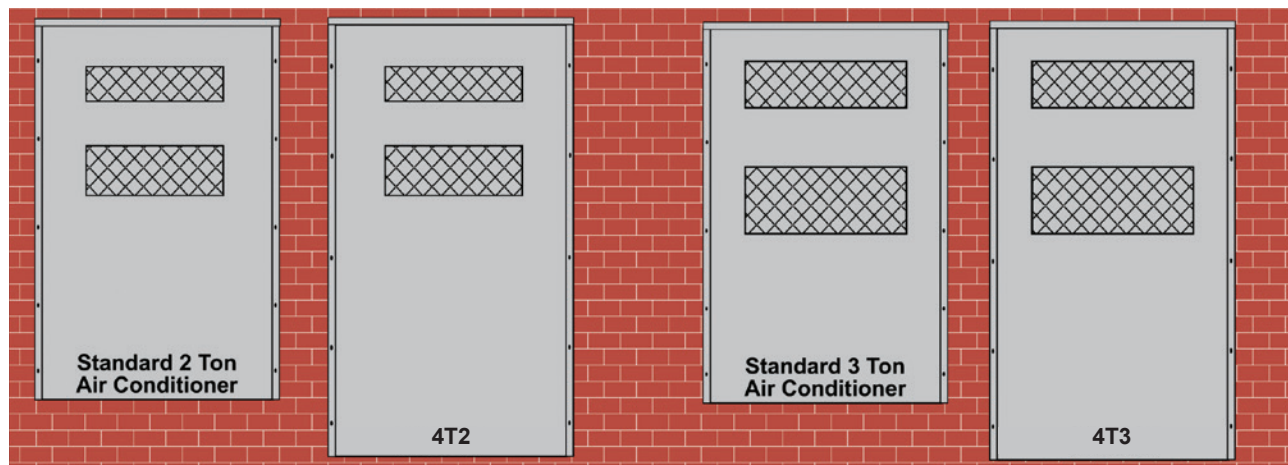
Dry Contacts Alarm Outputs



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 = Marvail 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
		024 = 24,000	060 = 60,000
7		030 = 30,000 036 = 36,000	072 = 72,000
8	System Type	A = Air Conditioner	
9	Power Supply (Volts-Phase-Hz)	A = 208/230-1-60 C = 208/230-3-60	D = 460-3-60 Z = 575-3-60
10	Heat Designation @ Rated Voltage	000 = No Heat 022 = 2.2KW 036 = 3.6KW	080 = 8KW 090 = 9KW 100 = 10KW
11		040 = 4KW 050 = 5KW 060 = 6KW	120 = 12KW 150 = 15KW
12			
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	A2
23		B2
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 BTUH ¹	17,500	20,000	24,000				29,000				35,000				41,000				45,000				54,600				66,000				70,000			
EER ²	11.00	11.00	11.00				11.00				11.00				11.50				11.00				11.00				10.00							
Rated Air Flow (CFM ³)	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 (CFM ¹)	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.

Cooling Performance (BTUH) at Various Outdoor Temperatures Air Conditioners with Single Stage Compressor

