Industrial Climate Engineering®
AIRXCEL™, Inc.
ISO 9001:2015 REGISTERED COMPANY

ECUA120/150/180/240 & ECUDA180/240/300/360 (10, 12.5, 15, 20, 25 & 30 Ton) Vertical Wall Mount Air Conditioners

ECUA120

General Description

Industrial Climate Engineering's air conditioners are used primarily to cool electronic and mechanical equipment shelters (E-Houses). Due to the high internal heat load, these shelters require cooling even when outside temperatures are 60°F (15°C) and below. ICE air conditioners have the necessary controls and components for operation during these temperatures. All models use the non-ozone depleting R-410A refrigerant.

ICE air conditioners are installed on the exterior of the building – no interior space is required. Two openings in the wall allow for the conditioned (supply) air to be discharged into the building and for the indoor air to return to the air conditioner.

A sealed condenser fan motor permits operation in hot, dusty environments. The saw tooth fan blade delivers both excellent efficiency and extremely quiet operation.

The direct drive backward inclined motorized impellor evaporator motor provides high aerodynamic efficiency in a compact design. The optimized blade geometry provides excellent air flow at a minimum sound level. Direct drive eliminates all belts and pulleys. A scroll compressor with R-410A refrigerant ensures years of dependable service even in the harshest of operating conditions. When outside air is required to provide pressurization, optional fresh air dampers can be field installed in openings in both the left and right side panels. When no outside air is desired, these openings are covered with blank-off panels.

Safety Listed

ICE air conditioners are built to UL standard 1995, 4th edition and CAN/CSA C22.2, No. 236-11. The units are tested in accordance to the ASHRAE standard. The air conditioners are commercial and industrial units and are not intended for use in residential applications.

Features and Benefits

High Efficiency

- *Thermal Expansion Valve Improves Efficiency*
- *High Efficiency Scroll Compressor*
- *Lanced Fins On the Evaporator and Condenser Coils Improve Heat Transfer*

Built-In Reliability

- *High and Low Pressure Switch with Lockout*
- *Adjustable Short Cycle Protection*
- *Phase Monitor*
- *High Compressor Temperature Switch*
- *Internal Motor Overload Protection*

Rugged Construction

- *Copper Tube, Aluminum Fin Evaporator & Condenser Coil*
- *Field Or Factory Installed Heaters On Discharge Side of Evaporator Coil*
- *Baked On Finish Over Galvanneal Steel*

Standard Features

Designed for Operation in High and Low Ambient Conditions

- Low ambient control cycles the condenser fan to maintain proper refrigerant pressures.
- Hot gas bypass valve provides for precise capacity control in the cooling mode and to protect against coil freeze up during low load conditions.
- Three minute by-pass of the low pressure switch for start-up of compressor when outdoor temperatures are below 55°F (13°C).
- Designed for operation from 0°F (-8°C) up to 131°F (55°C). Economizer-equipped models can operate in ambient temps as low as -40°F (-40°C).

High Efficiency

- Thermal Expansion Valve improves efficiency and cooling capacity at both high and low ambient temperatures.
- High efficiency scroll compressor.
- Lanced fins on the evaporator and condenser coils improve heat transfer.

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 air return openings match many competitive models.
- Factory installed disconnect on all units.
- Single Point Power Entry complies with latest edition of U.L. Standard 1995.
- Stainless Steel side plates with lifting eyes provide safe and secure method for moving the unit.

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.
- Phase Monitor - Continuously measures the voltage of each of the three phases. The monitor separately senses low and high voltage, voltage unbalance including phase loss and phase reversal. A red LED glows to indicate a fault. When all voltages are acceptable, a green LED glows. Automatically resets when voltages and phases are within operating tolerances.
  Note: Not required on 1ø units.
- High temperature switch on the compressor discharge line protects the compressor in the event of a complete loss of refrigerant.
- Internal motor overloads on the evaporator motor, the condenser motor and the compressor.

Remote Alarm Capability

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

Rugged Construction

- Copper tube, aluminum fin evaporator & condenser coils.
- Field or factory installed heaters on discharge side of evaporator coil (optional)
- Baked on neutral gray finish over galvanneal steel for maximum cabinet life. (Other finishes are available.)

Ease of Service

- ECUA120/150 - the upper panel opens to the left or the right to facilitate access to the control box and the evaporator motor and coil. This panel can also be easily removed. As an option, these panels can be locked. Stainless steel hinges on the right side of the lower panel allow access to the compressor compartment.
- ECUDA180/240/300/360 - Stainless steel hinges on the outer side of the two upper panels facilitate access to the control box and the evaporator motor and coil. As an option, these panels can be locked. Stainless steel hinges on the outer side side of each lower panel allow access to the compressor compartment.
- 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.
- Sight glass indicates proper refrigerant charge and, if ever required, facilitates charging the unit in the field.

Controllers and Thermostats

➤ Controllers

Marvair MPC-10 PLC Controller.....*P/N K/40028-100*

The new MPC-10 from Marvair controls between 1 and 10 PLC-equipped HVAC units.

- Controls up to 10 PLC Equipped Marvair Units
- Single or 2-Stage for up to 20 Stages of Cooling
- Lead/Lag Control
- Modbus TCP/IP or BACnet Connectivity
- 7-Inch Color Touchscreen Interface

The HVAC units can be single or dual circuit systems. When using 10 dual circuit units, the MPC-10 will stage the compressors for a maximum of 20 stages of cooling.

The MPC-10 works in a lead-lag fashion and will swap the lead unit every 12-24 hrs. It features remote connectivity through either Modbus TCP/IP or BACnet. MPC-10 users have remote access to all the unit faults and room conditions as well as the ability to view/change set points:

- Temperature
- Differentials
- Anti-Short Cycle Time
- + More

The thermostat can be set to Auto, Cooling, Heating, or Off and each unit can be shutdown manually through the 7 inch color HMI display which displays the current status of each unit. The HMI also has a built-in alarm screen to display which unit has a fault, what the fault is, what time it occurred, and the status of the fault."

CommStat 6 2/4 HVAC Controller..... *P/N 70705*
CommStat 6 4/8 HVAC Controller.....*P/N S/12087-04*
CommStat 6 6/12 HVAC Controller.....*P/N S/12087-06*

The CommStat 6 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 shelter or enclosure. The **CommStat 6 4/8** Controls up to four single or two-stage air conditioners (8 Stages max.) and the **CommStat 6 6/12** Controls up to six single or two-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 Controller.....*P/N S/07846*

The CommStat 4 HVAC controller is designed specifically for controlling two redundant air conditioners, with single or 2-stage compressors. The CommStat 4 has multiple configurable 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 4 uses RS-485 communications via a RJ11 jack. It can be daisy chained with a second CommStat 4 controllers for controlling up to four air conditioners in one shelter. When two CommStat 4 controllers are daisy chained together, one is the MASTER and the other controller is the SLAVE. Any settings to the MASTER unit immediately take effect on the SLAVE unit. See the CommStat 4 Product Data Sheet for complete details.

CommStat 4 ModBus Adapter.....P/N *03272*

The self-contained Modbus Interface Adapter provides an Ethernet gateway to the CommStat™ 4 HVAC controller through which an external host can read and write information from the CommStat 4 as if it were a device on a Modbus TCP network. It is powered by 24VDC or 48VDC. The external host located, for example, within a Network Operations Center (NOC), can then monitor and control the operation of the HVAC units connected to the CommStat 4 controller. The adapter supports CommStat 4 controllers with protocol version 3 or later with software revision 67 or later.

➤ Thermostats & Thermostat Guards

Thermostat.....*P/N 50218*
Digital, non-programmable thermostat. 1 stage cool and 1 stage heat. Auto-changeover.

Thermostat.....*P/N 50252*
Non-programmable digital thermostat with backlit display. 2 stage heat and 2 stage cool. Auto changeover.

Thermostat .....*P/N 50123*
Digital thermostat. 1 stage heat, 1 stage cool. 7 day programmable. Fan switch: Auto & On. Auto-change over. Keypad lockout. Non-volatile program memory.

Thermostat .....*P/N 50107*
Digital thermostat. 2 stage heat, 2 stage cool. 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.

Accessories

➤ **Supply Grille**

ECUA120/150 ..... *P/N 93189*
42½" x 15¼" (1,080 mm x 387 mm)
ECUDA180/240/300/360 .....*P/N 93190*
54½" x 15½" (1,384 mm x 394 mm)

➤ **Return Grille**

ECUA120/150 ..... *P/N 93188*
42½" x 21½" (1,080 mm x 546 mm)
ECUDA180/240.....*P/N 93191*
54½" x 21½" (1,384 mm x 546 mm)
ECUDA300/360.....*P/N 93192*
54½" x 37½" (1,384 mm x 953 mm)

➤ **Lifting Eye Kit**

ECUA120/150.....*P/N K/40025*
ECUDA180/240/300/360.....*P/N K/40026*

Options

ICE ECU air conditioners are designed and are built to stringent requirements of the electronic shelter. Applications occur that have special requirements. Numerous options are available for the air conditioners that meet these special needs.

➤ **Protective Coating Packages**

Coated Coils: Either the condenser or evaporator coil can be coated. For harsh conditions, e.g., power plants, paper mills or sites were the unit will be exposed to salt water, the coils should be coated. ***Note:*** Cooling capacity may be reduced by up to 5% on units with coated coils.

Coastal Environmental Package: This package includes:

- Corrosion resistant fasteners,
- Sealed or partially sealed condenser fan motor,
- Insitu coating applied to all exposed internal copper and metal in the in the condenser section, and
- A protective coating on the condenser coil.

All Coat Package: Includes the same features as the Coastal Environmental Package and adds a coating on the evaporator coil and on all exterior and interior components and sheet metal. (**Note:** the insulated internal sheet metal and the internal control box are not coated).

➤ **Color**

ICE air conditioners are available in two standard cabinet colors - gray and beige. The standard cabinet's sides, top and front panels are constructed of 16 gauge painted steel. Contact your sales representative for color chips, custom colors and 316 stainless steel cabinets.

➤ **Dirty Filter Indicator**

A factory installed option that measures the difference in pressure across the internal filter and illuminates an LED when the pressure exceeds the desired difference. Dry contacts can be used to remotely monitor filter status.

➤ **Lockable Doors**

Prevent unauthorized access to internal components and controls.

➤ **Compressor Crankcase Heater**

A factory installed option to allow operation in low ambient temperatures.

➤ **Freeze Sensor On Indoor Coil**

Prevents frost on the indoor coil caused by a loss of air flow or restrictive duct work.

➤ **Fresh Air Damper**

Allows introduction of outside air into the building to provide positive pressure and includes a prefilter. Field installed on the right, left, or both sides of the unit.

Model Number	Fresh Air Damper Part #	Fresh Air Damper Filter Part #	Fresh Air Damper Filter Size In (mm)
ECUA/ECUDA120/150	K/04657-xxx	80119	11" x 22" x 1" (279 x 559 x 25)
ECUDA180/240/300/360	K/04757-xxx	92127	9¼" x 37" x ⅜" (235 x 940 x 10)
xxx designates the color. 200 = Grey (standard). 100 = Beige. 500 = Stainless Steel			

ECUA120 with Fresh Air Damper

➤ **Dual Compressors With Lead/Lag Operation with Optional Compatible Controller**

Single compressors are standard on the ECUA120/150, but these units may be configured with dual compressors. Dual compressors are standard on the ECUDA180/240/300/360. The ECUDA is factory wired for maximum cooling operation utilizing both compressors. A factory installed jumper can be removed between terminals 1 and 2 of the low voltage terminal strip for 2 stage compressor operation.

➤ **Filter Access From Return Air Grille**
Factory or field installed filter bracket allows access to the filters from the return air grille. See model ID, special option code "I".

➤ **Reverse Air Flow Configuration**
Location of Supply and Return openings are reversed. See dimensional drawings.

➤ **Economizer**
The factory installed economizer saves energy and reduces the run time on the compressor and condenser fan motor by using outside air to cool the shelter – when ambient conditions are suitable.

On a signal from the wall mounted indoor thermostat that cooling is required, either mechanical cooling with the compressor or free cooling with the 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 through fresh air hoods located on both sides of the air conditioner. The outside air is filtered with prefilters in each of the outside air hoods. 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.

Fresh air hoods with prefilters are field installed on each side of the air conditioner.

Control Box

The internal control board in the 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 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 for cooling from the thermostat is removed or when power is reset. The alarm 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. The delay can be adjusted by the DOM wheel on the control board. Factory recommended wait is 3 minutes.

Model Identification

ECU **D** **A** **•••** **AC** **•** **•••** **•** **•** **U** **A2** **•••**

Environmental Control Unit

D = Dual Compressors[1]

Refrigerant
A = R410A

Nominal Cooling
120 =120,000 BTUH
150 =150,000 BTUH
180 =180,000 BTUH
240 =240,000 BTUH
300 =300,000 BTUH
360 =360,000 BTUH

System Type
Air Conditioner

Power Supply
A = 208/230V,1ø,60Hz
C = 208/230V,3ø,60Hz
D = 460V,3ø,60Hz
E = 380V,3ø,50Hz
Z = 575V,3ø,60Hz

Electric Heat – kW
000 = No Heat
090 = 9 kW
150 = 15 kW
180 = 18 kW

Ventilation
A = No Outside Air *(standard)*
C = Economizer
B = Motorized two position damper (open & closed) capable of 0-10% outside air, includes pressure relief

Special Option Code
F = Reverse Air Flow[2]
I = Factory Installed Filter Rack Allows Changing of Filters from the Return Air Grille[3]

Compressor
U = Scroll Compressor

Internal Disconnect
A2 = Factory Installed Internal Disconnect

Cabinet Color
116 = Beige
216 = Gray *(standard)*
316 = Carlsbad Canyon
416 = White
500 = Stainless Steel[4] (Exterior panels only)
SS-500 = All interior and exterior sheet metal (except for the condenser venturi)

Note: *For "All Coat", the color code is the first digit then "C2". Example: All Coat Beige is "1C2".*

Notes:
[1]The standard configuration on the ECUA120/150 is a single compressor. As an option, these units can be ordered with dual compressors. The ECUDA180-360 are only available with dual compressors.
[2]The standard configuration is with the supply (conditioned) air at the top of the unit and the return air below it. In the reverse air flow configuration, the return is at the top and the supply air below it.
[3]Filter access in the standard configuration is through the hinged, sheet metal panel on the exterior of the air conditioner. The "I" configuration allows access to the filter from inside the building through the return air grille.
[4]All Coat is not available with 500 Stainless Steel cabinet.

Capacity Ratings: ECUA Air Conditioners *(Single and Dual Compressors)*

Model Number	ECUA/ECUDA120					ECUA/ECUDA150				ECUDA180				ECUDA240				ECUDA300		ECUDA360	
	ACA	ACC	ACD	ACE	ACZ	ACC	ACD	ACE	ACZ	ACC	ACD	ACE	ACZ	ACC	ACD	ACE	ACZ	ACD	ACZ	ACD	ACZ
Cooling BTUH[1]	130,000					150,000				182,000				216,000				300,000		330,000	
Rated Air Flow (CFM[2])	4,500					4,500				6,500				7,400				11,900		10,200	
ESP[3] @ Rated Conditions	0.30					0.35				0.35				0.45				0.45		0.55	

[1]Cooling rated at 95°F (35°C) outdoor and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air. [2]CFM=Cubic Feet per Minute [3]ESP=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 ("A" & "C" models), 460 volts for "D" models, 380 volts for "E" models, and 575 volts for "Z" models.
Derate performance by 17% for ACE (380v. 3ø, 50Hz) models. Operation of units at a different voltage from that of the rating point will affect performance and air flow.

Sensible Total Heat Ratio @ 95ºF (35ºC) Outside Air Dry Bulb: ECUA Air Conditioners *(Single and Dual Compressors)*

Model Number	ECUA/ECUDA120					ECUA/ECUDA150				ECUDA180				ECUDA240				ECUDA300		ECUDA360	
	ACA	ACC	ACD	ACE	ACZ	ACC	ACD	ACE	ACZ	ACC	ACD	ACE	ACZ	ACC	ACD	ACE	ACZ	ACD	ACZ	ACD	ACZ
Total Capacity	130,000					150,000				182,000				216,000				300,000		330,000	
Sensible Heat Ratio	0.73					0.71				0.75				0.76				0.78		0.78	
Sensible Capacity	94,480					106,253				136,830				164,629				233,357		258,981	

[1]CFM=Cubic Feet per Minute
Sensible heat ratios based upon outdoor air conditions of 95°F (35°C) and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air.
Derate performance by 17% for ACE (380v. 3ø, 50Hz) models.

