

DC Free Air HVAC Unit w/48 VDC Evaporator Fan Motor, 100% Free Cooling and CoolLinks Controller
Models ASDCA36-42-48-60-72, HSDCA36-42-48-60 & ASDCHA36-42-48-60



GENERAL DESCRIPTION

The Marvair[®] ComPac[®] II ASDCA, ASDCHA and HSDCA DC Free Air HVAC units are designed to cool telecommunications shelters where the high internal heat load requires year round cooling, even when ambient temperatures are below 60°F (15°C). Marvair DC air conditioners have the necessary controls and components to provide year-round cooling in a wide range of ambient conditions. These units use the non-ozone depleting R-410A refrigerant.

► ASDCA: Standard Efficiency Models

Budget oriented models have an Energy Efficiency Ratio (EER) of 9.0 to 9.5 with cooling capacities of 3, 3.5, 4, 5 and 6 tons (36,000 BTUH to 72,000 BTUH).

► ASDCHA: High Efficiency Models

High Efficiency 48 VDC models with an EER of 10.0 and cooling capacities of 3, 3.5, 4 and 5 tons (36,000 to 60,000 BTUH).

► HSDCA: Ultra High Efficiency Models

Marvair's most efficient wall mount 48 VDC air conditioners. Rated at 10.5 - 11.5 EER and available in cooling capacities of 3, 3.5, 4 and 5 tons (36,000 to 60,000 BTUH).

► DC Power Provides Emergency Cooling/Ventilation

Should there be loss of power to the site, the Marvair DC Free Air unit will continue to cool/ventilate the site by utilizing the shelter's DC power to introduce outside air into the shelter for free cooling. The DC Free Air unit will continue to ventilate the site and extend the run time of the equipment until battery power is exhausted or, at the minimum, owner specified pull down of battery drain.

Marvair DC free air units operate on both AC and DC power. The compressor, condenser fan motor and electric heat operate on AC power, but the evaporator motors, the 100% free cooling economizer damper and the internal control board operate on DC power – an inverter is **not** required. Since these key components are all powered by 48 VDC – the same 48 VDC power used by the shelter's radios- they are always operational.

The 48 VDC power supply connects to an internal DC breaker. From this breaker, power is supplied to the DC indoor blower and control board.

► Free Cooling with the Marvair 100% Full Flow Economizer

When the outside air is cool and dry, the economizer damper opens and draws in filtered, outside air to cool the shelter. The Marvair 100% full flow economizer means the same CFM of outside air is brought into the shelter as the rated air flow of the unit. The innovative design of the full flow economizer assembly also allows inside air to exit the building – pressure relief – when the full flow economizer is operating. This design eliminates the need for additional, costly penetrations in the shelter.

Free cooling provides temperature control, energy 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.



ASDCA36



Features and Benefits

CoolLinks Controller

- PLC-Based for Programming Flexibility
- Sequence the Operation of Two Units
- Ensures Maximum Efficiency
- Independent Economizer Control
- SNMP Interface for External Communication

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

The ASDCA/HSDCA/ASDCHA 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/AHRI (Air-Conditioning Heating 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. The ASDCA, HSDCA and ASDCHA air conditioners are commercial units and not intended for residential use.

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) 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).
- Factory installed economizer.

➤ High Efficiency

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

➤ 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.
- Foiled backed insulation on the indoor air path.

➤ 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 galvanized steel for maximum cabinet life. (Other finishes are available)

➤ Ease of Installation

- Sloped top with flashing eliminates need of rain hood.
- Built-in mounting flanges facilitate installation and minimize chance of water leaks.
- Supply and return openings exactly match previous models.
- Factory installed disconnect on all units.
- Single Point Power Entry complies with latest edition of U.L. Standard 1995.
- Side access panels for easy access to electrical connections.



CoolLinks™ PLC Controller

The Siemens PLC-based CoolLinks controller sequences the operation of the two Marvair ComPac II units to ensure the most energy-efficient conditioning of the shelter space and the most balanced use of the conditioning equipment. The CoolLinks system determines the need to cool or heat the shelter based on an indoor temperature sensor and outside temperature/humidity sensor connected directly to the controller. When cooling or heating is required, the controller selects the unit that was not running in the previous cooling/heating cycle. This lead/lag operation ensures that each unit receives equal runtime and therefore extends the operating life of the units. In the event that one of the units is unavailable, for example, scheduled maintenance, the system will automatically select the active unit. Similarly, if the internal shelter temperature continues to rise/fall, the system will run both units.

For cooling requests, the CoolLinks controller first examines the external shelter conditions to establish whether DC Free Cooling is possible. If acceptable, the 100% full flow economizer damper on the lead unit is opened to 100%. The damper then modulates its position, regulated by the controller, to cool the shelter to the target set point. During extreme cold outdoor temperatures this prevents "shocking" the equipment in the shelter.

For units installed in corrosive environments, e.g., near the ocean, the economizer cooling function can be disabled to prevent the entry of corrosive air into the shelter.