MODEL	Return Air DB/WB °F(°C)	Outdoor Temperature												
		Cooling Capacity BTUH	75°F (24°C)	80°F (26.5°C)	85°F (29°C)	90°F (32°C)	95°F (35°C)	100°F (38°C)	105°F (40.5°C)	110°F (43.3°C)	115°F (46.1°C)	120°F (48.9°C)	125°F (51.7°C)	130°F (54.4°C)
MAA1018A	72/61	Total	18174	17544	16931	16301	15671	15040	14410	13797	13482	12169	11468	10768
MAA1018A	(22/16)	Sensible	13537	13278	13028	12773	12519	12266	12015	11772	11648	11134	10863	10593
MAA1018A	76/63	Total	18892	18244	17579	16931	16283	15636	14988	14322	14007	12782	12081	11381
MAA1018A	(24/17)	Sensible	14719	14462	14199	13946	13693	13443	13193	12939	12819	12356	12081	11381
MAA1018A	80/67	Total	20310	19610	18910	18209	17509	16809	16108	15408	15058	14007	13307	12606
MAA1018A	(27/19)	Sensible	14617	14358	14101	13845	13591	13339	13089	12839	12715	12346	12101	11858
MAA1018A	84/71	Total	21729	20976	20240	19488	18735	17982	17229	16493	16108	15233	14532	13832
MAA1018A	(29/22)	Sensible	14443	14185	13935	13680	13427	13176	12926	12684	12558	12272	12045	11820
MAA1020A	72/61	Total	20760	20040	19340	18620	17900	17180	16460	15760	15400	13900	13100	12300
MAA1020A	(22/16)	Sensible	15578	15283	14998	14707	14417	14129	13842	13565	13424	12837	12528	12220
MAA1020A	76/63	Total	21580	20840	20080	19340	18600	17860	17120	16360	16000	14600	13800	13000
MAA1020A	(24/17)	Sensible	16950	16657	16358	16068	15780	15494	15210	14919	14783	14254	13800	13000
MAA1020A	80/67	Total	23200	22400	21600	20800	20000	19200	18400	17600	17200	16000	15200	14400
MAA1020A	(27/19)	Sensible	16832	16537	16244	15952	15663	15375	15089	14805	14663	14241	13962	13685
MAA1020A	84/71	Total	24820	23960	23120	22260	21400	20540	19680	18840	18400	17400	16600	15800
MAA1020A	(29/22)	Sensible	16633	16339	16053	15763	15474	15187	14903	14626	14482	14156	13897	13640
MAA1024A	72/61	Total	24912	24048	23208	22344	21480	20616	19752	18912	18480	16680	15720	14760
MAA1024A	(22/16)	Sensible	17829	17471	17125	16771	16419	16070	15723	15387	15216	14506	14131	13759
MAA1024A	76/63	Total	25896	25008	24096	23208	22320	21432	20544	19632	19200	17520	16560	15600
MAA1024A	(24/17)	Sensible	19313	18957	18594	18242	17893	17546	17201	16850	16684	16044	15681	15321
MAA1024A	80/67	Total	27840	26880	25920	24960	24000	23040	22080	21120	20640	19200	18240	17280
MAA1024A	(27/19)	Sensible	19183	18824	18468	18114	17762	17413	17066	16722	16550	16039	15701	15366
MAA1024A	84/71	Total	29784	28752	27744	26712	25680	24648	23616	22608	22080	20880	19920	18960
MAA1024A	(29/22)	Sensible	18954	18597	18250	17897	17546	17199	16853	16518	16343	15948	15635	15323
MAA1030A	72/61	Total	30102	29058	28043	26999	25955	24911	23867	22852	22330	20155	18995	17835
MAA1030A	(22/16)	Sensible	22050	21620	21205	20780	20358	19938	19521	19118	18912	18059	17608	17160
MAA1030A	76/63	Total	31291	30218	29116	28043	26970	25897	24824	23722	23200	21170	20010	18850
MAA1030A	(24/17)	Sensible	23938	23511	23075	22653	22234	21818	21404	20981	20782	20012	19576	18850
MAA1030A	80/67	Total	33640	32480	31320	30160	29000	27840	26680	25520	24940	23200	22040	20880
MAA1030A	(27/19)	Sensible	23773	23343	22916	22491	22069	21650	21233	20819	20614	20000	19593	19190
MAA1030A	84/71	Total	35989	34742	33524	32277	31030	29783	28536	27318	26680	25230	24070	22910
MAA1030A	(29/22)	Sensible	23490	23061	22645	22221	21801	21383	20969	20566	20356	19882	19505	19130
MAA1036A	72/61	Total	36330	35070	33845	32585	31325	30065	28805	27580	26950	24325	22925	21525
MAA1036A	(22/16)	Sensible	25387	24861	24353	23834	23319	22807	22298	21806	21555	20516	19967	19422
MAA1036A	76/63	Total	37765	36470	35140	33845	32550	31255	29960	28630	28000	25550	24150	22750
MAA1036A	(24/17)	Sensible	27436	26913	26380	25864	25352	24844	24338	23823	23580	22642	22112	21585
MAA1036A	80/67	Total	40600	39200	37800	36400	35000	33600	32200	30800	30100	28000	26600	25200
MAA1036A	(27/19)	Sensible	27252	26726	26203	25684	25168	24656	24148	23643	23391	22643	22148	21657
MAA1036A	84/71	Total	43435	41930	40460	38955	37450	35945	34440	32970	32200	30450	29050	27650
MAA1036A	(29/22)	Sensible	26926	26401	25892	25374	24860	24350	23843	23352	23096	22517	22058	21602
MAA1042A	72/61	Total	42558	41082	39647	38171	36695	35219	33743	32308	31570	28495	26855	25215
MAA1042A	(22/16)	Sensible	29375	28750	28146	27529	26917	26310	25706	25123	24825	23595	22946	22302
MAA1042A	76/63	Total	44239	42722	41164	39647	38130	36613	35096	33538	32800	29930	28290	26650
MAA1042A	(24/17)	Sensible	31697	31075	30441	29829	29220	28616	28017	27406	27118	26007	25379	24756
MAA1042A	80/67	Total	47560	45920	44280	42640	41000	39360	37720	36080	35260	32800	31160	29520
MAA1042A	(27/19)	Sensible	31502	30875	30253	29635	29023	28414	27811	27212	26914	26027	25441	24859
MAA1042A	84/71	Total	50881	49118	47396	45633	43870	42107	40344	38622	37720	35670	34030	32390
MAA1042A	(29/22)	Sensible	31139	30514	29907	29291	28680	28074	27472	26889	26585	25899	25355	24815
MAA1048A	72/61	Total	46710	45090	43515	41895	40275	38655	37035	35460	34650	31275	29475	27675
MAA1048A	(22/16)	Sensible	32419	31740	31083	30413	29747	29085	28428	27794	27469	26128	25420	24718
MAA1048A	76/63	Total	48555	46890	45180	43515	41850	40185	38520	36810	36000	32850	31050	29250
MAA1048A	(24/17)	Sensible	35009	34333	33644	32978	32317	31659	31007	30341	30027	28817	28133	27453
MAA1048A	80/67	Total	52200	50400	48600	46800	45000	43200	41400	39600	38700	36000	34200	32400
MAA1048A	(27/19)	Sensible	34781	34100	33424	32753	32087	31425	30769	30116	29792	28826	28187	27553
MAA1048A	84/71	Total	55845	53910	52020	50085	48150	46215	44280	42390	41400	39150	37350	35550
MAA1048A	(29/22)	Sensible	34370	33690	33032	32363	31698	31039	30384	29750	29419	28672	28079	27490
MAA1060A	72/61	Total	56675	54709	52798	50833	48867	46901	44936	43025	42042	37947	35763	33579
MAA1060A	(22/16)	Sensible	39470	38639	37836	37017	36203	35395	34593	33818	33422	31786	30923	30066
MAA1060A	76/63	Total	58913	56893	54818	52798	50778	48758	46738	44663	43680	39858	37674	35490
MAA1060A	(24/17)	Sensible	42628	41802	40959	40145	39336	38534	37737	36924	36541	35065	34230	33401
MAA1060A	80/67	Total	63336	61152	58968	56784	54600	52416	50232	48048	46956	43680	41496	39312
MAA1060A	(27/19)	Sensible	42364	41531	40705	39884	39070	38262	37459	36663	36267	35088	34309	33535
MAA1060A	84/71	Total	67759	65411	63118	60770	58422	56074	53726	51433	50232	47502	45318	43134
MAA1060A	(29/22)	Sensible	41878	41047	40241	39423	38610	37805	37005	36230	35826	34914	34191	33472
MGA1072A	72/61	Total	68508	66132	63822	61446	59070	56694	54318	52008	50820	45870	43230	40590
MGA1072A	(22/16)	Sensible	46314	45289	44300	43291	42289	41296	40310	39359	38873	36867	35810	34762
MGA1072A	76/63	Total	71214	68772	66264	63822	61380	58938	56496	53988	52800	48180	45540	42900
MGA1072A	(24/17)	Sensible	49850	48830	47791	46788	45793	44805	43826	42828	42358	40547	39524	38510
MGA1072A	80/67	Total	76560	73920	71280	68640	66000	63360	60720	58080	56760	52800	50160	47520
MGA1072A	(27/19)	Sensible	49568	48539	47519	46507	45504	44509	43522	42544	42057	40610	39655	38707
MGA1072A	84/71	Total	81906	79068	76296	73458	70620	67782	64944	62172	60720	57420	54780	52140
MGA1072A	(29/22)	Sensible	49015	47988	46993	45984	44983	43990	43006	42053	41557	40437	39549	38669