SCFM @ Different Static Pressure

Model Number	IWG Static											
	0	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2
ECUA120	4,748	4,585	4,408	4,229	4,046	3,867	3,667	3,481	3,291	3,0921	2,8501	2,6751
ECUA150	4,748	4,585	4,408	4,229	4,046	3,867	3,667	3,481	3,291	3,0921	2,8501	2,6751
ECUA180	6,876	6,622	6,378	6,143	5,916	5,686	5,487	5,285	5,090	4,9021	4,7211	4,5471
ECUA240	8,400	7,892	7,413	6,966	6,545	6,149	5,777	5,427	5,0991	4,7901	4,5001	4,2281
ECUA300	12,269	12,245	11,926	11,604	11,289	11,265	10,651	10,333	10,014	9,6951	9,0041	N/A
ECUA360	13,283	12,219	10,934	9,650	8,3661	6,7661	5,7981	4,5141	3,2301	1,9461	6621	N/A

[1]Operation below these airflows is not recommended.

Cooling Performance (BTUH) at Various Outdoor Temperatures
ECUA/ECUDA90-360 Air Conditioners
(60Hz Power Supply, Single and Dual Compressors)

Model Number	Return Air (DB/WB) ºF	Cooling Capacity BTUH	Outdoor Temperature											
			75ºF	80ºF	85ºF	90ºF	95ºF	100ºF	105ºF	110ºF	115ºF	120ºF	125ºF	130ºF
			(26.7ºC)	(23.9ºC)	(29.4ºC)	(32.2ºC)	(35ºC)	(37.8ºC)	(40.6ºC)	(43.3ºC)	(46.1ºC)	(48.9ºC)	(51.7ºC)	(54.4ºC)
ECUA/ ECUDA120	76/63	Total	140,270	135,460	130,520	125,710	120,900	116,090	111,280	106,340	104,000	101,660	99,320	96,980
		Sensible	102,895	100,958	98,981	97,070	95,171	93,284	91,410	89,498	88,597	87,699	86,803	85,910
	80/67	Total	150,800	145,600	140,400	135,200	130,000	124,800	119,600	114,400	111,800	109,460	107,120	104,780
		Sensible	102,207	100,255	98,317	96,391	94,480	92,581	90,695	88,822	87,890	87,054	86,221	85,390
	84/71	Total	161,330	155,740	150,280	144,690	139,100	133,510	127,920	122,460	119,600	117,260	114,920	112,580
		Sensible	100,988	99,041	97,153	95,234	93,328	91,436	89,557	87,735	86,785	86,011	85,239	84,469
ECUA/ ECUDA150	76/63	Total	161,850	156,300	150,600	145,050	139,500	133,950	128,400	122,700	120,000	117,300	114,600	111,900
		Sensible	116,158	113,828	111,455	109,163	106,890	104,635	102,399	100,121	99,048	97,980	96,916	95,856
	80/67	Total	174,000	168,000	162,000	156,000	150,000	144,000	138,000	132,000	129,000	126,300	123,600	120,900
		Sensible	115,539	113,187	110,856	108,544	106,253	103,980	101,727	99,493	98,383	97,388	96,397	95,409
	84/71	Total	186,150	179,700	173,400	166,950	160,500	154,050	147,600	141,300	138,000	135,300	132,600	129,900
		Sensible	114,302	111,954	109,680	107,373	105,086	102,819	100,572	98,396	97,263	96,340	95,421	94,505
ECUDA180	76/63	Total	196,378	189,644	182,728	175,994	169,260	162,526	155,792	148,876	145,600	142,324	139,048	135,772
		Sensible	148,659	145,921	143,128	140,428	137,747	135,085	132,440	129,744	128,473	127,206	125,944	124,686
	80/67	Total	211,120	203,840	196,560	189,280	182,000	174,720	167,440	160,160	156,520	153,244	149,968	146,692
		Sensible	147,750	144,990	142,250	139,530	136,830	134,149	131,488	128,845	127,531	126,352	125,178	124,006
	84/71	Total	225,862	218,036	210,392	202,566	194,740	186,914	179,088	171,444	167,440	164,164	160,888	157,612
		Sensible	146,097	143,344	140,675	137,962	135,270	132,597	129,945	127,374	126,034	124,942	123,853	122,767
ECUDA240	76/63	Total	233,064	225,072	216,864	208,872	200,880	192,888	184,896	176,688	172,800	168,912	165,024	161,136
		Sensible	178,570	175,376	172,117	168,964	165,831	162,718	159,624	156,466	154,977	153,493	152,013	150,538
	80/67	Total	250,560	241,920	233,280	224,640	216,000	207,360	198,720	190,080	185,760	181,872	177,984	174,096
		Sensible	177,370	174,153	170,957	167,783	164,629	161,496	158,383	155,291	153,752	152,372	150,995	149,623
	84/71	Total	268,056	258,768	249,696	240,408	231,120	221,832	212,544	203,472	198,720	194,832	190,944	187,056
		Sensible	175,287	172,080	168,968	165,804	162,661	159,539	156,439	153,430	151,863	150,584	149,309	148,037
ECUDA300	76/63	Total	323,700	312,600	301,200	290,100	279,000	267,900	256,800	245,400	240,000	234,600	229,200	223,800
		Sensible	252,615	248,257	243,807	239,498	235,214	230,954	226,718	222,392	220,352	218,317	216,287	214,263
	80/67	Total	348,000	336,000	324,000	312,000	300,000	288,000	276,000	264,000	258,000	252,600	247,200	241,800
		Sensible	250,749	246,362	242,002	237,666	233,357	229,072	224,813	220,579	218,471	216,579	214,691	212,809
	84/71	Total	372,300	359,400	346,800	333,900	321,000	308,100	295,200	282,600	276,000	270,600	265,200	259,800
		Sensible	247,654	243,283	239,039	234,720	230,427	226,160	221,919	217,802	215,655	213,903	212,155	210,412
ECUDA360	76/63	Total	356,070	343,860	331,320	319,110	306,900	294,690	282,480	269,940	264,000	258,060	252,120	246,180
		Sensible	280,154	275,371	270,487	265,759	261,056	256,380	251,730	246,980	244,739	242,505	240,276	238,054
	80/67	Total	382,800	369,600	356,400	343,200	330,000	316,800	303,600	290,400	283,800	277,860	271,920	265,980
		Sensible	278,067	273,254	268,469	263,711	258,981	254,279	249,603	244,954	242,640	240,562	238,490	236,424
	84/71	Total	409,530	395,340	381,480	367,290	353,100	338,910	324,720	310,860	303,600	297,660	291,720	285,780
		Sensible	274,629	269,833	265,176	260,436	255,725	251,042	246,387	241,867	239,510	237,586	235,668	233,754

Cooling Performance (BTUH) at Various Outdoor Temperatures
ECUA/ECUDA90-360 Air Conditioners
(50Hz Power Supply, Single and Dual Compressors)

Model Number ECUA/ ECUDA	Return Air (DB/WB) ºC	Cooling Capacity kW/BTUH	Ambient Outdoor Temperature																							
			26.7°C/75°F		23.9°C/80°F		29.4°C/85°F		32.2°C/90°F		35°C/95°F		37.8°C/100°F		40.6°C/105°F		43.3°C/110°F		46.1°C/115F		48.9°C/120°F		51.7°C/125°F		54.5°C/130°F	
			kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH
120	24.4/ 17.2	Total	32.8	111,950	31.7	108,110	30.5	104,170	29.4	100,330	28.3	96,490	27.2	92,650	26.0	88,810	24.9	84,870	24.3	83,000	23.8	81,130	23.2	79,270	22.7	77,400
		Sensible	23.3	79,360	22.8	77,790	22.3	76,190	21.9	74,640	21.4	73,100	21.0	71,580	20.5	70,060	20.1	68,520	19.9	67,790	19.7	67,070	19.4	66,340	19.2	65,620
	26.7/ 19.4	Total	35.3	120,350	34.1	116,200	32.8	112,050	31.6	107,900	30.4	103,750	29.2	99,600	28.0	95,450	26.8	91,300	26.2	89,230	25.6	87,360	25.1	85,490	24.5	83,620
		Sensible	23.1	78,860	22.6	77,280	22.2	75,710	21.7	74,150	21.3	72,600	20.8	71,060	20.4	69,540	19.9	68,020	19.7	67,270	19.5	66,590	19.3	65,920	19.1	65,250
	28.9/ 21.7	Total	37.7	128,750	36.4	124,290	35.1	119,930	33.8	115,470	32.5	111,010	31.2	106,550	29.9	102,090	28.6	97,730	28.0	95,450	27.4	93,580	26.9	91,720	26.3	89,850
		Sensible	22.8	77,940	22.4	76,360	21.9	74,820	21.5	73,270	21.0	71,730	20.6	70,190	20.1	68,670	19.7	67,200	19.5	66,430	19.3	65,810	19.1	65,180	18.9	64,560
150	24.4/ 17.2	Total	39.4	134,340	38.0	129,730	36.6	125,000	35.3	120,390	33.9	115,790	32.6	111,180	31.2	106,570	29.8	101,840	29.2	99,600	28.5	97,360	27.9	95,120	27.2	92,880
		Sensible	28.3	96,410	27.7	94,480	27.1	92,510	26.6	90,610	26.0	88,720	25.5	86,850	24.9	84,990	24.4	83,100	24.1	82,210	23.8	81,320	23.6	80,440	23.3	79,560
	26.7/ 19.4	Total	42.3	144,420	40.9	139,440	39.4	134,460	37.9	129,480	36.5	124,500	35.0	119,520	33.6	114,540	32.1	109,560	31.4	107,070	30.7	104,830	30.1	102,590	29.4	100,350
		Sensible	28.1	95,900	27.5	93,950	27.0	92,010	26.4	90,090	25.8	88,190	25.3	86,300	24.7	84,430	24.2	82,580	23.9	81,660	23.7	80,830	23.4	80,010	23.2	79,190
	28.9/ 21.7	Total	45.3	154,500	43.7	149,150	42.2	143,920	40.6	138,570	39.0	133,220	37.5	127,860	35.9	122,510	34.4	117,280	33.6	114,540	32.9	112,300	32.3	110,060	31.6	107,820
		Sensible	27.8	94,870	27.2	92,920	26.7	91,030	26.1	89,120	25.6	87,220	25.0	85,340	24.5	83,470	23.9	81,670	23.7	80,730	23.4	79,960	23.2	79,200	23.0	78,440
180	24.4/ 17.2	Total	47.8	162,990	46.1	157,400	44.4	151,660	42.8	146,080	41.2	140,490	39.5	134,900	37.9	129,310	36.2	123,570	35.4	120,850	34.6	118,130	33.8	115,410	33.0	112,690
		Sensible	36.2	123,390	35.5	121,110	34.8	118,800	34.2	116,560	33.5	114,330	32.9	112,120	32.2	109,930	31.6	107,690	31.3	106,630	30.9	105,580	30.6	104,530	30.3	103,490
	26.7/ 19.4	Total	51.4	175,230	49.6	169,190	47.8	163,140	46.0	157,100	44.3	151,060	42.5	145,020	40.7	138,980	39.0	132,930	38.1	129,910	37.3	127,190	36.5	124,470	35.7	121,750
		Sensible	35.9	122,630	35.3	120,340	34.6	118,070	33.9	115,810	33.3	113,570	32.6	111,340	32.0	109,130	31.3	106,940	31.0	105,850	30.7	104,870	30.5	103,900	30.2	102,930
	28.9/ 21.7	Total	54.9	187,470	53.0	180,970	51.2	174,630	49.3	168,130	47.4	161,630	45.5	155,140	43.6	148,640	41.7	142,300	40.7	138,980	39.9	136,260	39.1	133,540	38.3	130,820
		Sensible	35.5	121,260	34.9	118,980	34.2	116,760	33.6	114,510	32.9	112,270	32.3	110,060	31.6	107,850	31.0	105,720	30.7	104,610	30.4	103,700	30.1	102,800	29.9	101,900
240	24.4/ 17.2	Total	56.9	194,220	55.0	187,560	53.0	180,720	51.0	174,060	49.1	167,400	47.1	160,740	45.2	154,080	43.2	147,240	42.2	144,000	41.3	140,760	40.3	137,520	39.4	134,280
		Sensible	43.6	148,810	42.8	146,150	42.0	143,430	41.3	140,800	40.5	138,190	39.7	135,600	39.0	133,020	38.2	130,390	37.9	129,150	37.5	127,910	37.1	126,680	36.8	125,450
	26.7/ 19.4	Total	61.2	208,800	59.1	201,600	57.0	194,400	54.9	187,200	52.8	180,000	50.6	172,800	48.5	165,600	46.4	158,400	45.4	154,800	44.4	151,560	43.5	148,320	42.5	145,080
		Sensible	43.3	147,810	42.5	145,130	41.8	142,460	41.0	139,820	40.2	137,190	39.4	134,580	38.7	131,990	37.9	129,410	37.6	128,130	37.2	126,980	36.9	125,830	36.5	124,690
	28.9/ 21.7	Total	65.5	223,380	63.2	215,640	61.0	208,080	58.7	200,340	56.4	192,600	54.2	184,860	51.9	177,120	49.7	169,560	48.5	165,600	47.6	162,360	46.6	159,120	45.7	155,880
		Sensible	42.8	146,070	42.0	143,400	41.3	140,810	40.5	138,170	39.7	135,550	39.0	132,950	38.2	130,370	37.5	127,860	37.1	126,550	36.8	125,490	36.5	124,420	36.2	123,360
300	24.4/ 17.2	Total	79.1	269,750	76.3	260,500	73.6	251,000	70.8	241,750	68.1	232,500	65.4	223,250	62.7	214,000	59.9	204,500	58.6	200,000	57.3	195,500	56.0	191,000	54.7	186,500
		Sensible	61.7	210,510	60.6	206,880	59.5	203,170	58.5	199,580	57.4	196,010	56.4	192,460	55.4	188,930	54.3	185,330	53.8	183,630	53.3	181,930	52.8	180,240	52.3	178,550
	26.7/ 19.4	Total	85.0	290,000	82.1	280,000	79.1	270,000	76.2	260,000	73.3	250,000	70.3	240,000	67.4	230,000	64.5	220,000	63.0	215,000	61.7	210,500	60.4	206,000	59.1	201,500
		Sensible	61.2	208,960	60.2	205,300	59.1	201,670	58.0	198,060	57.0	194,460	55.9	190,890	54.9	187,340	53.9	183,820	53.4	182,060	52.9	180,480	52.4	178,910	52.0	177,340
	28.9/ 21.7	Total	90.9	310,250	87.8	299,500	84.7	289,000	81.5	278,250	78.4	267,500	75.2	256,750	72.1	246,000	69.0	235,500	67.4	230,000	66.1	225,500	64.8	221,000	63.4	216,500
		Sensible	60.5	206,380	59.4	202,740	58.4	199,200	57.3	195,600	56.3	192,020	55.2	188,470	54.2	184,930	53.2	181,500	52.7	179,710	52.2	178,250	51.8	176,800	51.4	175,340
360	24.4/ 17.2	Total	87.0	296,710	84.0	286,540	80.9	276,090	77.9	265,910	74.9	255,740	72.0	245,570	69.0	235,390	65.9	224,940	64.5	219,990	63.0	215,040	61.6	210,090	60.1	205,140
		Sensible	68.4	233,450	67.3	229,470	66.1	225,400	64.9	221,460	63.8	217,540	62.6	213,640	61.5	209,770	60.3	205,810	59.8	203,940	59.2	202,080	58.7	200,220	58.1	198,370
	26.7/ 19.4	Total	93.5	318,990	90.3	307,990	87.0	296,990	83.8	285,990	80.6	274,990	77.4	263,990	74.1	252,990	70.9	241,990	69.3	236,490	67.9	231,540	66.4	226,590	65.0	221,640
		Sensible	67.9	231,710	66.7	227,700	65.6	223,720	64.4	219,750	63.2	215,810	62.1	211,890	61.0	207,990	59.8	204,120	59.3	202,190	58.7	200,460	58.2	198,730	57.7	197,010
	28.9/ 21.7	Total	100.0	341,260	96.5	329,440	93.2	317,890	89.7	306,060	86.2	294,240	82.8	282,410	79.3	270,590	75.9	259,040	74.1	252,990	72.7	248,040	71.2	243,090	69.8	238,140
		Sensible	67.1	228,850	65.9	224,850	64.8	220,970	63.6	217,020	62.5	213,100	61.3	209,190	60.2	205,310	59.1	201,550	58.5	199,580	58.0	197,980	57.6	196,380	57.1	194,790

Electrical Characteristics - Compressor, Fan & Blower Motors:
ECU Air Conditioner *(Single and Dual Compressors)*