If DC Free Cooling is active on one unit and the internal temperature continues to rise, DC Free Cooling will then be activated on the second unit. Should the temperature continue to rise, the DC Free Cooling will be disabled on both units, both economizer dampers will be closed, and mechanical cooling activated on the lead unit. The control scheme allows the CoolLinks controller to make as efficient use of the external air as possible to minimize HVAC power consumption.

The CoolLinks controller communicates with the Marvair air conditioners over Ethernet. Should communications between the controller and one of the units fail, the unit will continue to run in stand-alone mode and cool to a mixed-air set point of 55°F (12.8°C). Whenever communications are restored, the CoolLinks controller will assume control of the air conditioner. An Ethernet connection is also provided for a SNMP interface through which the Network Operations Center can receive traps (alarms), monitor/change cooling and heating set points, and monitor HVAC unit and system operational parameters.



AIR CONDITIONER ALARMS AND LOCKOUTS



Each air conditioner is monitored over Ethernet and if a problem is detected, an alarm is generated. The alarm is displayed on the CoolLinks PLC in the shelter **and** sent via SNMP trap to the network operations center.

- **High Pressure Alarm** The refrigerant pressure has exceeded the set point pressure once in a cooling cycle. The air conditioner will continue to operate, but notification is sent that there is a high pressure fault.
- **High Pressure Lockout Alarm** The refrigerant pressure has exceeded the set point pressure twice in a cooling cycle. The air conditioner will shut down and notification will be sent that there is a high pressure lockout.
- **Low Pressure Alarm** The refrigerant pressure has dropped below the set point pressure once in a cooling cycle. The air conditioner will continue to operate, but notification is sent that there is a low pressure fault.
- **Low Pressure Lockout Alarm** The refrigerant pressure has dropped below the set point pressure twice in a cooling cycle. The air conditioner will shut down and notification will be sent that there is a low pressure lockout.
- **Damper Alarm** If the 100% full flow damper does not open when required, an alarm notification is sent that the damper is not open. The damper is exercised every 24 hours to verify proper operation.
- **Dirty Filter Alarm** A switch monitors the pressure on either side of the filter. If the differential pressure exceeds the set point pressure, an alarm notification is sent that there is not sufficient air flow through the filter.
- **Communications Alarm** A signal is sent if there is a loss of communication between the air conditioner and the CoolLinks controller.
- **Landline Power Alarm** If either air conditioner loses landline power, an alarm notification is sent.

SHELTER & SYSTEM ALARMS



In addition to the HVAC alarms, the CoolLinks controller also provides Shelter and System alarms. The alarm is displayed on the CoolLinks PLC in the shelter **and** also sent via SNMP trap to the network operations center.

- **First Stage High Temperature Alarm** Inside temperature above 85°F (29.4°C).
- **Second Stage High Temperature Alarm** Inside temperature above 90°F (32.2°C).
- **Low Temperature Alarm** Inside temperature is below 45°F (7.2°C).
- **Smoke Alarm** If the smoke sensor input to the CoolLinks system is active, the Compressor, Heater, and Indoor Blower Motor on both HVAC units will be shut down and the damper will closed completely. This will stop air flow within the shelter.
- **Hydrogen Detector Alarm** If the hydrogen sensor input to the CoolLinks system is active, the damper(s) on units that are not currently in mechanically cooling will be fully opened and the Indoor Blower Motor(s) will be turned on. This will expel noxious gases and introduce outside air into the shelter. If one unit is in mechanical cooling, it will continue to run. The other air conditioner will turn on and operate in the emergency ventilation mode.
- **Generator Operation Alarm** If the generator running input to the CoolLinks system is active, only one HVAC unit will be permitted to run in mechanical cooling. As the generator is typically sized to run only one HVAC unit, this ensures that the generator load is not exceeded.

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.

Data Points which can be monitored **and** changed:

- 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

Data points which can only be monitored:

- Inside Temperature - Current
- Outside Temperature - Current
- Outside Humidity - Current

- Dew point - Current
- 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 DC Free Air Cooling Time - Last Hour
- Unit 1 & Unit 2 DC Free Air Cooling Requests - Last Hour
- Unit 1 & Unit 2 Heating Time - Last Hour
- Unit 1 & Unit 2 Heating Requests - Last Ho

DRY CONTACT 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 or 3) a loss of landline power. This dry contact is a normally open contact.

GRILLES

► For ASDCA/HSDCA/ASDCHA36

Supply Grille:
28" x 8" (711mm x 203mm) P/N 80675

Return Grille:
20" x 12" (508mm x 356mm) P/N 80678

► For ASDCA/HSDCA/ASDCHA42-48-60-72

Supply Grille:
30" x 10" (762mm x 254mm) P/N 80676

Return Grille:
30" x 16" (762mm x 406mm) P/N 80679

FACTORY INSTALLED ACCESSORIES

► Phase Monitor

Monitors 3Ø power supply and will turn the air conditioner off if power supply is not phased properly. Not required on 1Ø units.

► Compressor Sound Jacket

To reduce sound of compressor.