Based upon ANSI/AHRI std. 390 return air conditions of 80°F DB/67° WB (26.5°C DB/19.5°C WB) at various outdoor temperatures.

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	0.7	1/8
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
MAA1024AA “B2”		208/230-60-1	10.8	55.0	208/230-60-1	850	2.2	1/3	208/230-60-1	200-1200	4.1	1/2
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
MAA1030AA “B2”		208/230-60-1	12.3	63.0	208/230-60-1	850	2.2	1/3	208/230-60-1	200-1200	4.1	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
MAA1036AA “B2”		208/230-60-1	14.7	75.0	208/230-60-1	1200	1.9	1/3	208/230-60-1	1050	4.1	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
¹ RLA = Rated Load Amps ² LRA = Locked Rotor Amps ³ RPM = Revolutions per Minute ⁴ FLA = Full Load Amps ⁵ HP = 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	13.10	20	13.10	20	19.50	20																
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				
MAA1024AA “B2”	208/230-1-60	19.70	30															56.20	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
MAA1030AA “B2”	208/230-1-60	21.70	30															56.20	60	66.60	70	82.20	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
MAA1036AA “B2”	208/230-1-60	24.30	35															56.20	60	66.60	70	82.20	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	13.10	20	24.55	30	31.90	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				
MAA1024AA "B2"	208/230-1-60	19.70	30															71.80	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
MAA1030AA "B2"	208/230-1-60	21.70	30															73.80	80	84.20	90	99.80	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
MAA1036AA "B2"	208/230-1-60	24.30	35															76.40	90	86.80	100	102.40	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 guide-line 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 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")

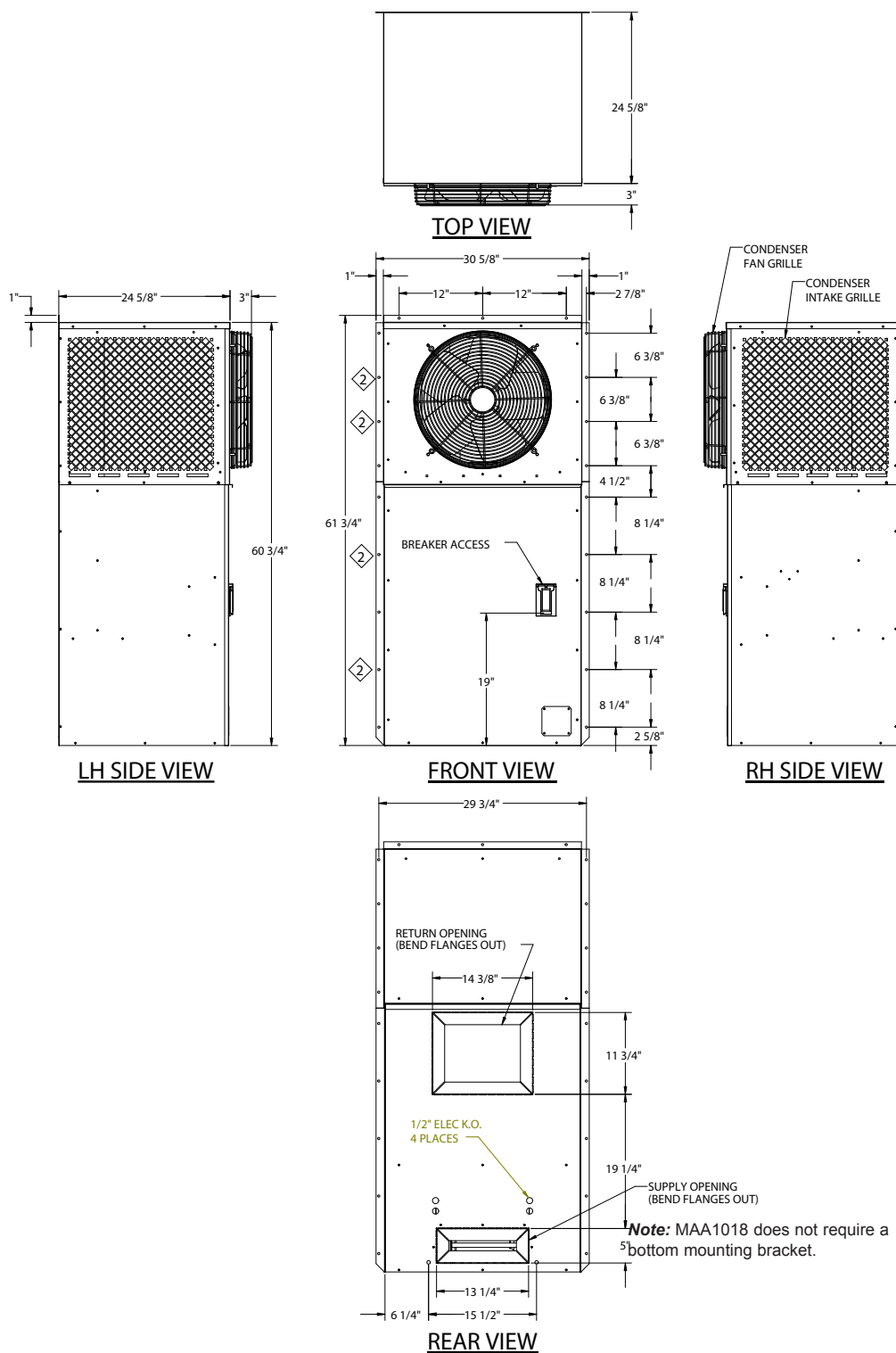
Manual Damper, up to 15% Outside Air with Pressure Relief ("Z")