BASIC MODEL	COMPRESSOR			OUTDOOR FAN MOTOR	INDOOR BLOWER MOTOR
	VOLTS / HZ / PH	RLA[1]	LRA[2]	FLA[3]	FLA[3]
ECUDA120ACA	208/230-1-60	36.9 (73.8)	185.0	12.5	10.8
ECUDA150ACA	208/230-1-60	36.9 (73.8)	185.0	12.5	10.8
ECUA120ACC	208/230-3-60	33.3	239.0	9.2	5.9
ECUDA120ACC	208/230-3-60	22.4 (44.8)	149.0	9.2	5.9
ECUA150ACC	208/230-3-60	51.3	300.0	9.2	5.9
ECUDA150ACC	208/230-3-60	25 (50)	164.0	9.2	5.9
ECUDA180ACC	208/230-3-60	29.5 (59)	195.0	4.6 (9.2)	3.6 (7.2)
ECUDA240ACC	208/230-3-60	33.3 (66.6)	239.0	9.2 (18.4)	5.9 (11.8)
ECUDA300ACC	208/230-3-60	51.3 (102.6)	300.0	9.2 (18.4)	5.9 (11.8)
ECUDA360ACC	208/230-3-60	55.8 (111.6)	340.0	4.6 (18.4)	9.2 (18.4)
ECUA120ACD	460-3-60	17.9	125.0	4.6	3.4
ECUDA120ACD	460-3-60	10.6 (21.2)	75.0	4.6	3.4
ECUA150ACD	460-3-60	23.1	150.0	4.6	3.4
ECUDA150ACD	460-3-60	11.2 (22.4)	75.0	4.6	3.4
ECUDA180ACD	460-3-60	14.7 (29.4)	95.0	2.7 (5.4)	2.1 (4.2)
ECUDA240ACD	460-3-60	17.9 (35.8)	125.0	4.6 (9.2)	3.4 (6.8)
ECUDA300ACD	460-3-60	23.1 (46.2)	150.0	4.6 (9.2)	5.2 (10.4)
ECUDA360ACD	460-3-60	26.9 (53.8)	173.0	2.7 (10.8)	5.2 (10.4)
ECUA120ACE	380-3-50	17.9	118.0	3.7	2.8
ECUDA120ACE	380-3-50	10.6 (21.2)	74.0	3.7	2.8
ECUA150ACE	380-3-50	21.8	140.0	3.7	2.8
ECUDA150ACE	380-3-50	11.2 (22.4)	75.0	3.7	2.8
ECUDA180ACE	380-3-50	14.7 (29.4)	95.0	2.2 (4.4)	1.8 (3.6)
ECUDA240ACE	380-3-50	17.9 (35.8)	118.0	3.7 (7.4)	2.8 (5.6)
ECUDA300ACE	380-3-50	21.8 (43.6)	140.0	3.7 (7.4)	4.3 (8.6)
ECUDA360ACE	380-3-50	25 (50)	173.0	2.2 (8.8)	4.3 (8.6)
ECUA120ACZ	575-3-60	12.8	80.0	3.7[4]	2.7[4]
ECUDA120ACZ	575-3-60	7.7 (15.4)	54.0	3.7[4]	2.7[4]
ECUA150ACZ	575-3-60	19.9	109.0	3.7[4]	2.7[4]
ECUDA150ACZ	575-3-60	7.9 (15.8)	54.0	3.7[4]	2.7[4]
ECUDA180ACZ	575-3-60	12.2 (24.4)	80.0	2.2 (4.4)[4]	1.7 (3.4)[4]
ECUDA240ACZ	575-3-60	12.8 (25.6)	80.0	3.7 (7.4)[4]	2.7 (5.4)[4]
ECUDA300ACZ	575-3-60	19.9 (39.8)	109.0	3.7 (7.4)[4]	4.2 (8.4)[4]
ECUDA360ACZ	575-3-60	23.7 (47.4)	132.0	2.2 (8.8)[4]	4.2 (8.4)[4]

[1]RLA = Rated Load Amps [2]LRA = Locked Rotor Amps [3]FLA = Full Load Amps [4] 460V Motor with a transformer
Values in parentheses are for dual compressor air conditioners when both compressors are operating simultaneously.

Summary Electrical Ratings (Wire and Circuit Breaker Sizing): ECU Air Conditioner *(Single and Dual Compressors)*

ELECTRIC HEAT		000 = None		005 = 5 kw		009 = 9 kw		150 = 15 kw		180 = 18 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	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]
ECUDA120ACA	208/230-1-60	115.6	125	115.6	125	115.6	125	115.6	125		
ECUDA150ACA	208/230-1-60	115.6	125	115.6	125	115.6	125	115.6	125		
ECUA120ACC	208/230-3-60	56.7	90			56.7	90	56.7	90	60.0	90
ECUDA120ACC	208/230-3-60	71.1	80			71.1	80	71.1	80	71.1	80
ECUA150ACC	208/230-3-60	79.2	125			79.2	125	79.2	125	79.2	125
ECUDA150ACC	208/230-3-60	77.6	90			77.6	90	77.6	90	77.6	90
ECUDA180ACC	208/230-3-60	90.1	110			90.1	110	90.1	110	90.1	110
ECUDA240ACC	208/230-3-60	113.5	125			113.5	125	113.5	125	113.5	125
ECUDA300ACC	208/230-3-60	158.5	175			158.5	175	158.5	175	158.5	175
ECUDA360ACC	208/230-3-60	176.3	200			176.3	200	176.3	200	176.3	200
ECUA120ACD	460-3-60	30.4	45			30.4	45	30.4	45	30.5	45
ECUDA120ACD	460-3-60	34.5	40			34.5	40	34.5	40	34.5	40
ECUA150ACD	460-3-60	36.9	50			36.9	50	36.9	50	36.9	50
ECUDA150ACD	460-3-60	36.0	40			36.0	40	36.0	40	36.0	40
ECUDA180ACD	460-3-60	46.4	50			46.4	50	46.4	50	46.4	50
ECUDA240ACD	460-3-60	60.8	70			60.8	70	60.8	70	60.8	70
ECUDA300ACD	460-3-60	77.4	90			77.4	90	77.4	90	77.4	90
ECUDA360ACD	460-3-60	88.5	100			88.5	100	88.5	100	88.5	100
ECUA120ACE	380-3-50	28.9	45			28.9	45	28.9	45	28.9	45
ECUDA120ACE	380-3-50	33.0	40			33.0	40	33.0	40	33.0	40
ECUA150ACE	380-3-50	33.8	50			33.8	50	33.8	50	33.8	50
ECUDA150ACE	380-3-50	34.5	40			34.5	40	34.5	40	34.5	40
ECUDA180ACE	380-3-50	44.8	50			44.8	50	44.8	50	44.8	50
ECUDA240ACE	380-3-50	57.8	70			57.8	70	57.8	70	57.8	70
ECUDA300ACE	380-3-50	70.5	80			70.5	80	70.5	80	70.5	80
ECUDA360ACE	380-3-50	79.9	90			79.9	90	79.9	90	79.9	90
ECUA120ACZ	575-3-60	22.4	35			22.4	35	22.4	35	25.3	35
ECUDA120ACZ	575-3-60	25.7	30			25.7	30	25.7	30	25.7	30
ECUA150ACZ	575-3-60	31.3	50			31.3	50	31.3	50	31.3	50
ECUDA150ACZ	575-3-60	26.2	30			26.2	30	26.2	30	26.2	30
ECUDA180ACZ	575-3-60	38.3	45			38.3	45	38.3	45	38.3	45
ECUDA240ACZ	575-3-60	44.8	50			44.8	50	44.8	50	44.8	50
ECUDA300ACZ	575-3-60	65.6	80			65.6	80	65.6	80	65.6	80
ECUDA360ACZ	575-3-60	76.5	90					76.5	90	76.5	90

[1]MCA = Minimum Circuit Ampacity (Wiring Size Amps) [2]MFS = Maximum Fuse Size [3]SPPE = Single Point Power Entry

MCA & MFS are calculated at 230 volts on the ACC models. The ACD models are calculated at 480 volts. The ACZ models are calculated at 575 volts. The ACE units are calculated at 400v. 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 With Electric Re-Heat (Wire and Circuit Breaker Sizing): ECU Air Conditioner (Single and Dual Compressors)

ELECTRIC HEAT		000 = None		005 = 5 kw		009 = 9 kw		150 = 15 kw		180 = 18 kw	
BASIC MODEL	VOLTAGE PHASE / HZ	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]
ECUDA120ACA	208/230-1-60	115.6	125	141.6	150	162.4	175	193.7	200		
ECUDA150ACA	208/230-1-60	115.6	125	141.6	150	162.4	175	193.7	200		
ECUA120ACC	208/230-3-60	56.7	90			83.8	110	101.8	125	110.9	125
ECUDA120ACC	208/230-3-60	71.1	80			98.2	100	116.2	125	125.2	150
ECUA150ACC	208/230-3-60	79.2	125			106.3	150	124.3	150	133.4	150
ECUDA150ACC	208/230-3-60	77.6	90			104.7	110	122.7	125	131.7	150
ECUDA180ACC	208/230-3-60	90.1	110			117.2	125	135.3	150	144.3	150
ECUDA240ACC	208/230-3-60	113.5	125			140.5	150	158.6	175	167.6	175
ECUDA300ACC	208/230-3-60	158.5	175			185.5	200	203.6	225	212.6	225
ECUDA360ACC	208/230-3-60	176.3	200			203.4	225	221.4	250	230.4	250
ECUA120ACD	460-3-60	30.4	45			43.9	50	52.9	60	57.4	60
ECUDA120ACD	460-3-60	34.5	40			48.0	50	57.1	60	61.6	70
ECUA150ACD	460-3-60	36.9	50			50.4	70	59.4	70	63.9	80
ECUDA150ACD	460-3-60	36.0	40			49.5	50	58.6	60	63.1	70
ECUDA180ACD	460-3-60	46.4	50			59.9	60	68.9	70	73.4	80
ECUDA240ACD	460-3-60	60.8	70			74.3	80	83.3	90	87.8	90
ECUDA300ACD	460-3-60	77.4	90			90.9	100	99.9	110	104.4	110
ECUDA360ACD	460-3-60	88.5	100			102.0	110	111.0	125	115.5	125
ECUA120ACE	380-3-50	28.9	45			39.4	50	46.5	60	50.0	60
ECUDA120ACE	380-3-50	33.0	40			43.6	45	50.6	60	54.1	60
ECUA150ACE	380-3-50	33.8	50			44.3	60	51.3	60	54.9	70
ECUDA150ACE	380-3-50	34.5	40			45.1	50	52.1	60	55.6	60
ECUDA180ACE	380-3-50	44.8	50			55.3	60	62.3	70	65.9	70
ECUDA240ACE	380-3-50	57.8	70			68.3	70	75.3	80	78.9	80
ECUDA300ACE	380-3-50	70.5	80			81.1	90	88.1	100	91.6	100
ECUDA360ACE	380-3-50	79.9	90			90.5	100	97.5	110	101.0	110
ECUA120ACZ	575-3-60	22.4	35			33.7	40	41.2	50	45.0	50
ECUDA120ACZ	575-3-60	25.7	30			36.9	40	44.5	45	48.2	50
ECUA150ACZ	575-3-60	31.3	50			42.6	60	50.1	60	53.9	60
ECUDA150ACZ	575-3-60	26.2	30			37.4	40	45.0	45	48.7	50
ECUDA180ACZ	575-3-60	38.3	45			49.6	50	57.1	60	60.9	70
ECUDA240ACZ	575-3-60	44.8	50			56.1	60	63.6	70	67.4	70
ECUDA300ACZ	575-3-60	65.6	80			76.8	80	84.4	90	88.1	90
ECUDA360ACZ	575-3-60	76.5	90					95.3	100	99.0	110

[1]MCA = Minimum Circuit Ampacity (Wiring Size Amps) [2]MFS = Maximum Fuse Size [3]SPPE = Single Point Power Entry

MCA & MFS are calculated at 230 volts on the ACC models. The ACD models are calculated at 480 volts. The ACZ models are calculated at 575 volts. The ACE units are calculated at 400v. 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
ECU Air Conditioner *(Single and Dual Compressors)*

BASIC MODEL NUMBER	VOLTAGE PHASE / HZ	CURRENT AMPS		LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) *Note: ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT*				TOTAL MAXIMUM HEATING AMPS *INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS*			
		AC[1]	IBM[2]	5 kW	9 kW	15 kW	18 kW	5 kW	9 kW	15 kW	18 kW
ECUDA120ACA	208/230-1-60	97.1	10.8	20.8	37.5	62.5		31.6	48.3	73.3	
ECUDA150ACA	208/230-1-60	97.1	10.8	20.8	37.5	62.5		31.6	48.3	73.3	
ECUA120ACC	208/230-3-60	48.4	5.9		21.7	36.1	43.3		27.6	42.0	49.2
ECUDA120ACC	208/230-3-60	59.9	5.9		21.7	36.1	43.3		27.6	42.0	49.2
ECUA150ACC	208/230-3-60	66.4	5.9		21.7	36.1	43.3		27.6	42.0	49.2
ECUDA150ACC	208/230-3-60	65.1	5.9		21.7	36.1	43.3		27.6	42.0	49.2
ECUDA180ACC	208/230-3-60	75.4	7.2		21.7	36.1	43.3		28.9	43.3	50.5
ECUDA240ACC	208/230-3-60	96.8	11.8		21.7	36.1	43.3		33.5	47.9	55.1
ECUDA300ACC	208/230-3-60	132.8	11.8		21.7	36.1	43.3		33.5	47.9	55.1
ECUDA360ACC	208/230-3-60	148.4	18.4		21.7	36.1	43.3		40.1	54.5	61.7
ECUA120ACD	460-3-60	25.9	3.4		10.8	18.0	21.7		14.2	21.4	25.1
ECUDA120ACD	460-3-60	29.2	3.4		10.8	18.0	21.7		14.2	21.4	25.1
ECUA150ACD	460-3-60	31.1	3.4		10.8	18.0	21.7		14.2	21.4	25.1
ECUDA150ACD	460-3-60	30.4	3.4		10.8	18.0	21.7		14.2	21.4	25.1
ECUDA180ACD	460-3-60	39	4.2		10.8	18.0	21.7		15.0	22.2	25.9
ECUDA240ACD	460-3-60	51.8	6.8		10.8	18.0	21.7		17.6	24.8	28.5
ECUDA300ACD	460-3-60	65.8	10.4		10.8	18.0	21.7		21.2	28.4	32.1
ECUDA360ACD	460-3-60	75	10.4		10.8	18.0	21.7		21.2	28.4	32.1
ECUA120ACE	380-3-50	24.4	2.8		8.4	14.1	16.9		11.2	16.9	19.7
ECUDA120ACE	380-3-50	27.7	2.8		8.4	14.1	16.9		11.2	16.9	19.7
ECUA150ACE	380-3-50	28.3	2.8		8.4	14.1	16.9		11.2	16.9	19.7
ECUDA150ACE	380-3-50	28.9	2.8		8.4	14.1	16.9		11.2	16.9	19.7
ECUDA180ACE	380-3-50	37.4	3.6		8.4	14.1	16.9		12.0	17.7	20.5
ECUDA240ACE	380-3-50	48.8	5.6		8.4	14.1	16.9		14.0	19.7	22.5
ECUDA300ACE	380-3-50	59.6	8.6		8.4	14.1	16.9		17.0	22.7	25.5
ECUDA360ACE	380-3-50	67.4	8.6		8.4	14.1	16.9		17.0	22.7	25.5
ECUA120ACZ	575-3-60	19.2	2.7		9.0	15.1	18.1		11.7	17.8	20.8
ECUDA120ACZ	575-3-60	21.8	2.7		9.0	15.1	18.1		11.7	17.8	20.8
ECUA150ACZ	575-3-60	26.3	2.7		9.0	15.1	18.1		11.7	17.8	20.8
ECUDA150ACZ	575-3-60	22.2	2.7		9.0	15.1	18.1		11.7	17.8	20.8
ECUDA180ACZ	575-3-60	32.2	3.4		9.0	15.1	18.1		12.4	18.5	21.5
ECUDA240ACZ	575-3-60	38.4	5.4		9.0	15.1	18.1		14.4	20.5	23.5
ECUDA300ACZ	575-3-60	55.6	8.4		9.0	15.1	18.1		17.4	23.5	26.5
ECUDA360ACZ	575-3-60	64.6	8.4			15.1	18.1			23.5	26.5

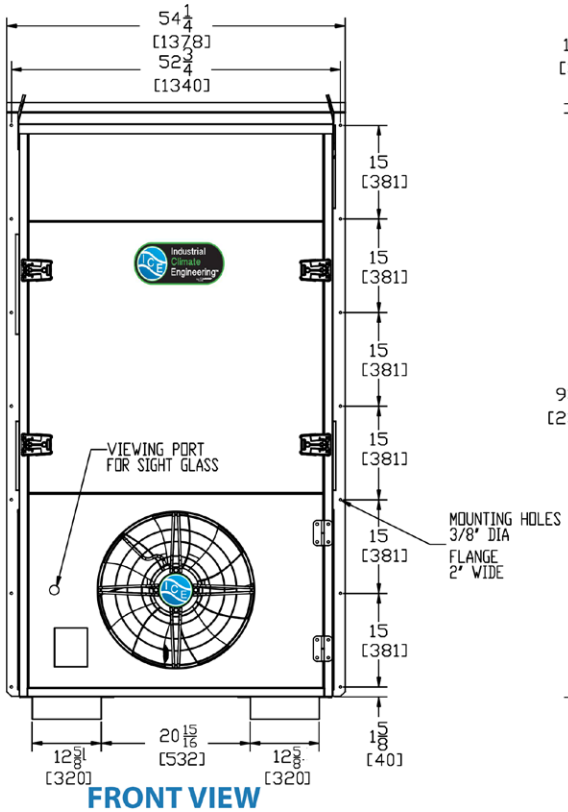
AC[1] = Air Conditioner Unit Amps IBM[2] = Indoor Blower Motor

Heating kW is rated at 230 volts on the ACA models, 240 volts on the ACC models. Derate heater by 25% for operation on 208v. Heating kW is rated at 480 volts on “D” models. Derate heater performance by 35% for “E” models. Heating kW is rated at 575 volts on “Z” models. Total heating and cooling amps includes all motors.