► Right & Left Side Compressor Configuration

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. In the 36, the standard location for the compressor is on the right hand side. In the 42-48-60, the standard location for the compressor is on the left hand side. In the 72, the compressor is accessed from the front of the unit and an opposing configuration is not required.

► 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.)

OPTIONS

► Extreme Duty Package

Allows Marvair® air conditioners to operate in extremely cold and hot ambient conditions. The Extreme Duty Kit is always factory installed and is available on all air conditioners. The units will operate from -20°F to 131°F (-29° to 55°C).

The Extreme Duty Package includes a suction line accumulator, thermal expansion valve (TXV), crankcase heater, hard start kit, an auto reset high pressure switch and an outdoor thermostat and fan cycle switch. The fan cycle control is standard on all ComPac air conditioners and operates based upon the liquid line pressure. The outside thermostat opens whenever the outside temperature is below 50°F (10°C) and closes when the outside temperature is 50°F (10°C) or higher. Whenever the temperature is below 50°F (10°C), the fan cycle switch is in the circuit; when temperatures are 50°F (10°C) or higher, the fan cycle switch is not in the circuit. The outdoor thermostat is used with a TXV to prevent excessive cycling or "hunting" of the TXV.



► Desert Duty Package

The Desert Duty package is designed for operation in hot climates including the American southwest and the Middle East in ambient temperatures from -20°F to 131°F (-29°C to 55°C). Standard features of the Desert Duty package include a thermal expansion valve and a sealed condenser fan motor. Low temperature cooling is with the use of outside air via the economizer.

► 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. An illuminated LED indicates that the air flow may be obstructed and the filter should be inspected.



► Coastal Environment Package

Recommended for units to be installed near an ocean or on seacoast. Includes corrosion resistant fasteners, sealed or partially sealed condenser fan motor, protective coating applied to all exposed internal copper and metal in the in the condenser section and an impregnated polyurethane on the condenser coil and fan blades. See Coastal Environmental Technical Bulletin for more details.

► Protective Coil Coatings

Either the condenser or evaporator coil can be coated, however, coating of 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 coil should be coated. Note: Cooling capacity may be reduced by up to 5% on units with coated coils.

► Wall Mount Adapter for AVP36 & AVPA36 Air Conditioners

P/N K03955-XXX - Facilitates replacement of 44-5/8" (1133 mm) wide AVP36 & AVPA36 air conditioners with the 40" (1,016 mm) wide ASDCA36 air conditioners. XXX is color designator. See model ID.

MODEL IDENTIFICATION

●SDC	●	A	●● AC	●● ●●●	C	●	A2	●●●
A = Air Source Direct Current H = Ultra High efficiency Air Source Direct Current	H = High Efficiency	Refrigerant A = R410A	AC = Air Conditioner Nominal Cooling 36 = 36,000 BTUH 42 = 42,000 BTUH 48 = 48,000 BTUH 60 = 60,000 BTUH 72 = 72,000 BTUH	Electric Heat – kW 000 = No Heat 050 = 5 kW 060 = 6 kW Power Supply A = 208-230V,1ø,60Hz C = 208-230V,3ø,60Hz	C = ComPac® II	Special Option Code U = Scroll Compressor K = Coastal Package O = Opposite side compressor	A5 = Internal Disconnect	Cabinet Color 100 = Beige 200 = Gray 400 = White

ComPac II ASDCA/ASDCHA Standard & High Efficiency DC Free Air 48 VDC Air Conditioners



Certified Efficiency and Capacity Ratings at ANSI/AHRI Standard 390

Model Number	ASDCA36	ASDCHA36	ASDCA42	ASDCHA42	ASDCA48	ASDCHA48	ASDCA60	ASDCHA60	ASDCA72	ASDCA72
	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA	ACC
Cooling BTUH ¹	34,000	34,000	41,500	41,500	46,000	46,000	54,000	54,000	62,000	70,000
EER ²	9.50	10	9.50	10.00	9.20	10.00	9.00	10.00	10.00	10.00
Rated Air Flow (CFM ³)	1,050	1,050	1,550	1,550	1,725	1,725	1,850	1,850	1,925	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). 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 DB

Model Number	ASDCA36	ASDCHA36	ASDCA42	ASDCHA42	ASDCA48	ASDCHA48	ASDCA60	ASDCHA60	ASDCA72	ASDCA72
	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA/ACC	ACA	ACC
Total Capacity	34,000	34,000	41,500	41,500	46,000	46,000	54,000	54,000	62,000	70,000
Sensible Heat Ratio	0.70	0.74	0.78	0.74	0.78	0.76	0.74	0.72	0.73	0.70
Sensible Capacity	23,800	25,160	32,500	30,700	36,000	35,000	40,000	39,000	45,000	49,000
Rated Air Flow (CFM ¹)	1,050	1,050	1,550	1,550	1,725	1,725	1,850	1,850	1,925	1,925

¹CFM=Cubic Feet per Minute

Sensible heat ratios based upon ANSI/AHRI std. 390 outdoor air of 95°F (35°C) and return air of 80°F DB/67° WB (26.5°C DB/19.5°C WB).