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																
				Heating Kilowatts												Heating Kilowatts																
		AC ¹	IBM ²	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	13.10	0.7	9.20	15.00									9.90	15.70																	
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											
MAA1024AA “B2”	208/230-1-60	17.10	4.1								41.70										45.80											
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									
MAA1030AA “B2”	208/230-1-60	18.60	4.1								41.70	50.00	62.50								45.80	54.10	66.60									
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									
MAA1036AA “B2”	208/230-1-60	20.70	4.1								41.70	50.00	62.50								45.80	54.10	66.60									
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



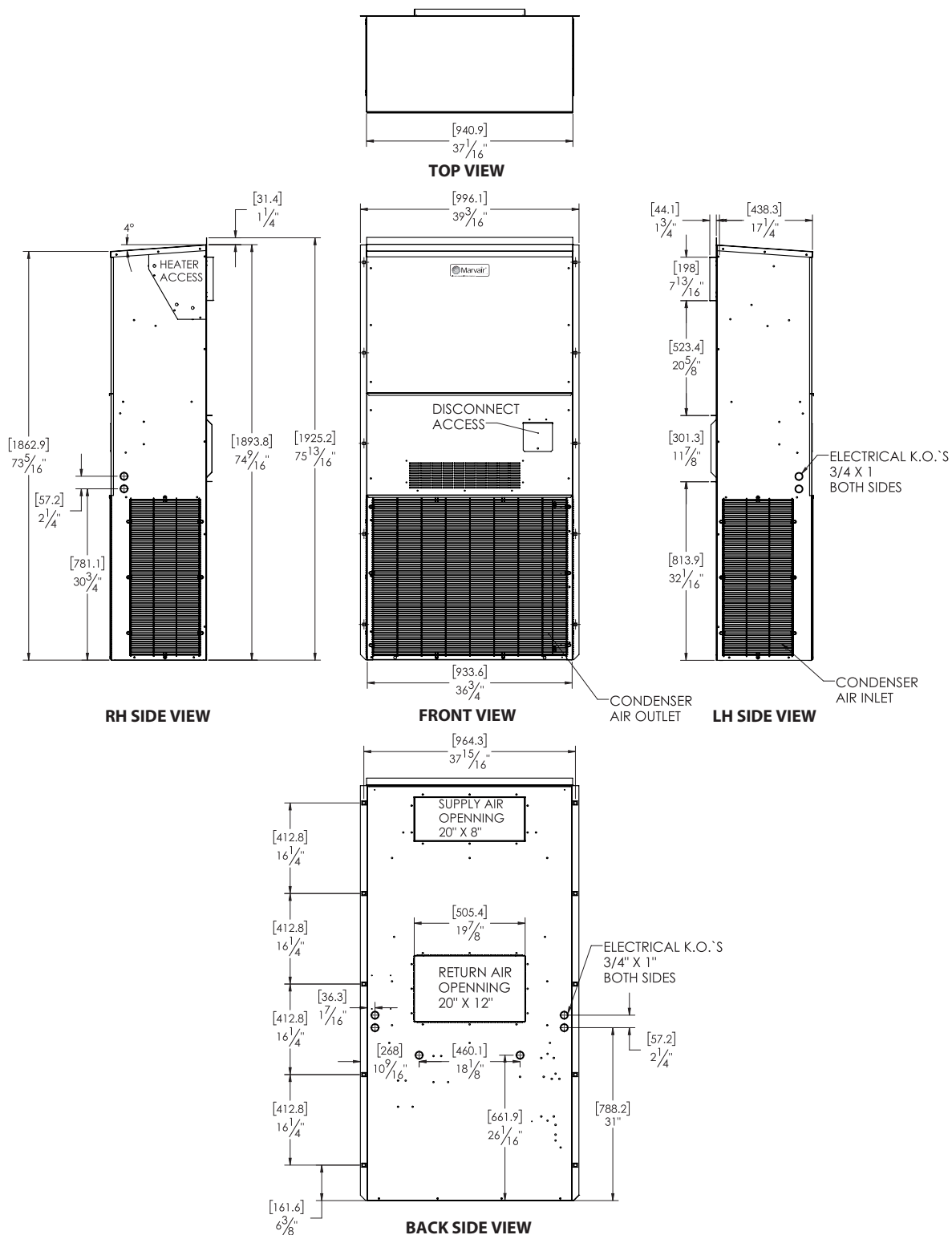
Installation Weight

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



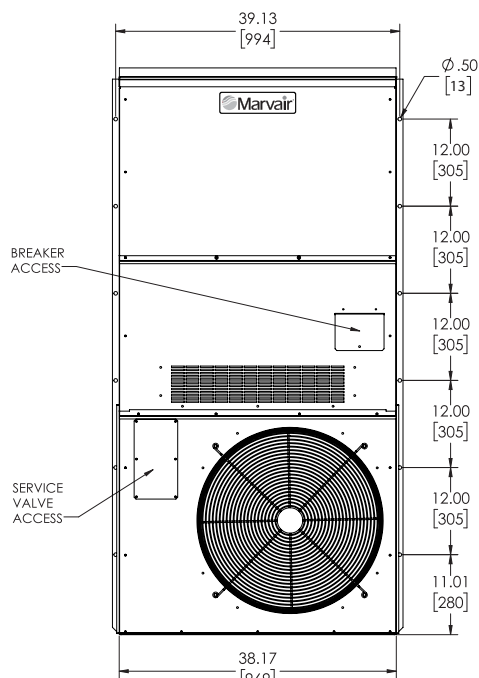
Installation Weight

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

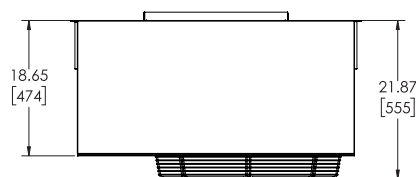
Filter Size

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

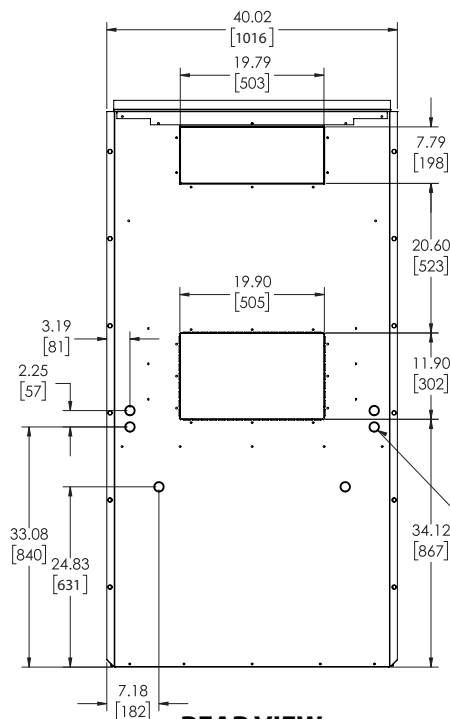
Dimensional Data - MAA1024A "B2", MAA1030A "B2"



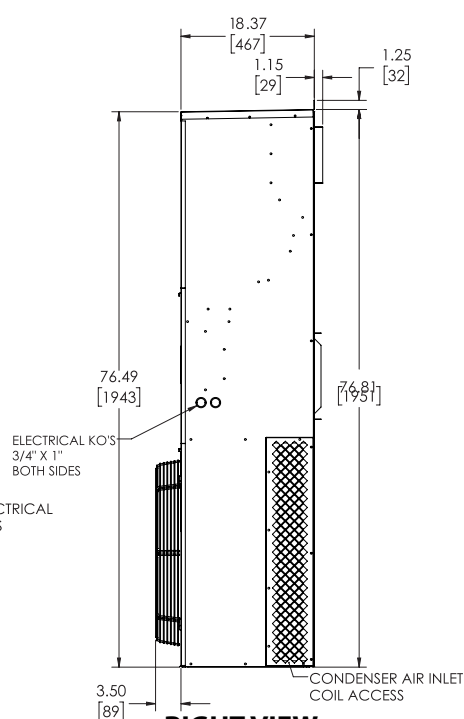
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

Installation Weight

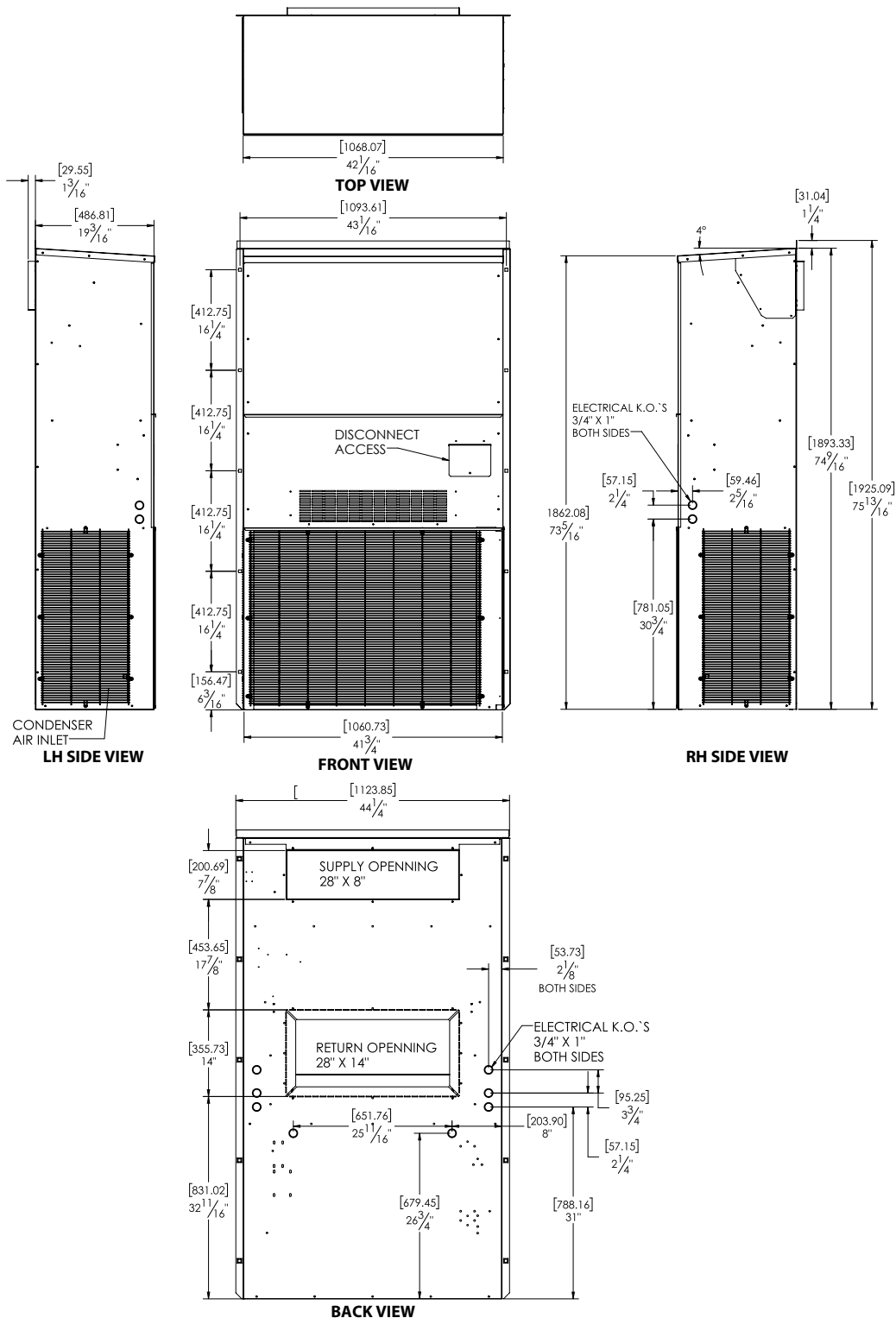
MAA1024A "B2", MAA1030A "B2"	Base	w/Economizer	w/3 Phase	w/Economizer & 3 Phase
Pounds	378	400	397	419
Kilograms	171	181	180	190