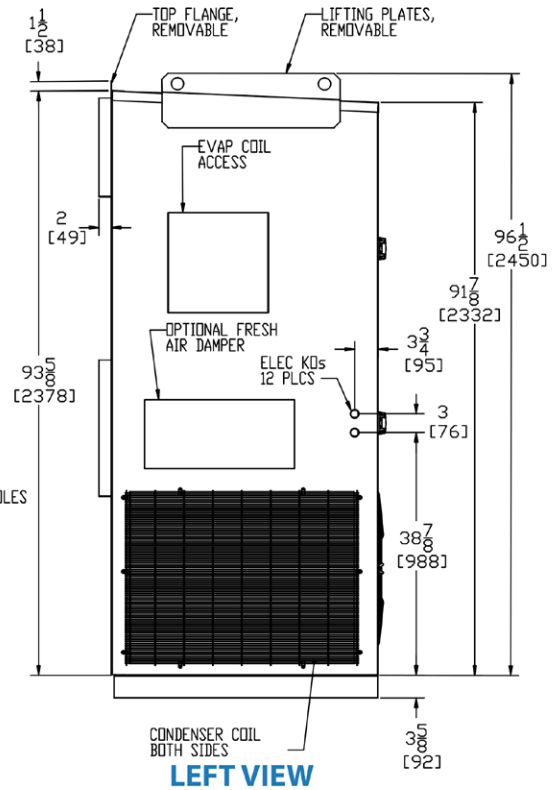
ICE Air Conditioner Model & Cabinet Designation

MODEL	CABINET DESIGNATION													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
ECUA/ECUDA120 & 150 Air Conditioner	✓													
ECUA/ECUDA120 & 150 - with Economizer		✓												
ECUA/ECUDA120 & 150 - Reverse Air Flow			✓											
ECUA/ECUDA120 & 150 - Reverse Flow w/Economizer				✓										
ECUDA180 & 240 Air Conditioner					✓									
ECUDA180 & 240 - with Economizer						✓								
ECUDA180 & 240 - Reverse Air Flow							✓							
ECUDA180 & 240 - Reverse Flow with Economizer								✓						
ECUDA300 Air Conditioner									✓					
ECUDA300 - with Economizer										✓				
ECUDA300 - Reverse Air Flow											✓			
ECUDA360 Air Conditioner												✓		
ECUDA360 - with Economizer													✓	
ECUDA360 - Reverse Air Flow														✓

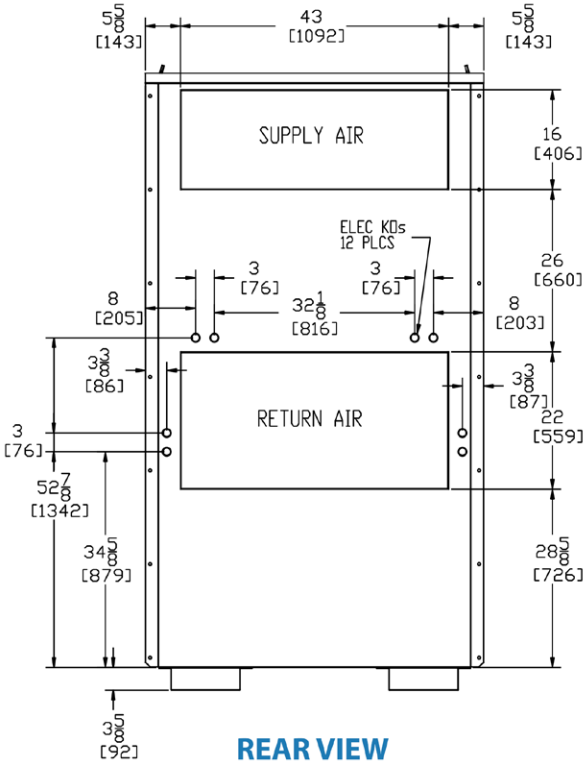
Dimensional Data - Cabinet A: ECUA/ECUDA120 & 150 Air Conditioner



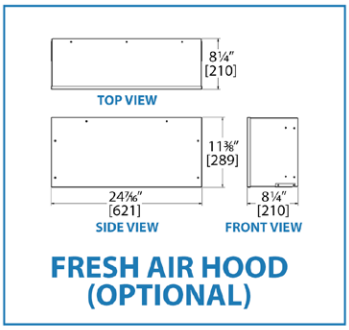
FRONT VIEW



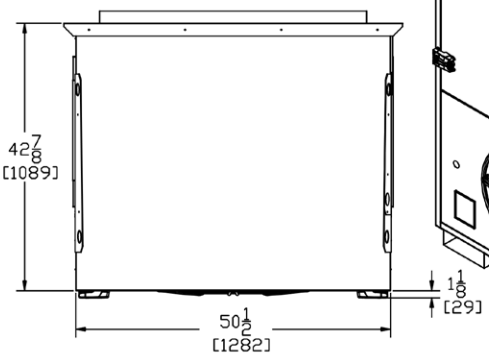
LEFT VIEW



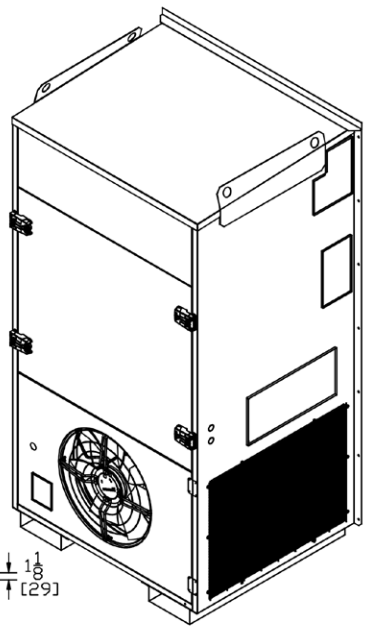
REAR VIEW



FRESH AIR HOOD (OPTIONAL)



TOP VIEW



ISOMETRIC VIEW

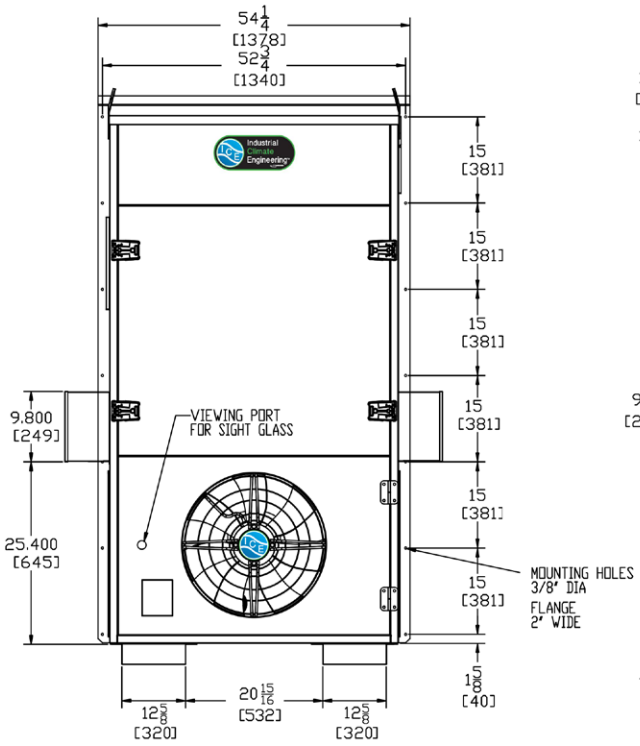
Weight

	LBS/KGS
ECUA/ECUDA120	1160/527.3
ECUA/ECU-DA150	1166/530

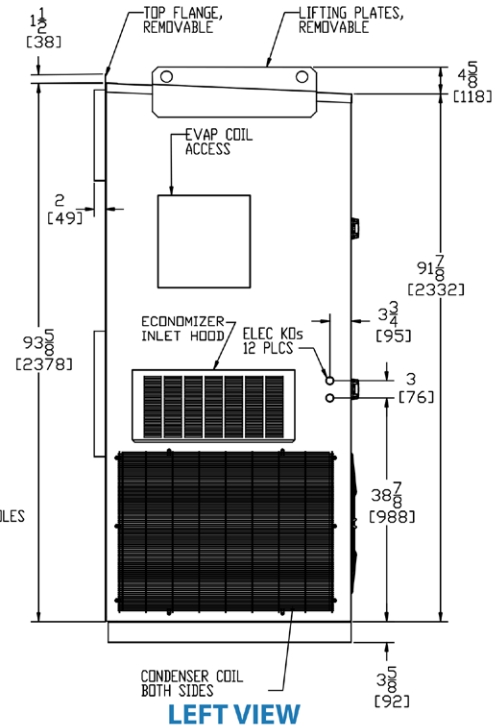
Filter Size

ECUA/ECUDA120 & 150	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8
For Optional Fresh Air Hood, #K/04657	11" x 22" x 1"	279 x 559 x 25	80119	2	N/A

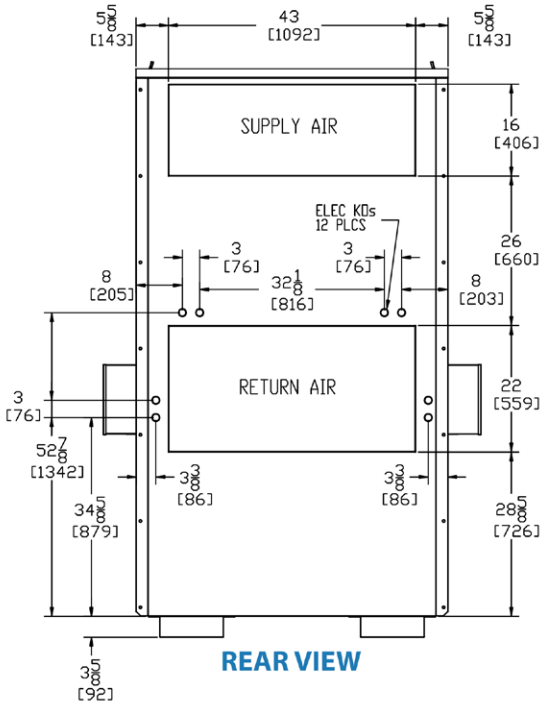
Dimensional Data - Cabinet B: ECUA/ECUDA120 & 150 - with Economizer



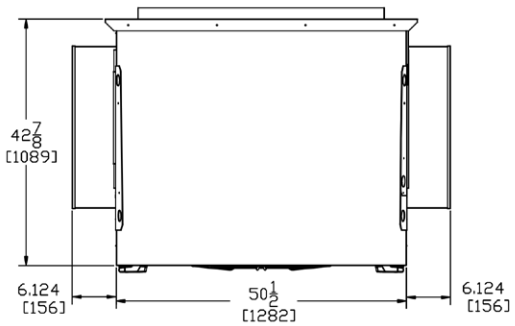
FRONT VIEW



LEFT VIEW



REAR VIEW



TOP VIEW

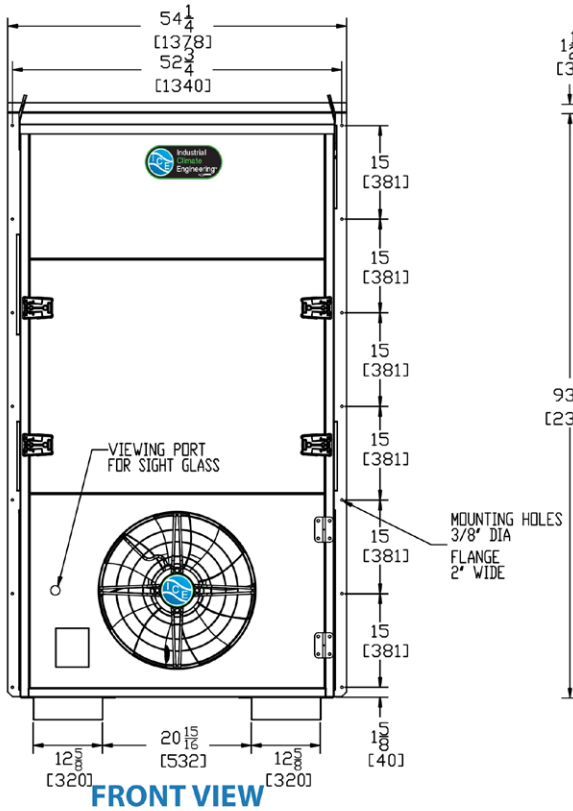
Weight

	LBS/KGS
ECUA120/150 with Economizer	1210/550

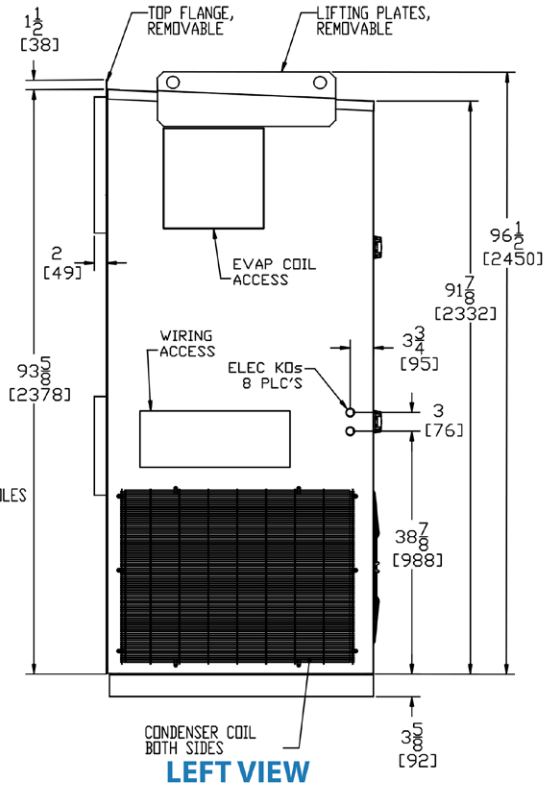
Filter Size

ECUA120/150	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8
Fresh Air Hood Pre-filters	26" x 12" x 1"	660 x 305 x 25	92526	2	N/A

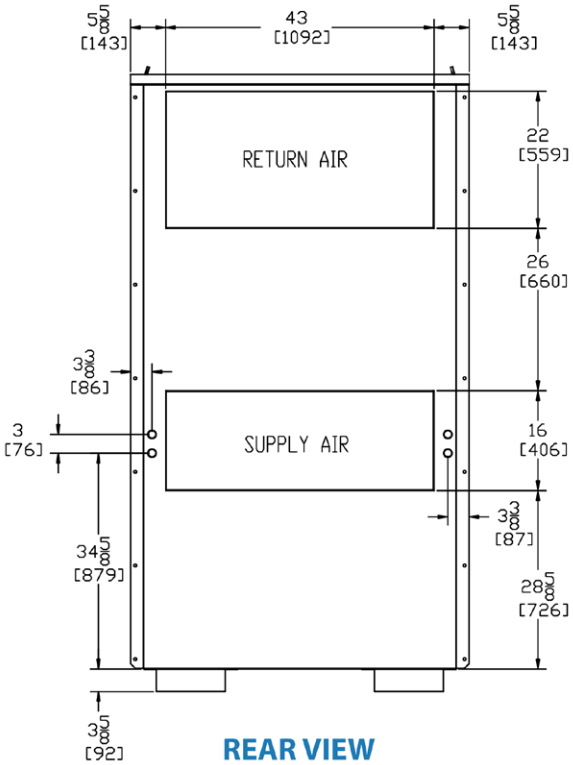
Dimensional Data - Cabinet C: ECUA/ECUDA120 & 150 - Reverse Air Flow



