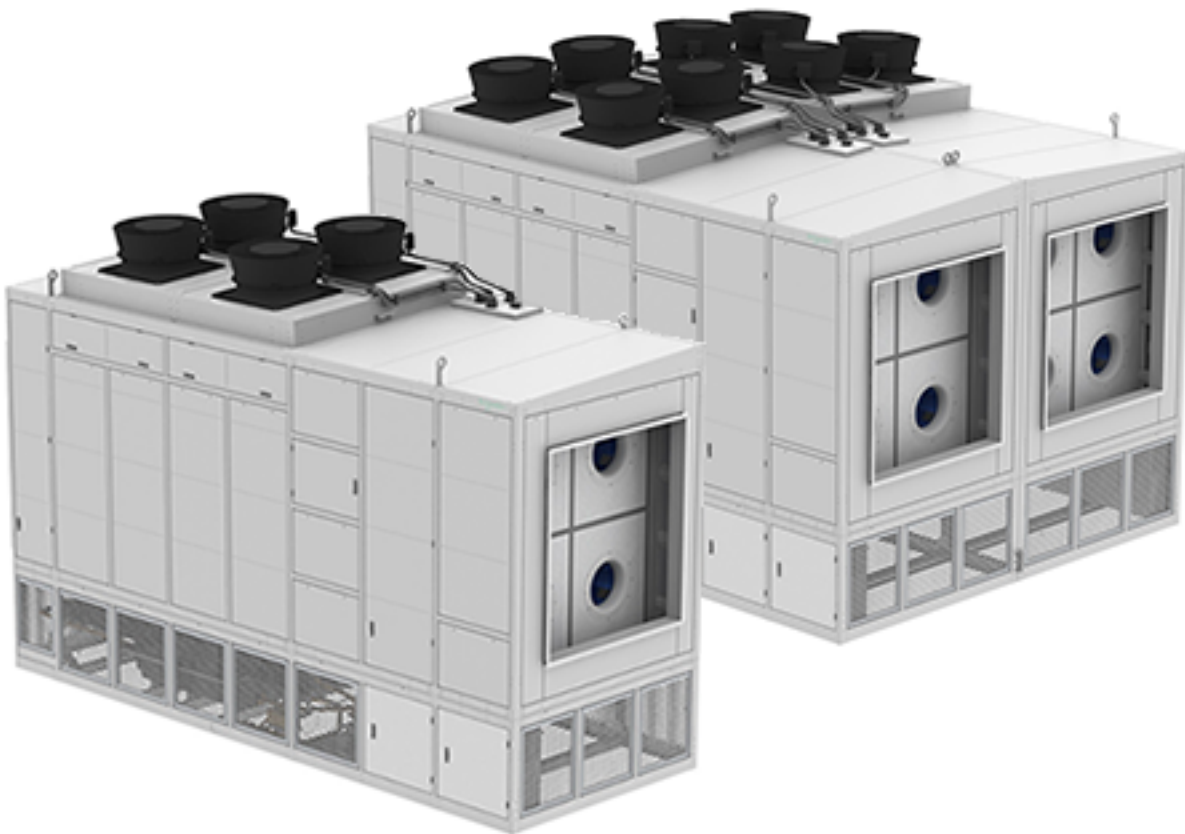


# Indirect Air Economizer

## Ecoflair™ Indirect Air Economizer

### Technical Specifications

990-9963-001 / 06ME0099@00B0100  
Release date: 02/2018



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As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication.

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# General Information

## Manual Updates

Schneider Electric™ policy is one of continuous technological innovation and the company reserves the right to amend any data herein without prior notice. The images shown in this manual are for descriptive purposes only and they may differ from specific models that are selected.

**NOTE:** Unit images and component identification information are examples only. The final configuration of the unit may change according to the different options.

Check for updates to this manual on the Schneider Electric Web site, [www.schneider-electric.com/support](http://www.schneider-electric.com/support). Select the **Download Documents and Software** link under the **Support** tab and enter the manual part number or SKU for your equipment in the search field. See the back cover of this manual for the part number.