Return Air Filter

MAA1024A "B2", MAA1030A "B2"	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
INTERNAL¹	16 x 30 x 1	406 x 762 x 25	80136	1	N/A
MAA1024A "B2" RETURN GRILLE²	11½ x 19½ x 1	292 x 495 x 25	91983	1	N/A
MAA1030A "B2" RETURN GRILLE²	27½ x 13½ x 1	699 x 343 x 25	80769	1	N/A

¹Optional; Return grille filter is recommended. ²Recommended

Dimensional Data - MAA1030A, MAA1036A



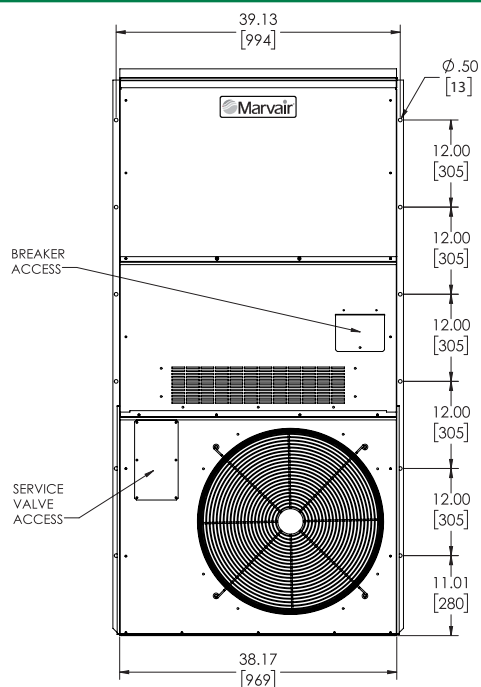
Installation Weight

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

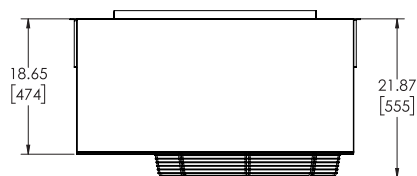
Filter Size

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

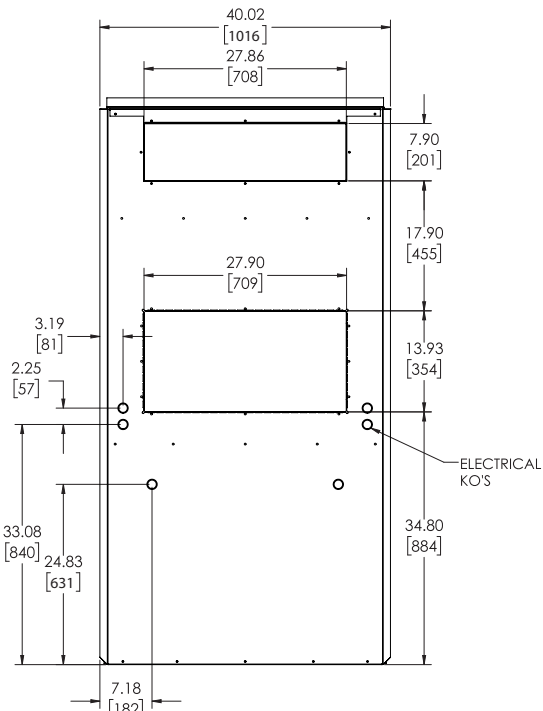
Dimensional Data - MAA1036A "B2"



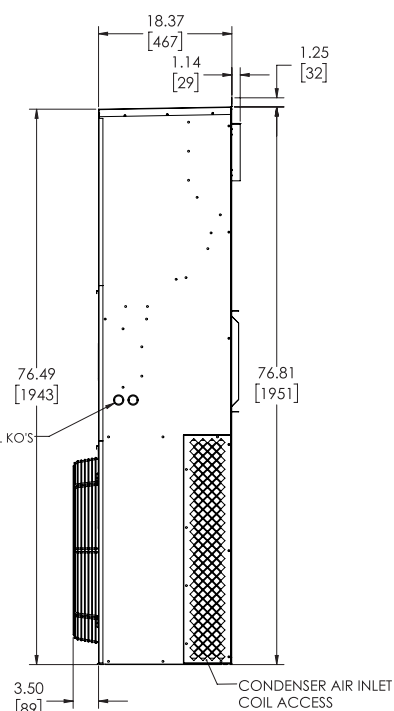
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