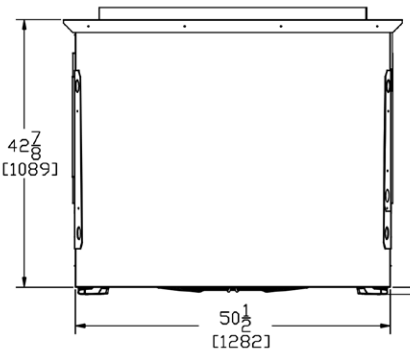
FRONT VIEW



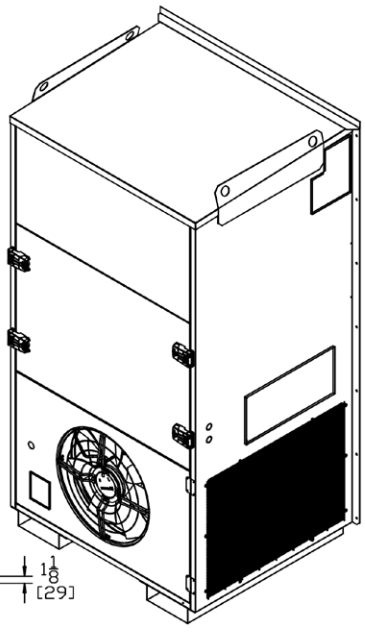
LEFT VIEW



REAR VIEW



TOP VIEW



ISOMETRIC VIEW

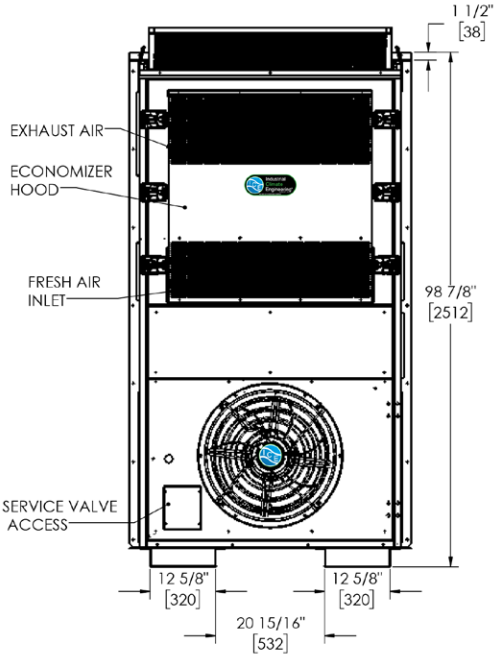
Weight

	LBS/KGS
ECUA/ECUDA120	1160/527.3
ECUA/ECUDA150	1166/530

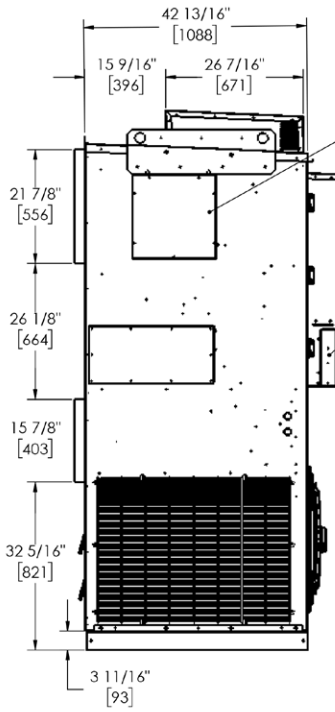
Filter Size

ECUA/ECUDA120 & 150	INCHES	MIL LIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8

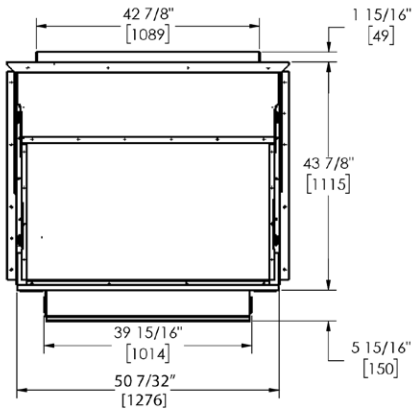
Dimensional Data - Cabinet D: ECUA/ECUDA120 & 150 - Reverse Flow w/Economizer



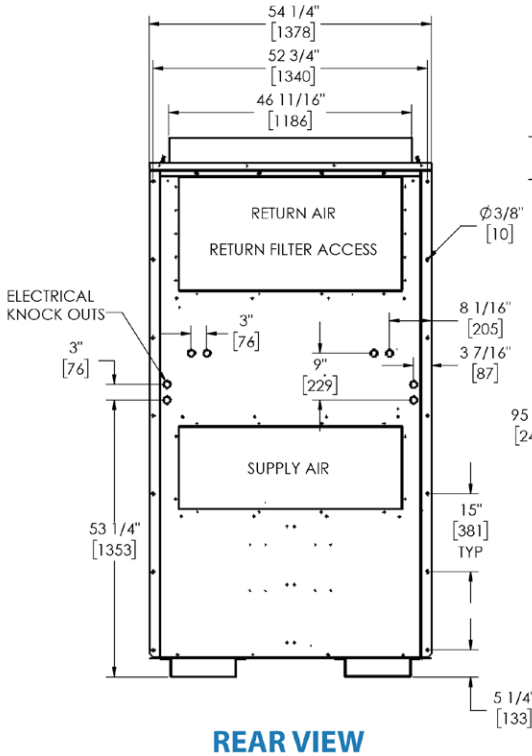
FRONT VIEW



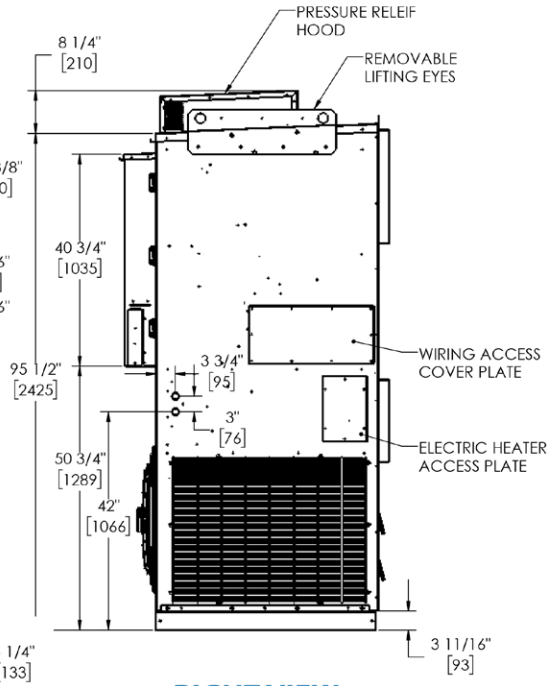
LEFT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

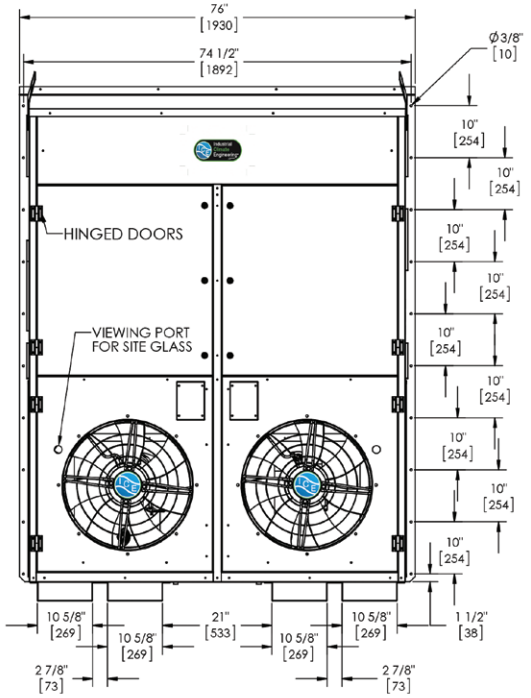
Weight

	LBS/KGS
ECUDA120/150 Reverse Flow with Economizer	1210/550

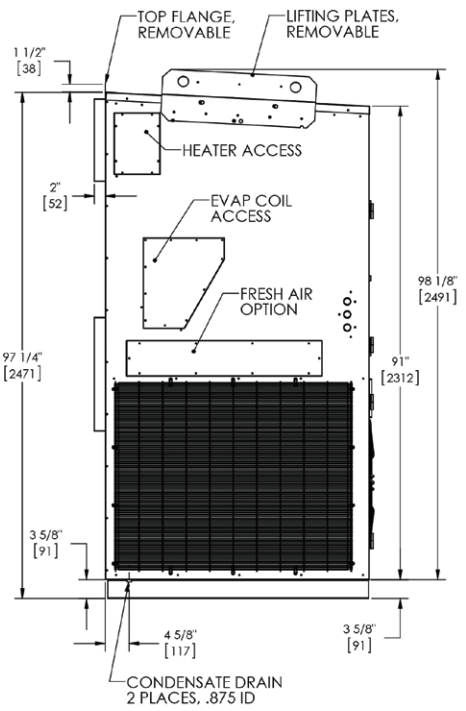
Filter Size

ECUA/ECUDA120/150	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8
Economizer Pre-filter	9.25" x 37" x .375"	235 x 940 x 10	92127	1	N/A

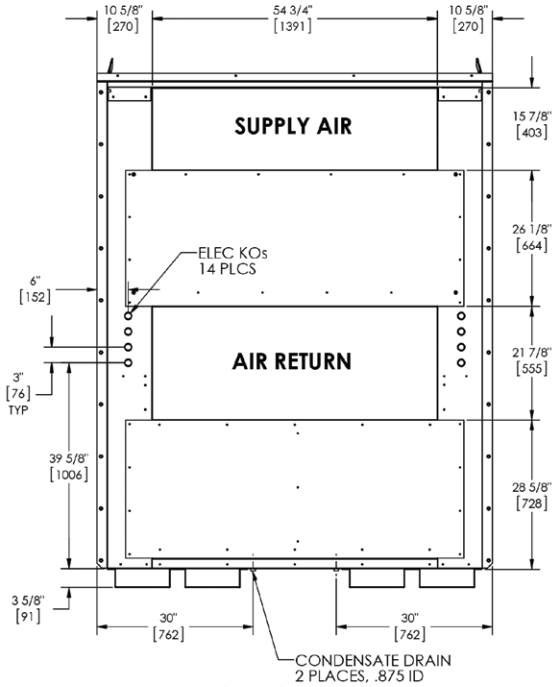
Dimensional Data - Cabinet E: ECUDA180 & 240 Air Conditioner



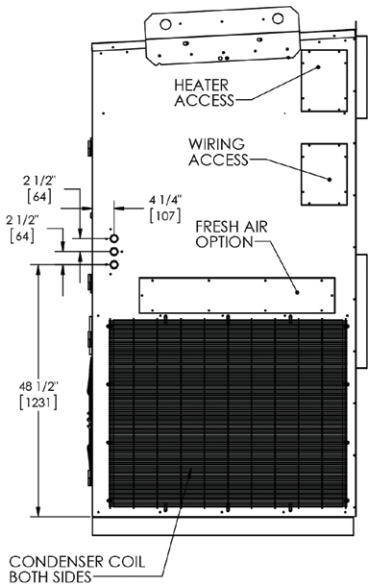
FRONT VIEW



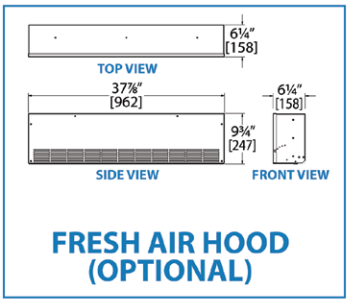
LEFT VIEW

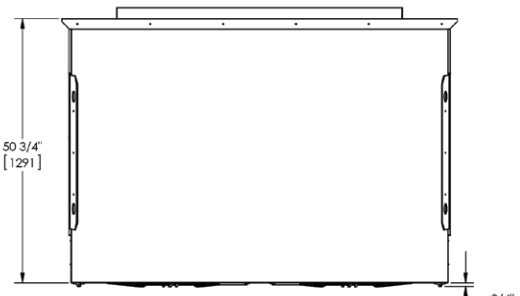


REAR VIEW



RIGHT VIEW





TOP VIEW

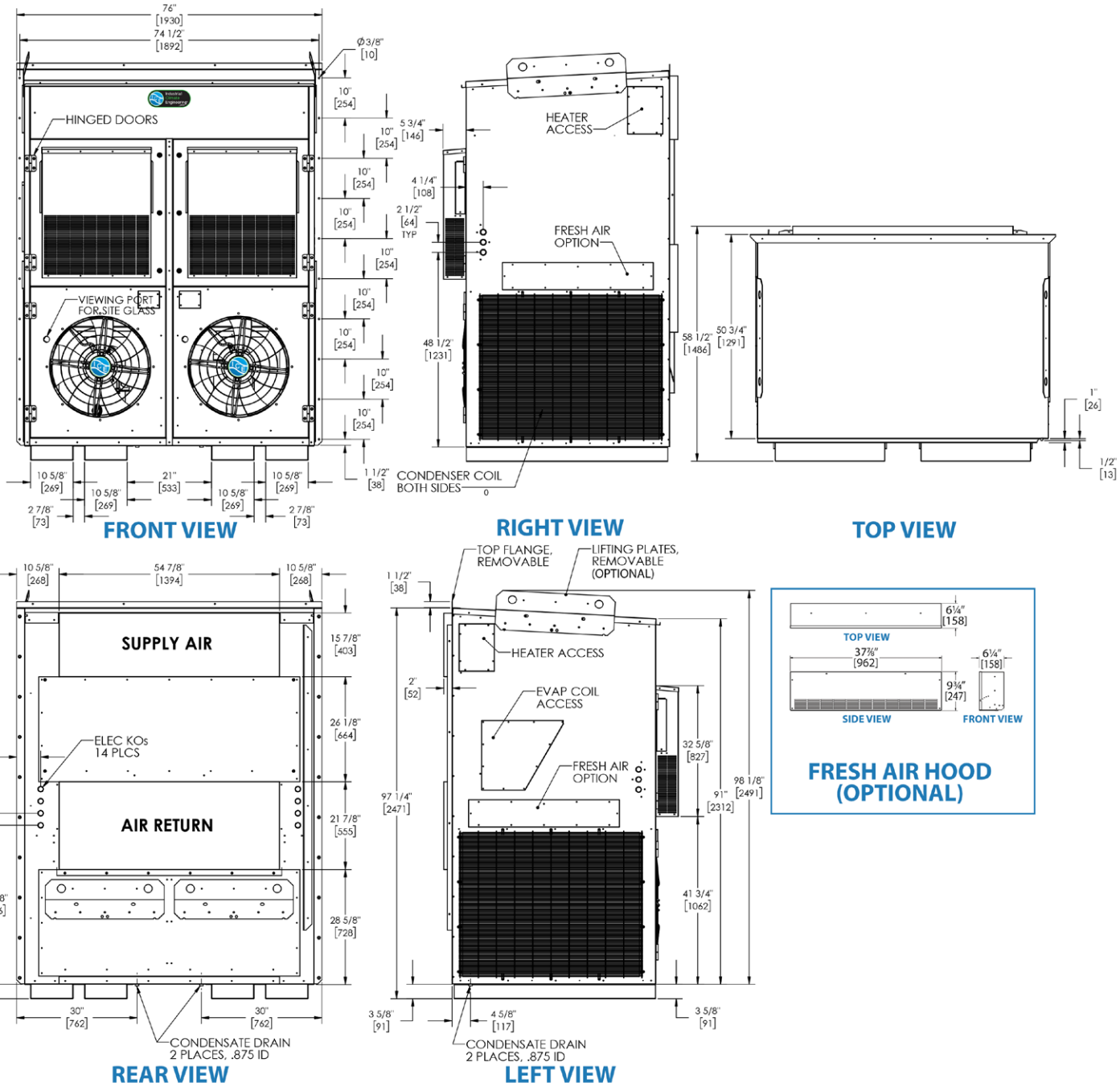
Weight

	LBS/KGS
ECUDA180	2307/1049
ECUDA240	2523/1148

Filter Size

ECUDA180/240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25 x 16 x 2	635 x 406 x 51	80137	4	8
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	4	8