Cooling Performance (BTUH) at Various Outdoor Temperatures

Model Number	Outdoor Temperature											
	75°F (23.9°C)	80°F (26.7°C)	85°F (29.4°C)	90°F (32.2°C)	95°F (35°C)	100°F (37.8°C)	105°F (40.6°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)
ASDCA36AC	39,440	38,080	36,720	35,360	34,000	32,640	31,280	29,920	29,240	27,200	25,840	24,480
ASDCHA36AC	39,440	38,080	36,720	35,360	34,000	32,640	31,280	29,920	29,240	27,200	25,840	24,480
ASDCA42AC	48,140	46,480	44,820	43,160	41,500	39,840	38,180	36,520	35,690	33,200	31,540	29,880
ASDCHA42AC	48,720	47,040	45,360	43,680	41,500	40,320	38,640	36,960	36,120	33,600	31,920	30,240
ASDCA48AC	53,360	51,520	49,680	47,840	46,000	44,160	42,320	40,480	39,560	36,800	34,960	33,120
ASDCHA48AC	53,360	51,520	49,980	47,840	46,000	44,160	42,320	40,480	39,560	36,800	34,960	33,120
ASDCA60AC	62,640	60,480	58,320	56,160	54,000	51,840	49,680	47,520	46,440	43,200	41,040	38,880
ASDCHA60AC	63,220	61,040	58,860	56,680	54,500	52,320	50,140	47,960	46,870	43,600	41,420	39,240
ASDCA72ACA, 1ø	71,920	69,440	66,960	64,480	62,000	59,520	57,040	54,560	53,320	49,600	47,120	44,640
ASDCA72ACC, 3ø	81,200	78,400	75,600	72,800	70,000	67,200	64,400	61,600	60,200	56,000	53,200	50,400

Electrical Characteristics - Compressor, Fan & Blower Motors

BASIC MODEL	COMPRESSOR			OUTDOOR FAN MOTOR				INDOOR BLOWER MOTORS				
	VOLTS / HZ / PH	RLA ¹	LRA ²	VOLTS / HZ / PH	RPM ³	FLA ⁴	HP ⁵	QTY	VDC ⁶	RPM ³	FLA ⁴	HP ⁵
ASDCA/ASDCHA36ACA	208/230-60-1	14.7	84.0	208/230-60-1	1075	1.8	1/4	2	48	2070	4.4	1/6
ASDCA/ASDCHA42ACA	208/230-60-1	15.7	84.0	208/230-60-1	825	2.8	1/3	2	48	1930	6.0	1/4
ASDCA/ASDCHA48ACA	208/230-60-1	18.6	102.0	208/230-60-1	825	2.8	1/3	2	48	1930	6.0	1/4
ASDCA/ASDCHA60ACA	208/230-60-1	23.0	130.0	208/230-60-1	825	2.8	1/3	2	48	1930	6.0	1/4
ASDCA72ACA	208/230-60-1	30.1	158.0	208/230-60-1	825	2.9	1/2	2	48	1930	6.0	1/4
ASDCA/ASDCHA36ACC	208/230-60-3	13.2	88.0	208/230-60-1	1075	1.8	1/4	2	48	2070	4.4	1/6
ASDCA/ASDCHA42ACC	208/230-60-3	13.6	83.1	208/230-60-1	825	2.8	1/3	2	48	1930	6.0	1/4
ASDCA/ASDCHA48ACC	208/230-60-3	13.7	83.1	208/230-60-1	825	2.8	1/3	2	48	1930	6.0	1/4
ASDCA/ASDCHA60ACC	208/230-60-3	15.6	111.0	208/230-60-1	825	2.8	1/3	2	48	1930	6.0	1/4
ASDCA72ACC	208/230-60-3	22.4	149.0	208/230-60-1	825	2.9	1/2	2	48	1930	6.0	1/4

¹RLA = Rated Load Amps ²LRA = Locked Rotor Amps ³RPM = Revolutions per Minute ⁴FLA = Full Load Amps ⁵HP = Horsepower ⁶VDC = Volts, DC

Summary Electrical Ratings (Wire and Circuit Breaker Sizing)

ELECTRIC HEAT		000 = None		050 = 5 kw		060 = 6 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³		SPPE ³		SPPE ³	
		MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²
ASDCA/ASDCHA36ACA	208/230-1-60	24.2	40	26.0	40		
ASDCA/ASDCHA42ACA	208/230-1-60	27.6	45	27.6	45		
ASDCA/ASDCHA48ACA	208/230-1-60	30.1	50	30.1	50		
ASDCA/ASDCHA60ACA	208/230-1-60	35.6	60	35.6	60		
ASDCA72ACA	208/230-1-60	40.5	60	40.5	60		
ASDCA/ASDCHA36ACC	208/230-3-60	18.3	30			18.3	30
ASDCA/ASDCHA42ACC	208/230-3-60	19.8	30			19.8	30
ASDCA/ASDCHA48ACC	208/230-3-60	19.9	30			19.9	30
ASDCA/ASDCHA60ACC	208/230-3-60	22.3	35			22.3	35
ASDCA72ACC	208/230-3-60	30.9	50			30.9	50

¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse Size ³SPPE = Single Point Power Entry
MCA & MFS are calculated at 230 volts on the ACA & ACC models. 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

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT LOAD (MOTORS)		LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS)	
		Compressor & Outdoor Fan	Indoor Blower	TOTAL MAXIMUM HEATING AMPS (VAC)	
				ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT	
		VAC Amps	DC Amps	05 kW	06 kW
ASDCA/ASDCHA36ACA	208/230-1-60	19.7	8.8	20.8	
ASDCA/ASDCHA42ACA	208/230-1-60	22.6	12.0	20.8	
ASDCA/ASDCHA48ACA	208/230-1-60	24.6	12.0	20.8	
ASDCA/ASDCHA60ACA	208/230-1-60	29.0	12.0	20.8	
ASDCA72ACA	208/230-1-60	33.0	12.0	20.8	
ASDCA/ASDCHA36ACC	208/230-3-60	15.0	8.8		14.4
ASDCA/ASDCHA42ACC	208/230-3-60	16.4	12.0		14.4
ASDCA48/ASDCHAACC	208/230-3-60	16.5	12.0		14.4
ASDCA60/ASDCHAACC	208/230-3-60	18.4	12.0		14.4
ASDCA72ACC	208/230-3-60	25.3	12.0		14.4

Heating kW is rated at 240 volts Total heating and cooling amps includes all VAC motors.
Loads are not equally balanced on each phase and values shown are maximum phase loads. Three phase models contain single phase motor loads.
Derate heater output by 25% for operation at 208 volts.

ComPac II HSDCA Ultra High Efficiency DC Free Air 48 VDC Air Conditioners



Certified Efficiency and Capacity Ratings at ANSI/AHRI Standard 390

Model Number	HSDCA36		HSDCA42		HSDCA48		HSDCA60	
	ACA	ACC	ACA	ACC	ACA	ACC	ACA	ACC
Cooling BTUH ¹	35,600		40,000		47,500		58,000	
EER ²	11.25		10.50		11.50		10.5	
Rated Air Flow (CFM ³)	1,300		1,500		1,725		1,925	
ESP ⁴ @ Rated Conditions	0.15		0.15		0.20		0.20	

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

⁴ESP=External Static Pressure

Ratings are with no outside air. Performance will be affected by altitude.

Ratings are at 230 volts for 208/230 volt units. 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 DB

Model Number	HSDCA36		HSDCA42		HSDCA48		HSDCA60	
	ACA	ACC	ACA	ACC	ACA	ACC	ACA	ACC
Total Capacity	35,600		40,000		47,500		58,000	
Sensible Heat Ratio	0.76		0.73		0.74		0.73	
Sensible Capacity	27,056		29,200		34,780		42,340	
Rated Air Flow (CFM1)	1,300		1,500		1,725		1925.00	

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

Model Number	Outdoor Temperature											
	75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°F	120°F	125°F	130°F
	(23.9°C)	(26.7°C)	(29.4°C)	(32.2°C)	(35°C)	(37.8°C)	(40.6°C)	(43.3°C)	(46.1°C)	(48.9°C)	(51.7°C)	(54.4°C)
HSDCA36	41,295	39,870	38,450	37,025	35,600	34,175	32,750	31,320	30,615	29,975	29,335	28,695
HSDCA42	46,400	44,800	43,200	41,600	40,000	38,400	36,800	35,200	34,400	33,680	32,960	32,240
HSDCA48	54,520	52,640	50,760	48,880	47,000	45,120	43,240	41,360	40,420	39,574	38,728	37,882
HSDCA60	67,280	64,960	62,640	60,320	58,000	55,680	53,360	51,040	49,880	48,835	47,790	46,745

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

BASIC MODEL	COMPRESSOR				OUTDOOR FAN MOTOR	INDOOR BLOWER MOTOR - 48 VDC
	Type	VOLTS-HZ-PH	RLA ¹	LRA ²	FLA	FLA
HSDCA36ACA	Scroll	208/230-60-1	15.4	83.9	2.8	4
HSDCA42ACA		208/230-60-1	17.0	123.9	2.8	4.4
HSDCA48ACA		208/230-60-1	19.6	130.0	2.8	4.4
HSDCA60ACA		208/230-60-1	24.4	144.2	2.8	4.4
HSDCA36ACC	Scroll	208/230-60-3	10.4	73.0	2.8	4
HSDCA42ACC		208/230-60-3	13.6	83.1	2.8	4.4
HSDCA48ACC		208/230-60-3	13.7	83.1	2.8	4.4
HSDCA60ACC		208/230-60-3	16.0	110.0	2.8	4.4

¹RLA=Rated Load Amps ²LRA=Locked Rotor Amps FLA=Full Load Amps

Summary Electrical Ratings (Wire and Circuit Breaker Sizing)