Installation Weight

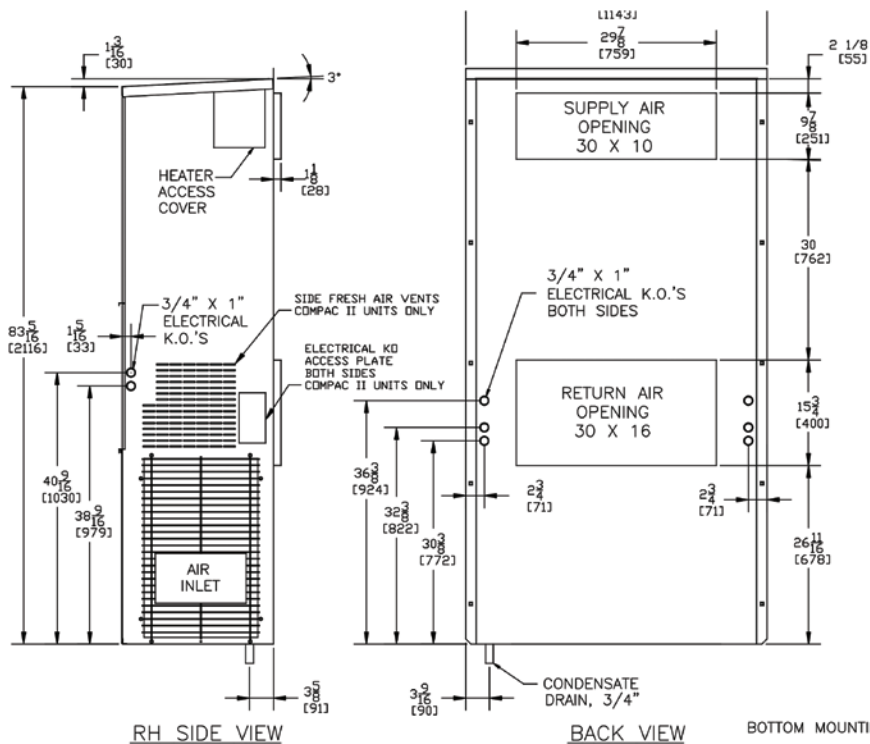
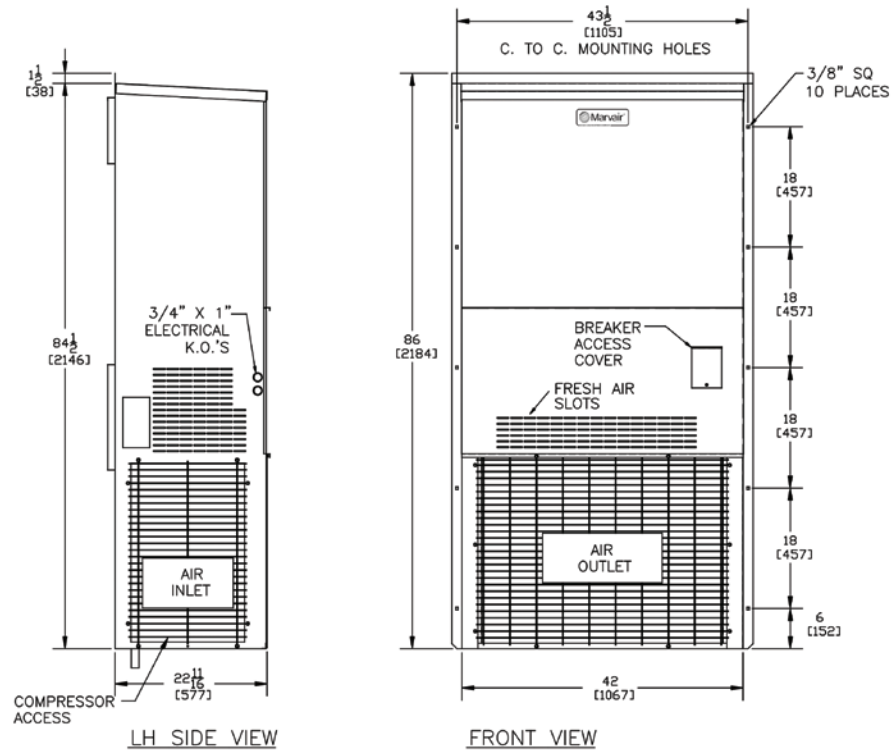
MAA1036A "B2"	Base	w/Economizer	w/3 Phase	w/Economizer & 3 Phase
Pounds	380	403	418	441
Kilograms	172	183	190	200

Filter Size

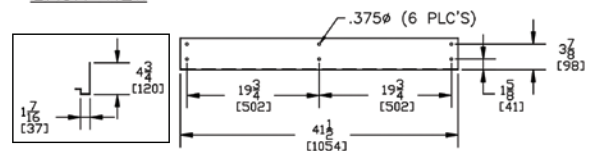
MAA1036A "B2"	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
INTERNAL¹	16 x 30 x 1	406 x 762 x 25	80136	1	N/A
RETURN GRILLE²	27½ x 13½ x 1	699 x 343 x 25	80769	1	N/A