Dimensional Data - Cabinet F: ECUDA180 & 240 - with Economizer



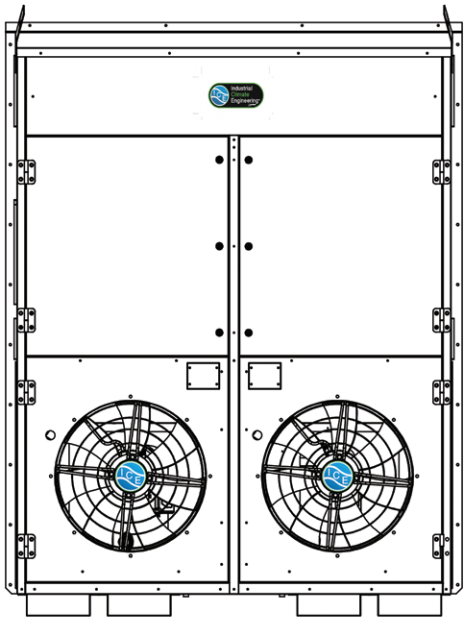
Weight

	LBS/KGS
ECUDA180	2447/1110
ECUDA240	2663/1208

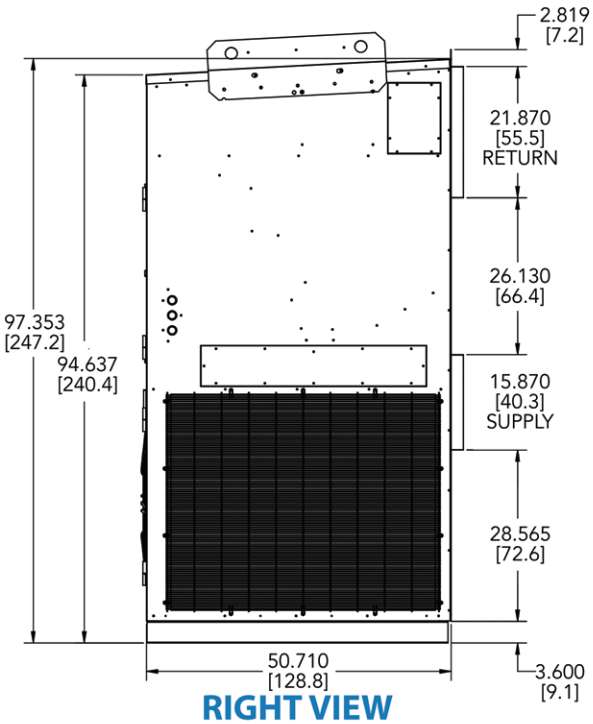
Filter Size

ECUDA180/240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25 x 16 x 2	635 x 406 x 51	80137	4	8
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	3	8
Fresh Air Hood Pre-filters	26" x 12" x 1"	660 x 305 x 25	92526	2	N/A

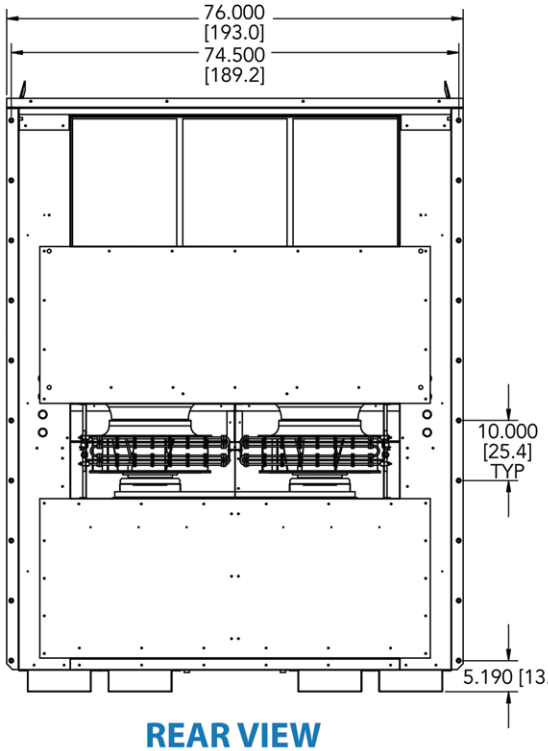
Dimensional Data - Cabinet G: ECUDA180 & 240 - Reverse Air Flow



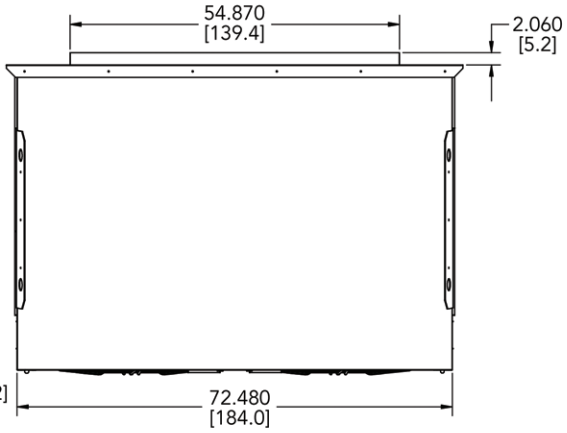
FRONT VIEW



RIGHT VIEW



REAR VIEW



TOP VIEW

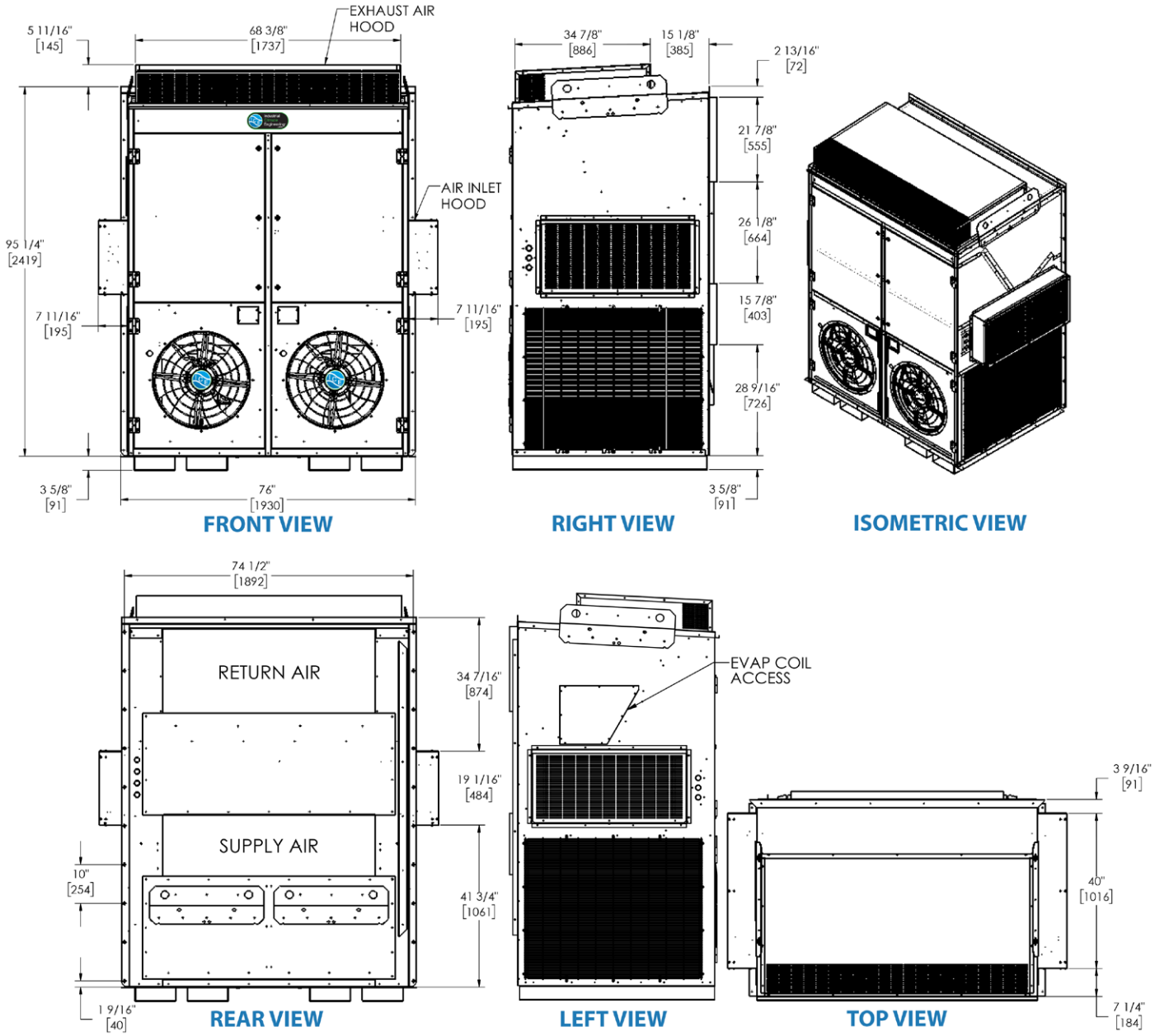
Weight

	LBS/KGS
ECUDA180	2307/1049
ECUDA240	2523/1148

Filter Size

ECUDA180/240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25 x 16 x 2	635 x 406 x 51	80137	4	8
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	4	8

Dimensional Data - Cabinet H: ECUDA180 & 240 - Reverse Flow with Economizer



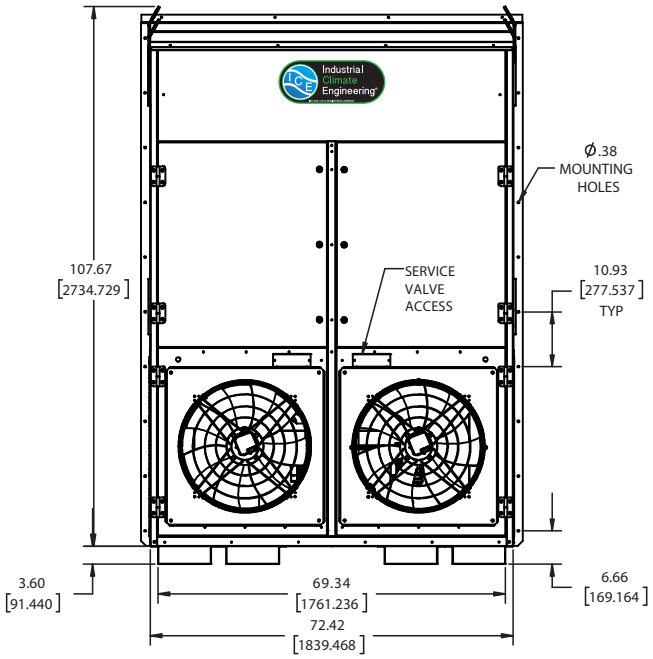
Weight

	LBS/KGS
ECUDA180	2,253/1,022
ECUDA240	2,345/1,063

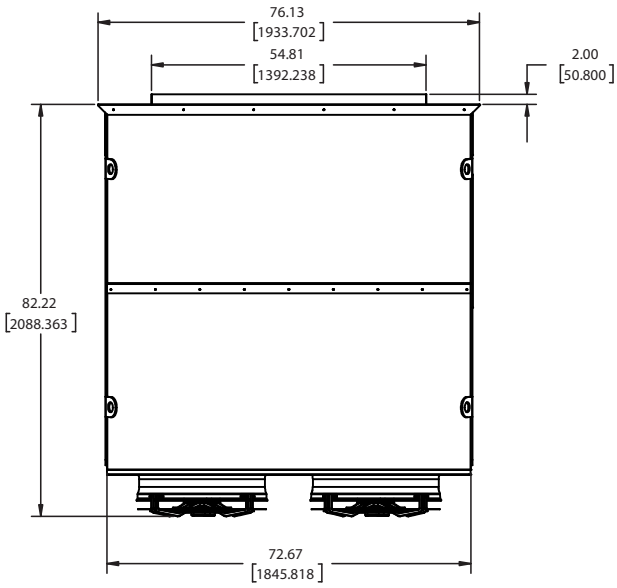
Filter Size

ECUDA180/240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	3	8
Mist Eliminator Filter	15 5/8 x 24 5/8 x 2	397 x 625 x 25	92971	3	N/A
Fresh Air Hood Pre-filters	16 x 32 x 1	406 x 813 x 25	93187	3	N/A

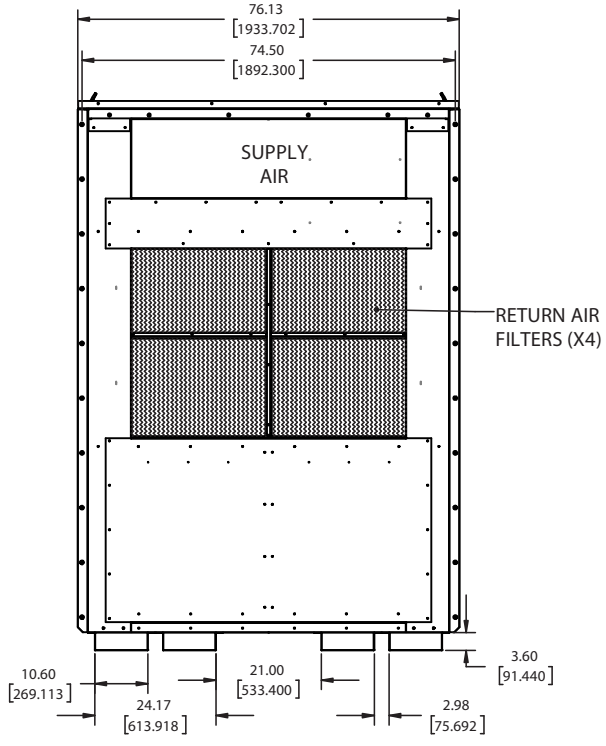
Dimensional Data - Cabinet I: ECUDA300 Air Conditioner



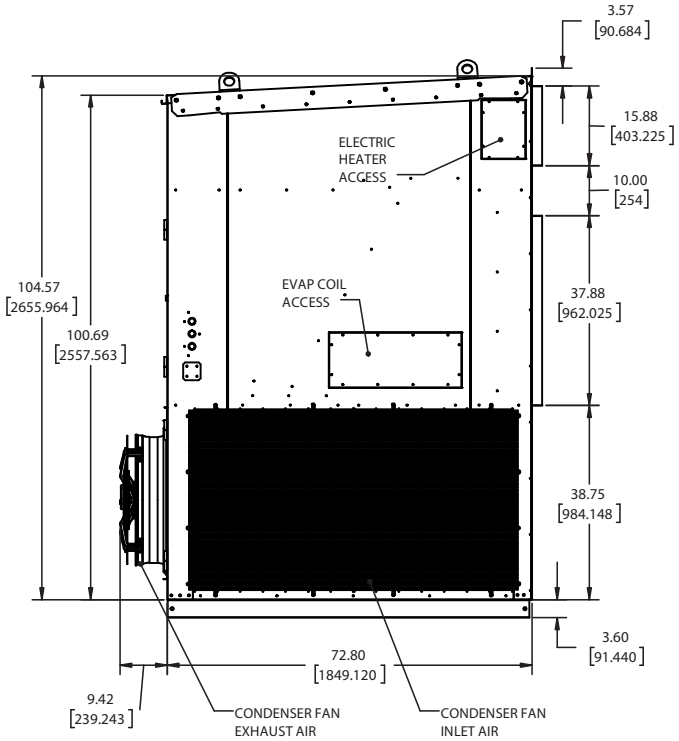
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

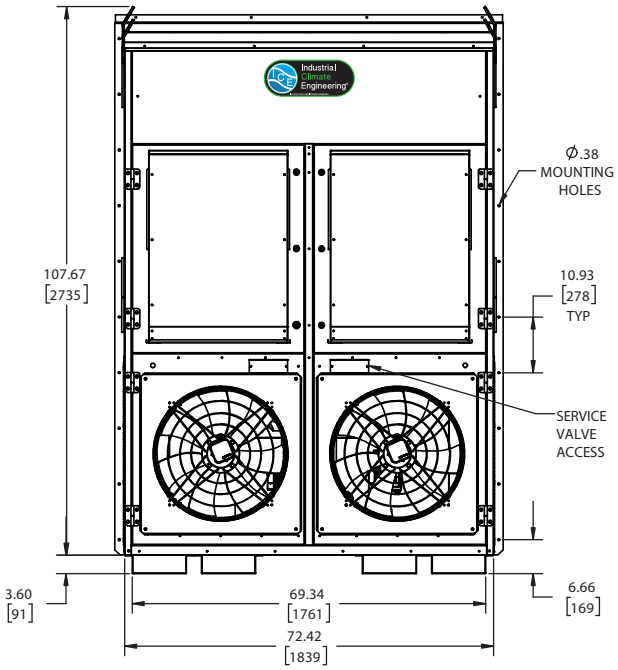
Weight

	LBS/KGS
ECUDA300	2840/1288

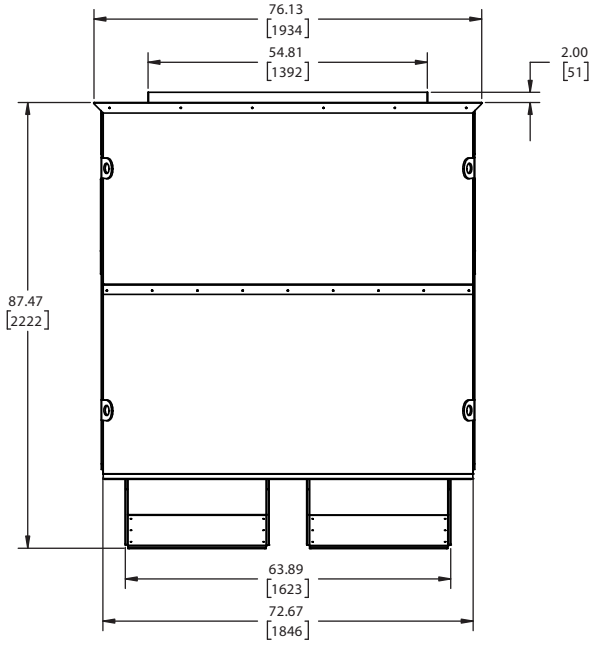
Filter Size

ECUDA300	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	20 x 30 x 2	508 x 762 x 51	92545	4	8