## Document Overview

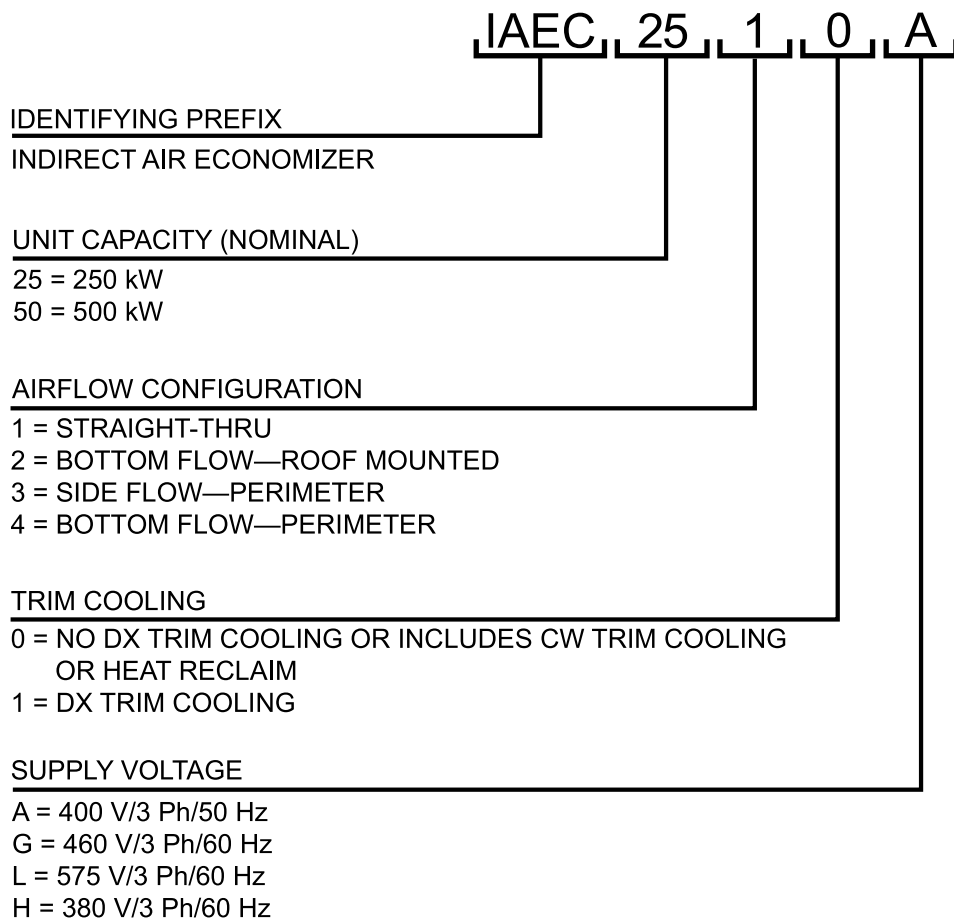
### Abbreviations and Terminology

The following are abbreviations and terms used in this manual:

- IEC: Indirect evaporative cooling
- OA fans: Outdoor air fans
- EEV: Electronic expansion valve
- VFD/VSD: Variable-frequency drive/variable-speed drive
- DX: Direct expansion
- CW: Chilled water
- SCO: Source changeover
- BMS: Building management system
- HACS: Hot aisle containment system
- CACS: Cold aisle containment system
- RACS: Rack aisle containment system
- Main module: The display interface and this manual use the term “main module” to refer to the IAEC25\*\*\* section of an IAEC50\*\*\* unit that contains the display interface. If the unit is an IAEC25\*\* unit only, the unit itself is the main module.
- Expansion module: The display interface and this manual use the term “expansion module” to refer to the IAEC25\*\*\* section of an IAEC50\*\*\* unit that does not contain the display interface. If the unit is only an IAEC25\*\* unit, menus for an expansion module will not be available on the display interface.
- Module: The term “module” is used to refer to a IAEC25\*\*\* section of an IAEC50\*\*\* unit.

# Technical Data

## Model Nomenclature

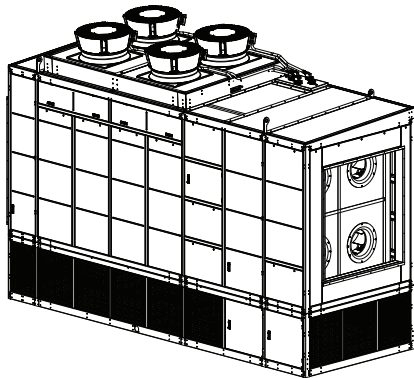


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## Unit Configuration

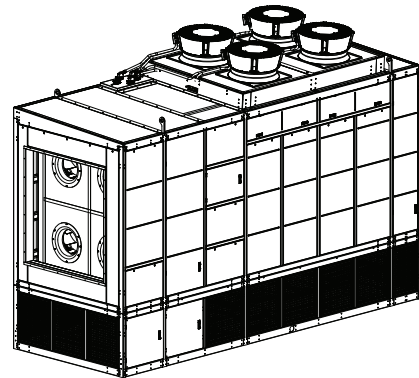
IAEC25\*\*\* units are available in two configurations: right-hand unit or left-hand unit. IAEC50\*\*\* units are two IAEC25\*\*\* units connected together.