ELECTRIC HEAT		000 = None		050 = 5 kw		060 = 6 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	SPPE ³		SPPE ³		SPPE ³	
		MCA ¹	MFS ²	MCA ¹	MFS ²	MCA ¹	MFS ²
HSDCA36ACA	208/230-1-60	22.1	35	26.0	35		
HSDCA42ACA	208/230-1-60	24.1	40	24.1	40		
HSDCA48ACA	208/230-1-60	27.3	40	27.3	40		
HSDCA60ACA	208/230-1-60	33.3	50	33.3	50		
HSDCA36ACC	208/230-3-60	19.1	25			19.1	30
HSDCA42ACC	208/230-3-60	19.8	30			19.8	30
HSDCA48ACC	208/230-3-60	19.9	30			19.9	30
HSDCA60ACC	208/230-3-60	22.8	35			22.8	35

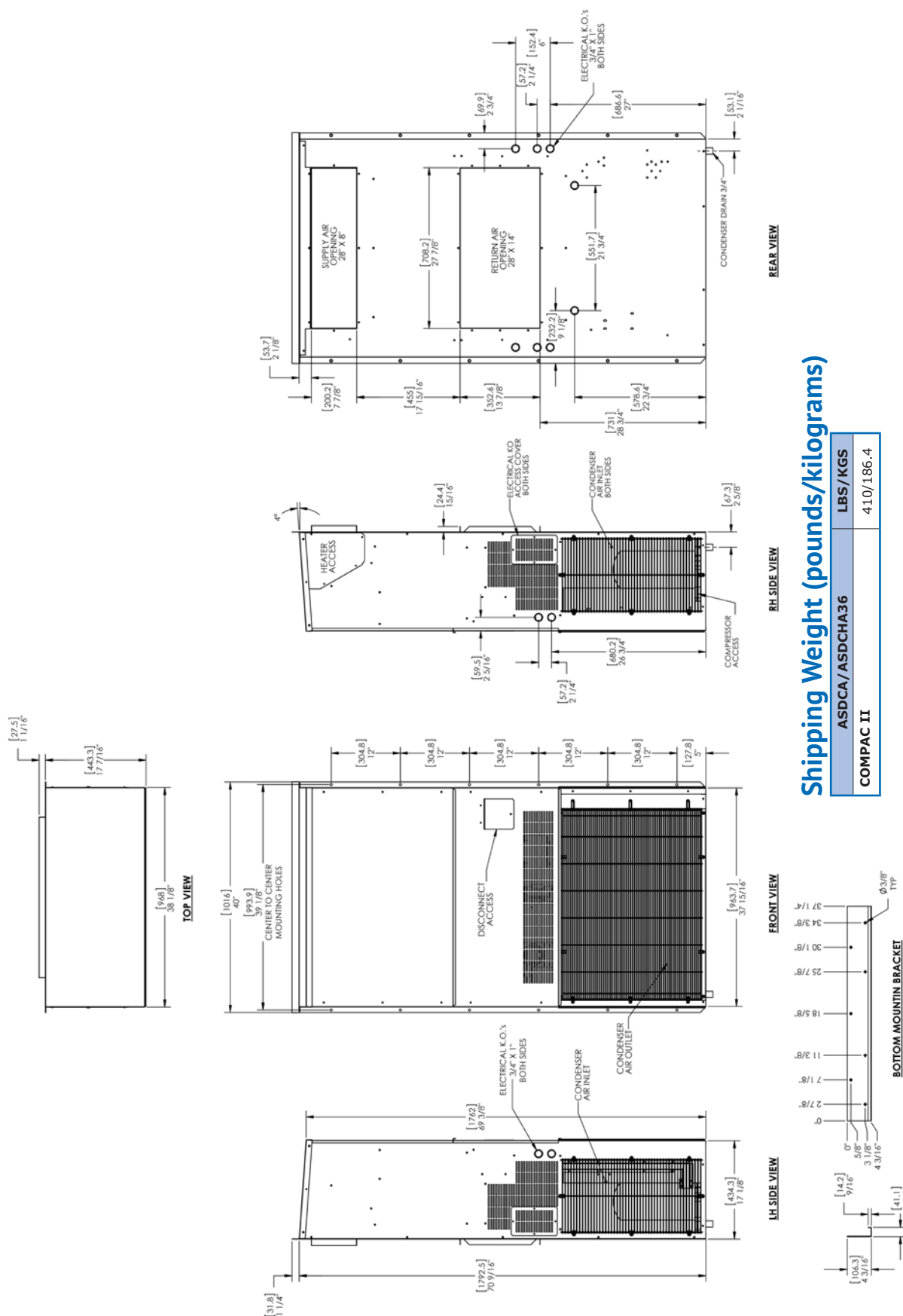
¹MCA = Minimum Circuit Ampacity (Wiring Size Amps) ²MFS = Maximum Fuse Size ³SPPE = Single Point Power Entry
MCA & MFS are calculated at 230 volts on the ACC models. The 460 volts ACD models are calculated at 460 volts. This chart should only be used as a guideline for estimating conductor size and overcurrent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