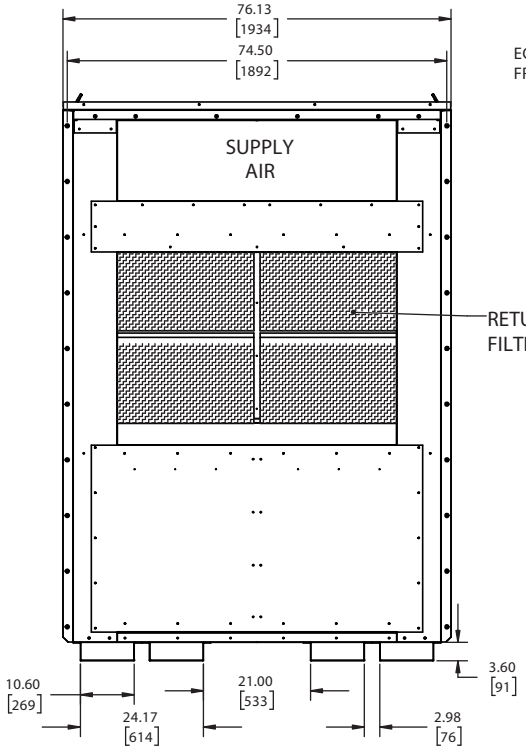
Dimensional Data - Cabinet J: ECUDA300 - with Economizer



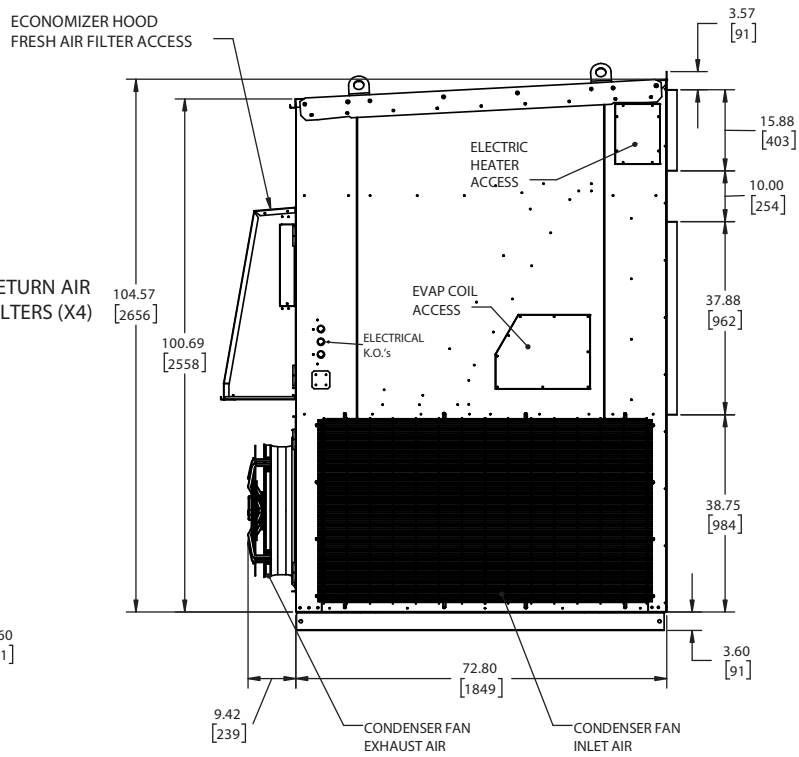
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

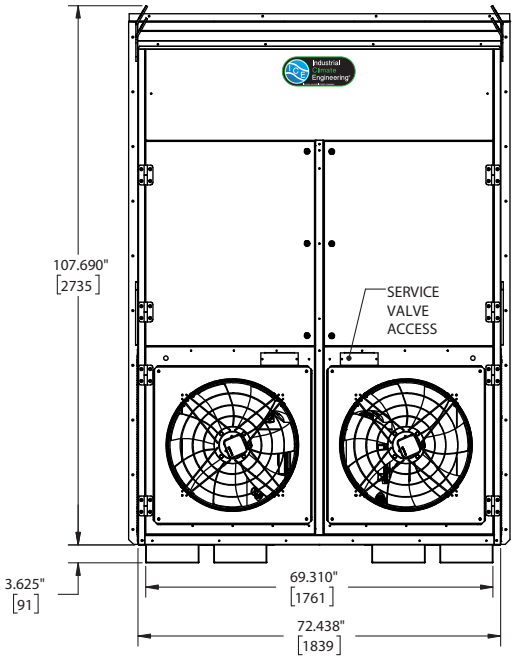
Weight

	LBS/KGS
ECUDA300	3055/1386

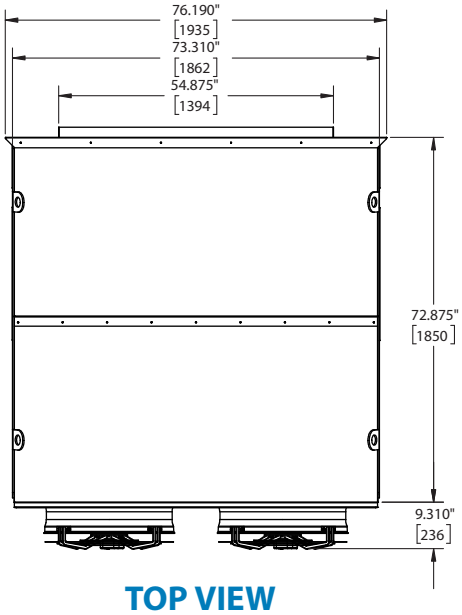
Filter Size

ECUDA300	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Interior Access Return Air Filter	20 x 30 x 2	508 x 762 x 51	92545	4	8
Fresh Air Filter	15 x 26 x 1	381 x 660 x 25	92982	2	8

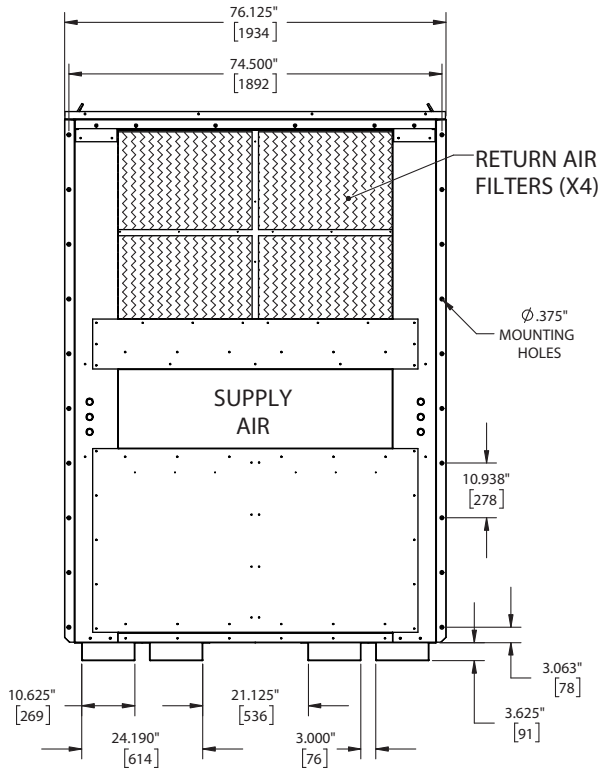
Dimensional Data - Cabinet K: ECUDA300 - Reverse Air Flow



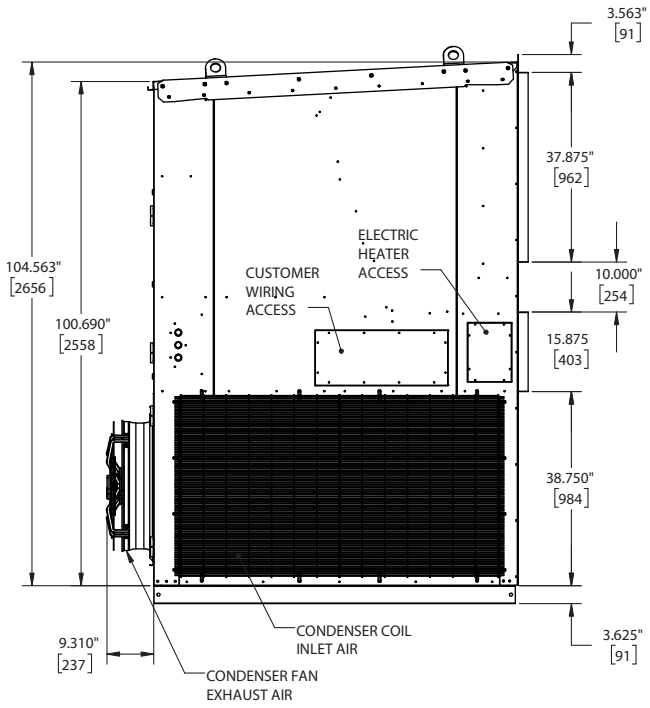
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

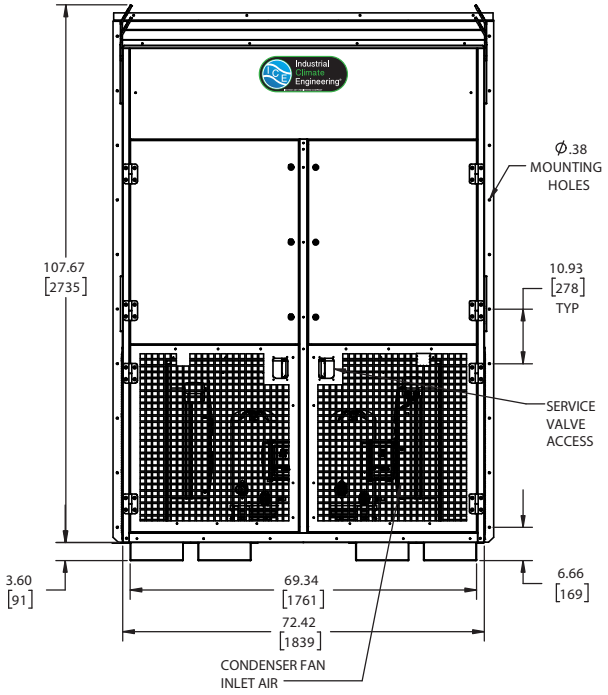
Weight

	LBS/KGS
ECUDA300	2840/1288

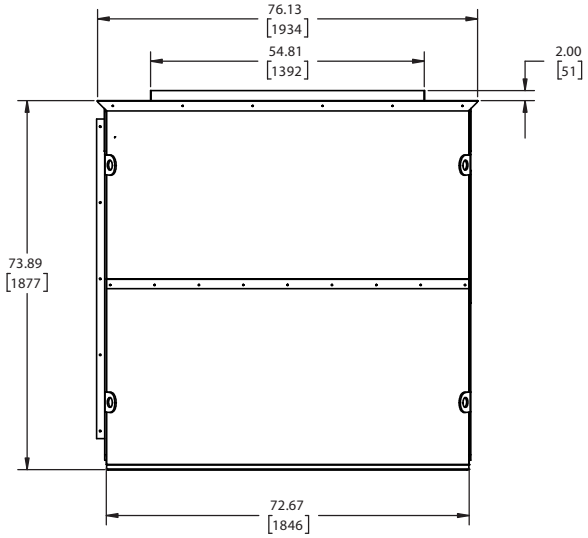
Filter Size

ECUDA300	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Interior Access Return Air Filter	20 x 30 x 2	508 x 762 x 51	92545	4	8
Mist Eliminator Filter	33 x 40 x 2	838 x 1,016 x 51	93269	2	

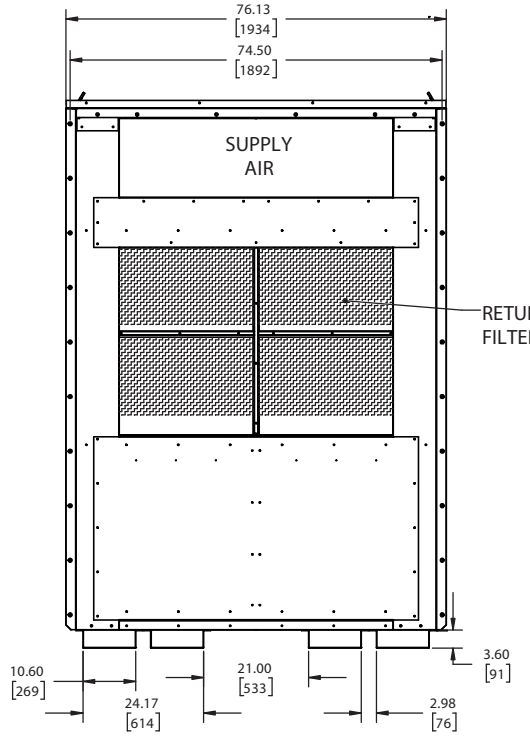
Dimensional Data - Cabinet L: ECUDA360 Air Conditioner



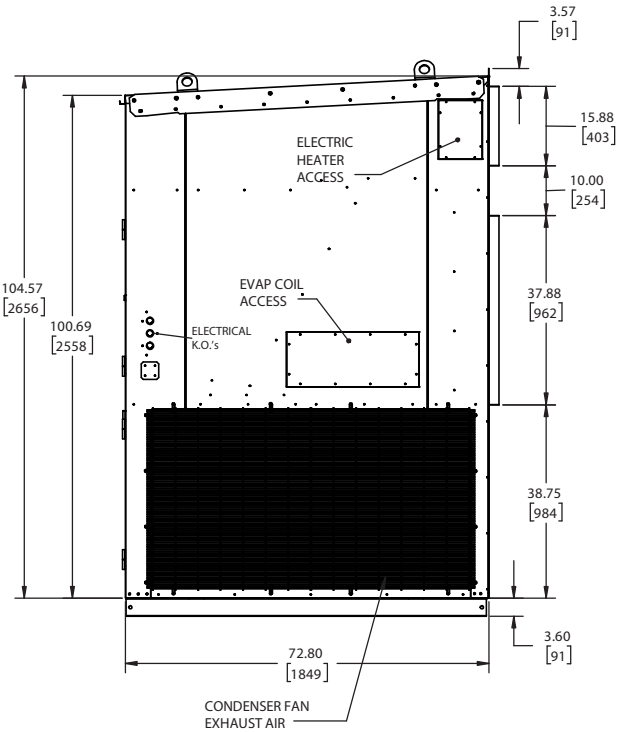
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

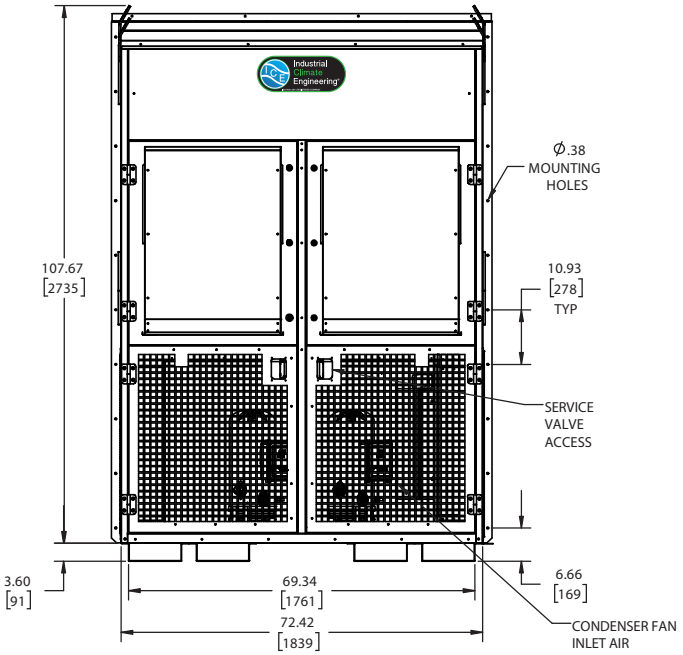
Weight

	LBS/KGS
ECUDA360	3055/1386

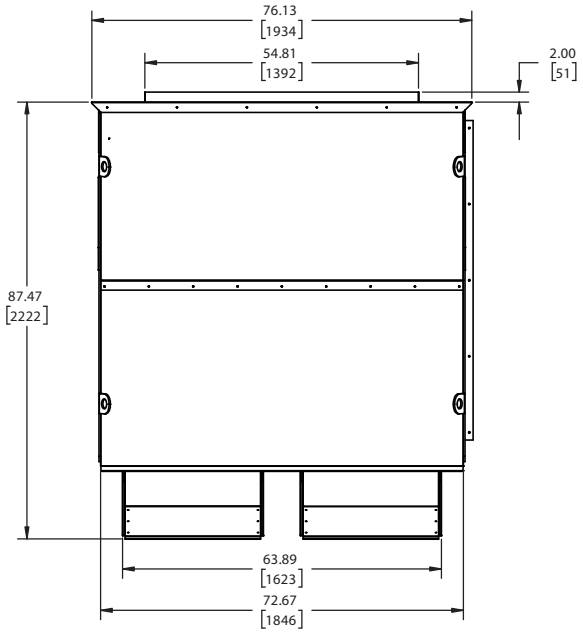
Filter Size

ECUDA360	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Interior Access Return Air Filter	20 x 30 x 2	508 x 762 x 51	92545	4	8