**NOTE:** Orientation of IAEC25\*\*\* units is based on the external view while facing the return air side.



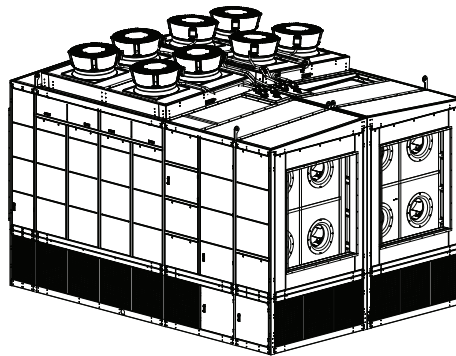
IAEC25\*\*\* LEFT-HAND UNIT

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IAEC25\*\*\* RIGHT-HAND UNIT

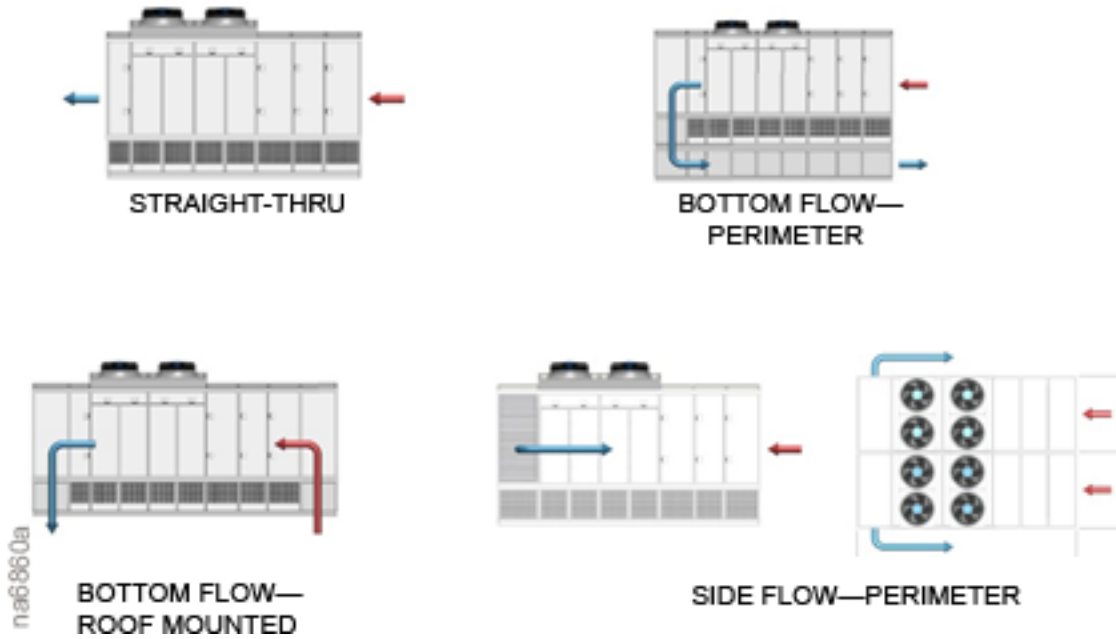
na6451b



IAEC50\*\*\* UNIT

na6452a

## Airflow Configuration



## Operational Overview

The Ecoflair Indirect Air Economizer is an indirect evaporative and air-to-air heat exchanger cooling solution. The Ecoflair Indirect Air Economizer has the ability to switch automatically between air-to-air and indirect evaporative heat exchange to consistently provide cooling to data centers in the most efficient way. The Ecoflair Indirect Air Economizer is able to reduce energy consumption by leveraging temperature differences between outside ambient air compared to IT return air to provide economized cooling to the data center. The Ecoflair Indirect Air Economizer meets ASHRAE 90.1/TC 9.9 requirements for efficiency and economization.

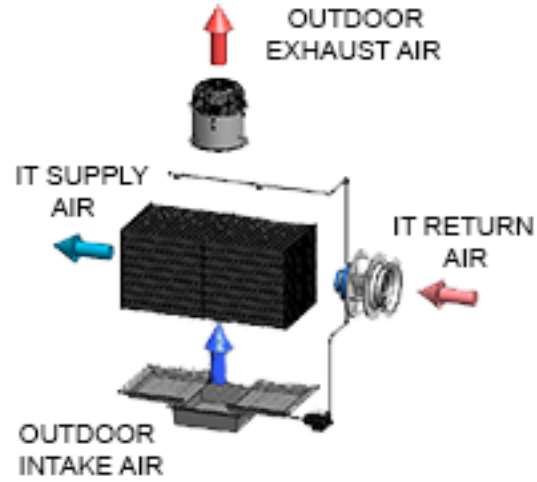
The Ecoflair Indirect Air Economizer is available in an individual nominal 250-kW main module or a main module combined with an expansion module to provide up to 500 kW of cooling capacity. Since the unit is located outside the perimeter of the data center, the Ecoflair Indirect Air Economizer takes up zero whitespace in the data center, enabling IT managers to utilize the space to increase capacity without needing to use any of that space for additional cooling units.