Unit Load Amps

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT AMPS		LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) <i>Note: ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT</i>		TOTAL MAXIMUM HEATING AMPS <i>INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS</i>	
		AC ¹	IBM ²	05 kW	06 kW	06 kW	9 kW
HSDCA36ACA	208/230-1-60	18.2	4.0	20.8	25.0	24.8	29.0
HSDCA42ACA	208/230-1-60	19.8	4.4	20.8	25.0	25.2	29.4
HSDCA48ACA	208/230-1-60	22.4	4.4	20.8	25.0	25.2	29.4
HSDCA60ACA	208/230-1-60	27.2	4.4	20.8	25.0	25.2	29.4
HSDCA36ACC	208/230-3-60	13.2	4.0	12.0	14.4	16.0	18.4
HSDCA42ACC	208/230-3-60	16.4	4.4	12.0	14.4	16.4	18.8
HSDCA48ACC	208/230-3-60	16.5	4.4	12.0	14.4	16.4	18.8
HSDCA60ACC	208/230-3-60	18.8	4.4	12.0	14.4	16.4	18.8

¹AC = Air Conditioner Unit Amps ²IBM = Indoor Blower Motor
Total heating and cooling amps includes all motors.

DIMENSIONAL DATA - ASDCA/ASDCHA36



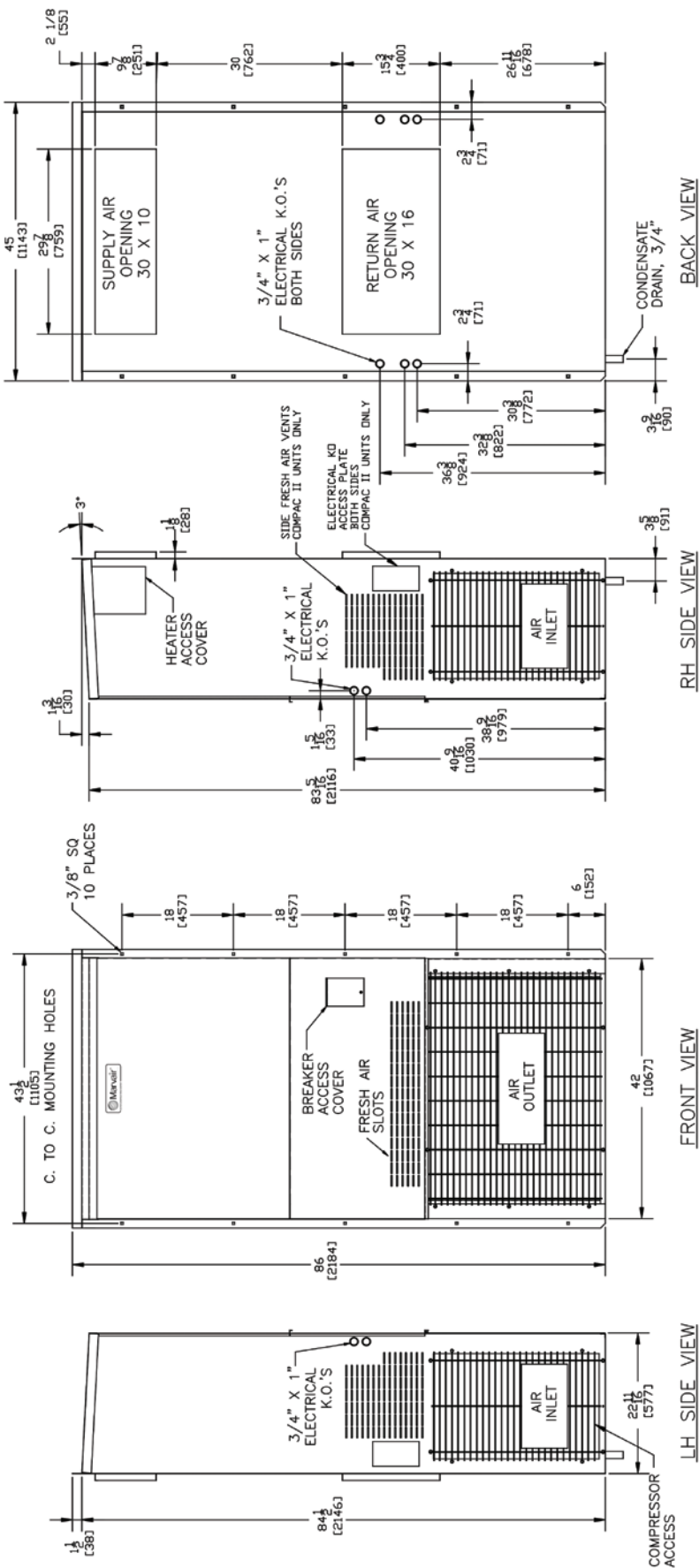
Shipping Weight (pounds/kilograms)

ASDCA/ASDCHA36	LBS/KGS
COMPAC II	410/186.4

Filter Size

ASDCA / ASDCHA36	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	30 x 16 x 2	762 x 406 x 51	92486	1	8

DIMENSIONAL DATA - ASDCA/ASDCHA42-48-60 & HSDCA36-42

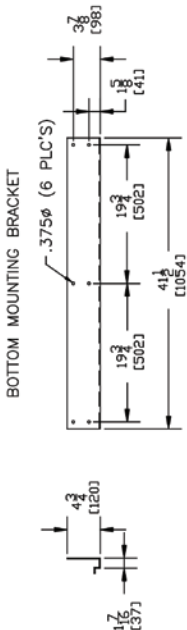


Shipping Weight (pounds/kilograms)