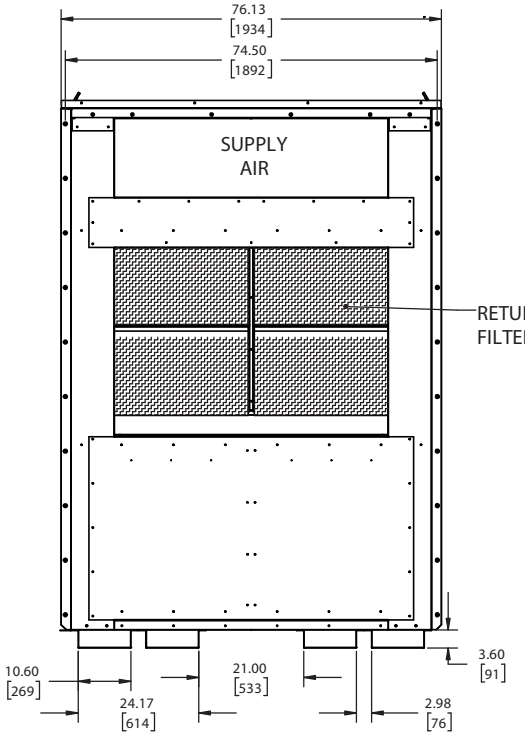
Dimensional Data - Cabinet M: ECUDA360 - with Economizer



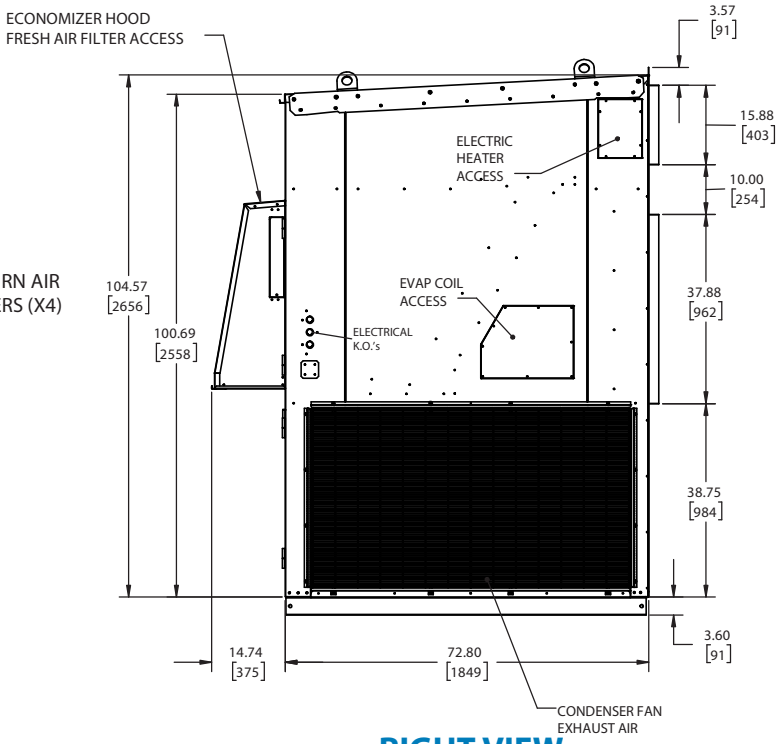
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

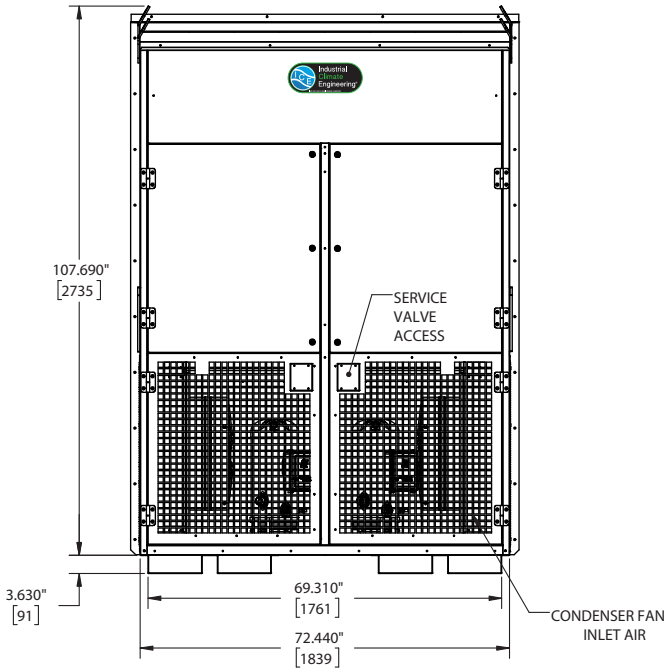
Weight

	LBS/KGS
ECUDA360	3055/1386

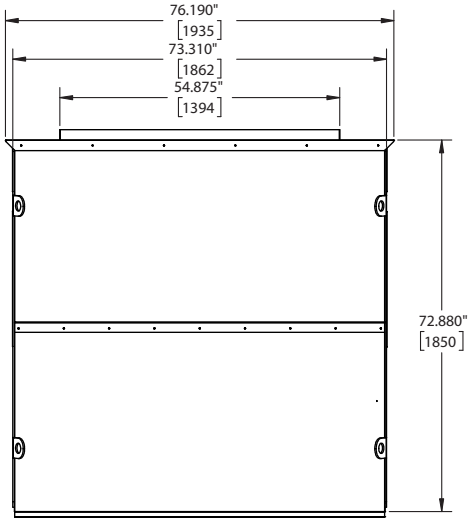
Filter Size

ECUDA360	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Interior Access Return Air Filter	20 x 30 x 2	508 x 762 x 51	92545	4	8
Fresh Air Filter	15 x 26 x 1	381 x 660 x 25	92982	2	8

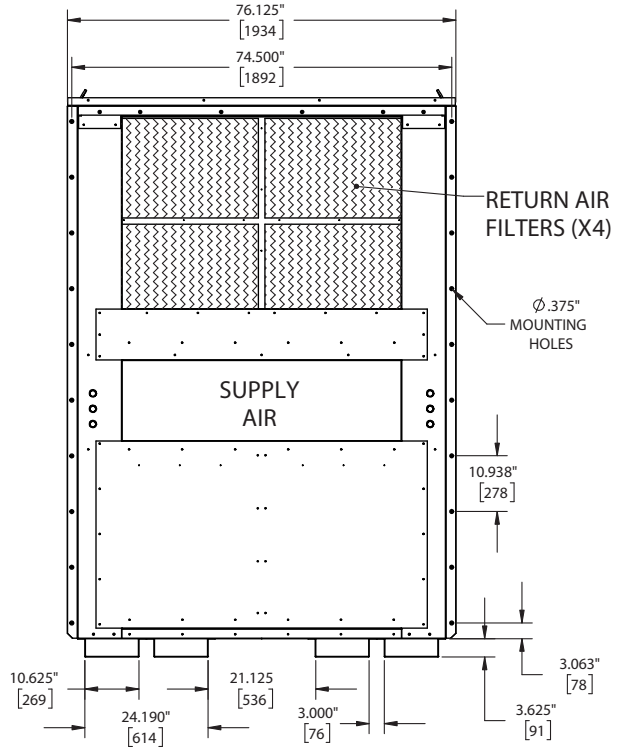
Dimensional Data - Cabinet N: ECUDA360 - Reverse Air Flow



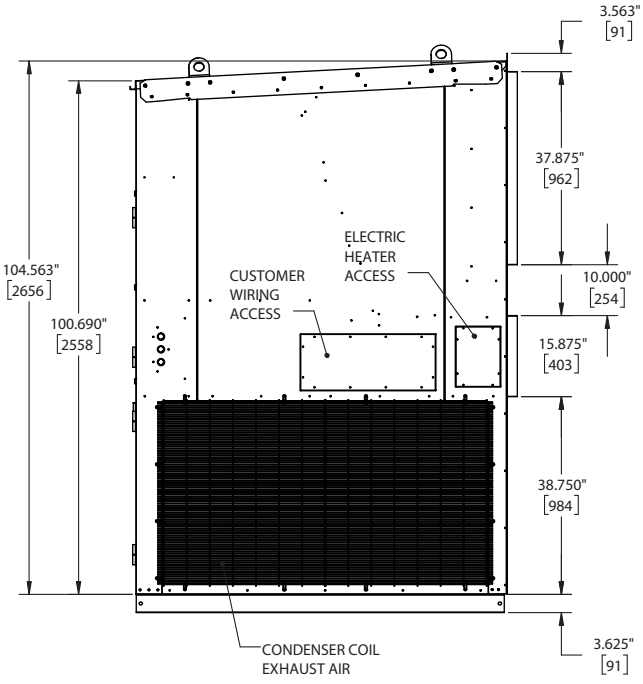
FRONT VIEW



TOP VIEW



REAR VIEW



RIGHT VIEW

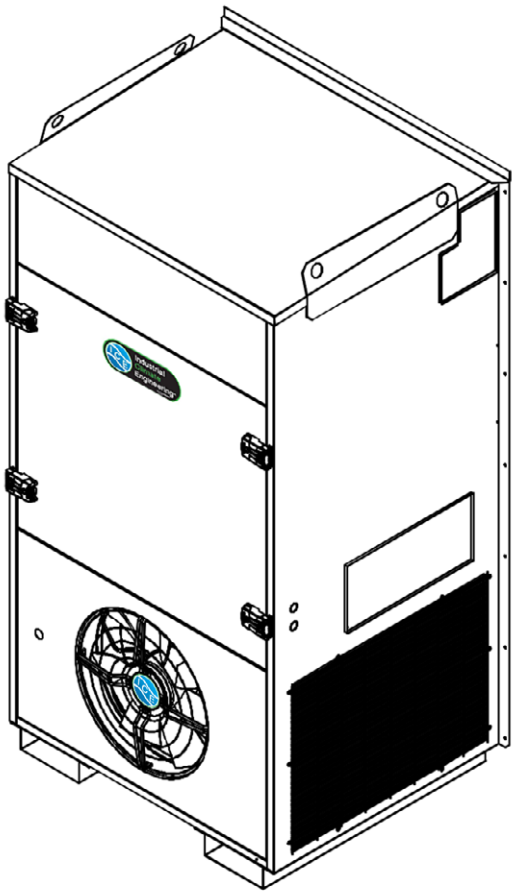
Weight

	LBS/KGS
ECUDA360	3055/1386

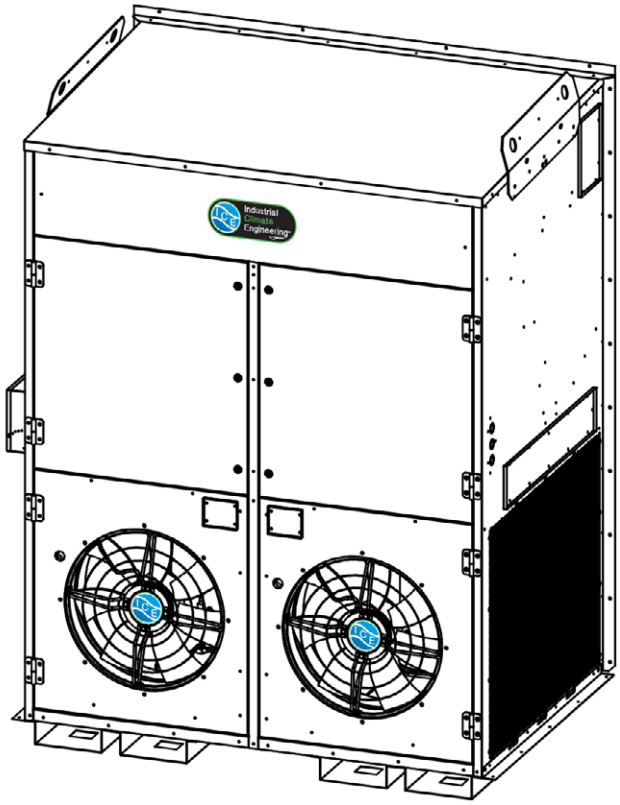
Filter Size

ECUDA360	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Interior Access Return Air Filter	20 x 30 x 2	508 x 762 x 51	92545	4	8
Mist Eliminator Filter	33 x 40 x 2	838 x 1,016 x 51	93269	2	

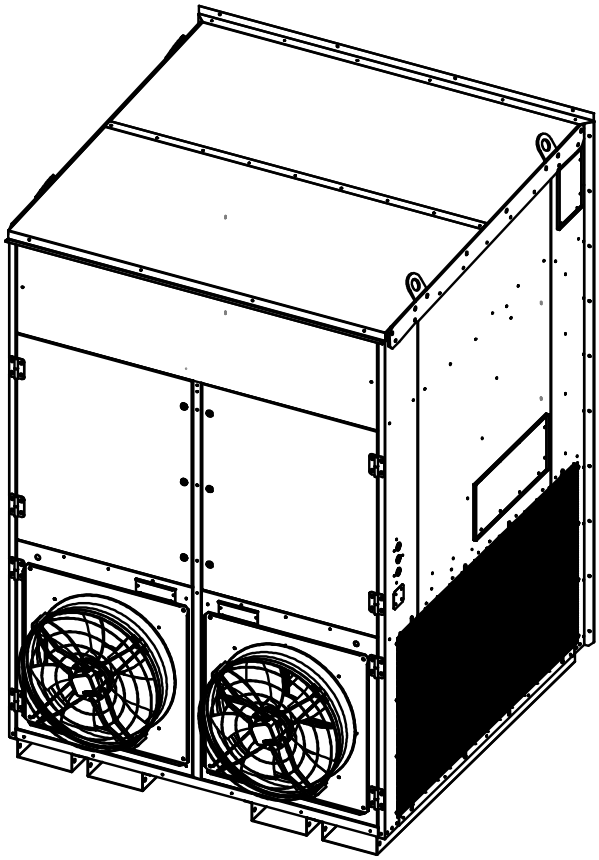
ECUA120 & 150 Air Conditioner Isometric View



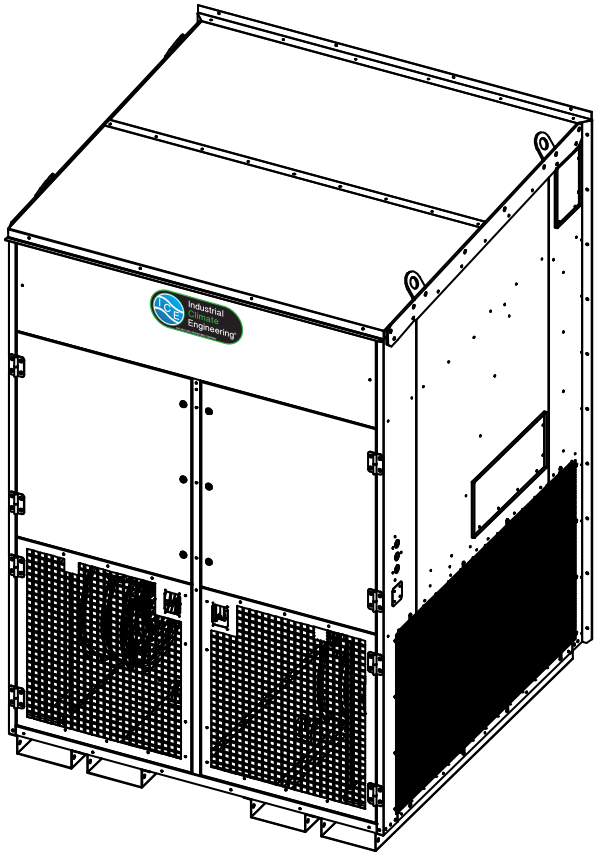
ECUDA180, 240 Air Conditioner Isometric View



ECUDA300 Air Conditioner Isometric View



ECUDA360 Air Conditioner Isometric View



Please consult the Industrial Climate Engineering website at www.acice.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. As part of the ICE continuous improvement program, specifications are subject to change without notice.

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