¹Optional; Return grille filter is recommended. ²Recommended

Dimensional Data - MAA1042A, MAA1048A



BOTTOM MOUNTING BRACKET



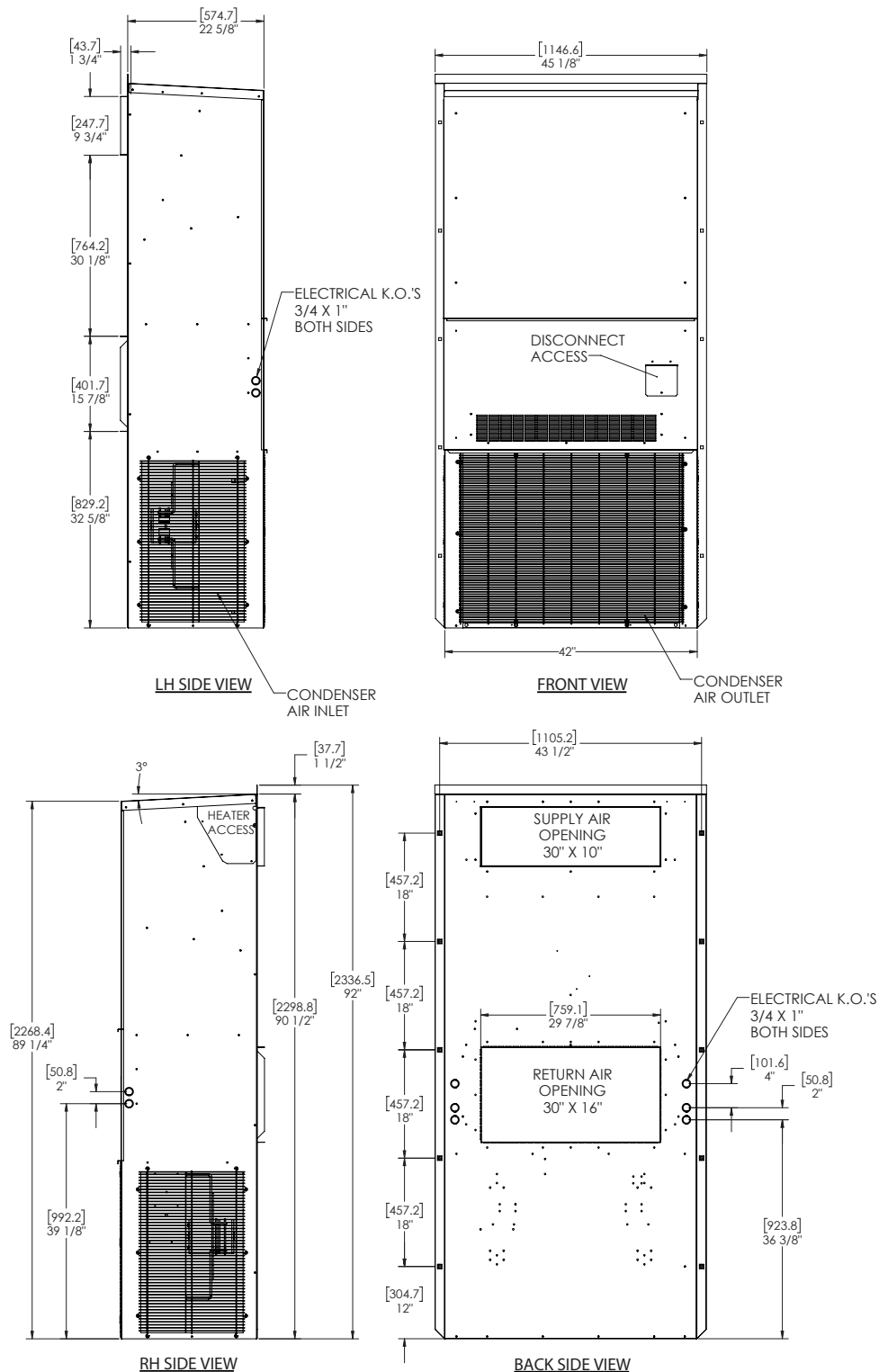
Installation Weight

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



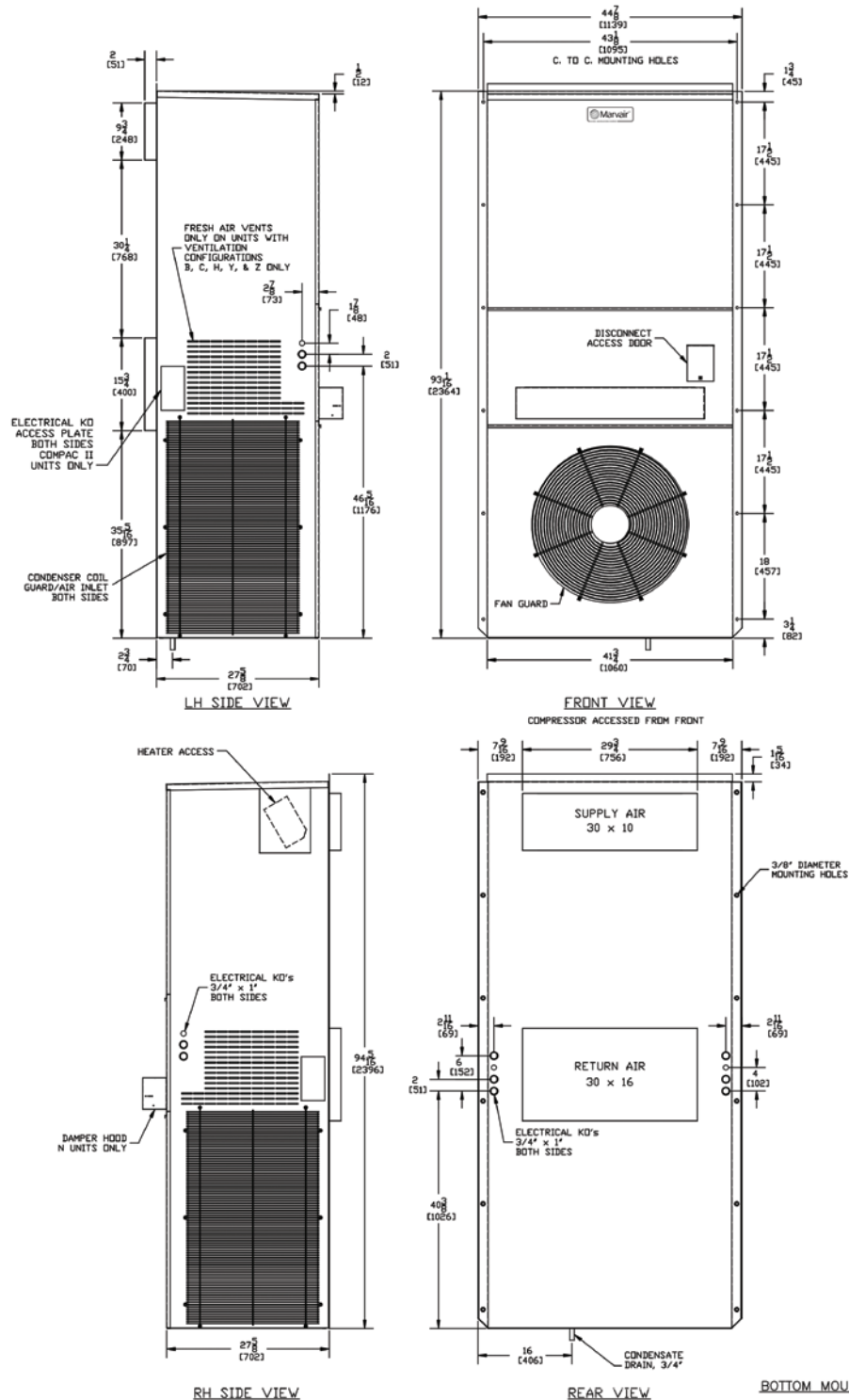
Installation Weight

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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