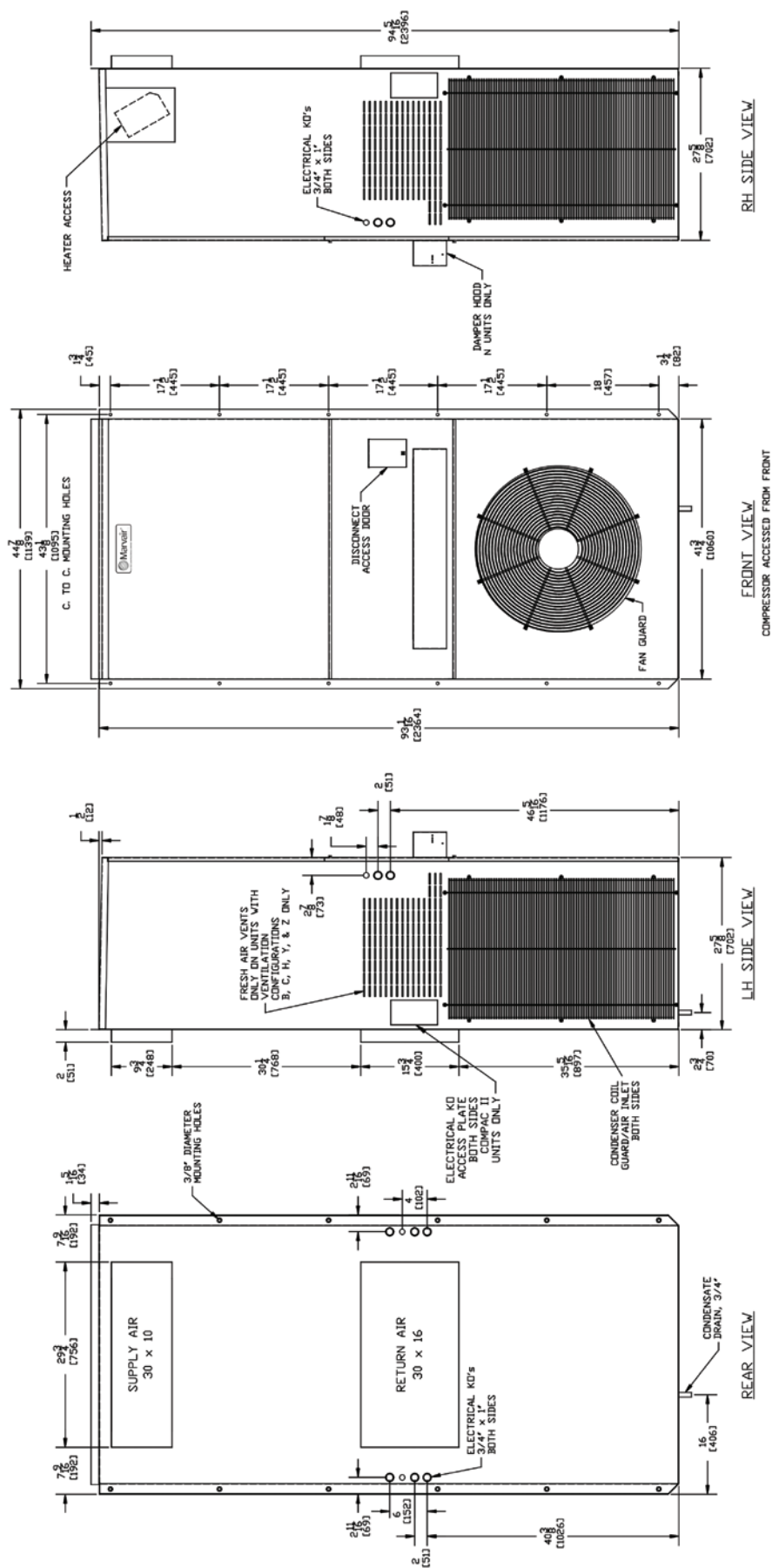
ASDCA/ASDCHA42-48-60	LBS/KGS
COMPAC II	590/268

Filter Size

ASDCA/ASDCHA42-48-60	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 - ASDCA72 & HSDCA48-60

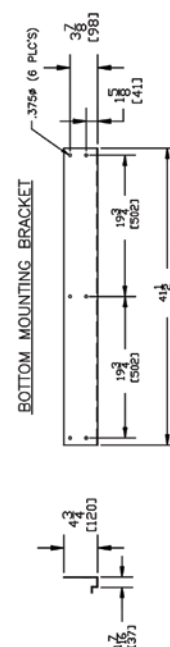


Shipping Weight (pounds/kilograms)

ASDC A72	LBS/KGS
COMPAC II	640/291

Filter Size

ASDCA72	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
RETURN AIR FILTER	18 x 24 x 2	457 x 610 x 51	92491	2	8





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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