# Heat Exchange

## Air-to-Air Heat Exchange

The Ecoflair Indirect Air Economizer uses sensors to determine the ambient air temperature and automatically switch between dry mode and wet mode. Air-to-air heat exchange is the dry mode and only requires the power of the fans to move the air (extremely energy efficient). The energy efficient outside air fan modulates airflow across the heat exchanger to maintain the IT supply air setpoint.

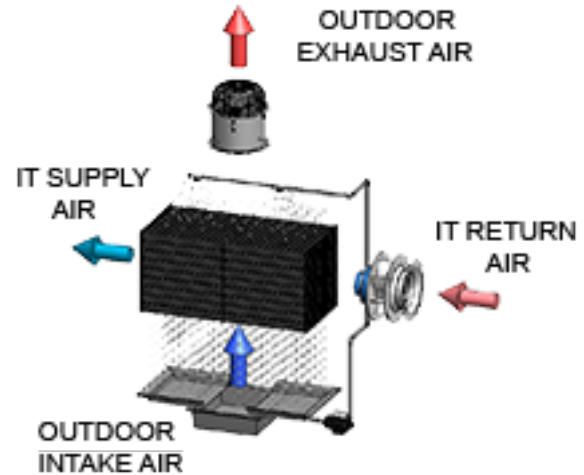
- When ambient air drops below 4.4°C (40°F) the system water is drained to prevent freezing. The system water will also be drained if the water concentration is too high to be diluted to a usable state or if the water in the basin has been stagnant for a set period of time.
- Only the fans are required to move the air.
- Cool air passes over the outside of the heat exchanger channels, cooling the hot IT air flowing inside.



## Indirect Evaporative Cooling (IEC)

The Ecoflair Indirect Air Economizer uses sensors to determine the ambient air temperature and automatically switch between dry mode and wet mode. Indirect evaporative cooling is the wet mode and allows for economizing in hot, dry climates. Unevaporated water is collected in the basin and recirculated through the water system. The conductivity meter in the basin maintains optimal water conditions.

- Heat is removed from the IT air by evaporating water on the outside of the heat exchanger channels.
- Water is supplied evenly over the heat exchanger channels via spray nozzles.
- The adjustable IT supply air setpoint is maintained.



## Trim Cooling

The optional trim cooling circuit is available in two options: refrigerant system (DX) or chilled water system (CW).

### DX System

If ambient conditions do not allow evaporative cooling to meet the supply air temperature setpoint, the Ecoflair Indirect Air Economizer equipped with a refrigeration system option can provide supplemental cooling to assist in reaching the supply air temperature setpoint. The DX trim cooling option is available in two options: one compressor on one circuit or two compressors on two circuits offering nominal cooling capabilities of up to 75 kW or 125 kW, respectively, in a proportional control method. When assistance from the refrigerant circuit is requested by the controller, the circuit will start at its lowest compressor speed of 25 Hz. If the system begins to overcool (supply air temperature is less than the supply air setpoint) at this compressor speed, the outdoor air (OA) fans will begin to slow down to regulate the supply air temperature. If the lowest compressor speed is not enough to sufficiently cool the air to the supply air setpoint, the OA fans will remain at maximum speed and the compressor speed will be increased incrementally until the supply air setpoint is met or the compressors reach their maximum speed.

- Brushless, variable-speed compressors allow for optimal efficiency
- Supplements evaporative cooling to maintain the supply air temperature setpoint
- Uses R410A refrigerant



If more information is required on the performance of the DX system in your application, contact your local Schneider Electric representative.

### Chilled-Water System

The chilled water circuit is located downstream from the IEC heat exchanger.

- Available with a 2-way valve or 3-way valve configuration
- Internal piping and valves will be insulated in the factory
- Coil size can vary based on trim cooling need, inlet chilled water temperature, and water flow rate



If more information is required on the performance of the CW system in your application, contact your local Schneider Electric representative.

# Operation Modes

## Water Saver

If **Water Saver** is enabled in the **Main > AC > Setup** screen, water system operation is suspended when dry operation is sufficient for the cooling demand. This may be a higher ambient air temperature than the usual 4.4°C (40°F) transition to dry mode. When **Water Saver** mode is enabled, the unit will not switch to wet mode until the **Wet Operate Temperature Setpoint** has been exceeded and the outdoor air (OA) fan speed exceeds 65% of the maximum fan speed for a length time that varies and is calculated by the controller.

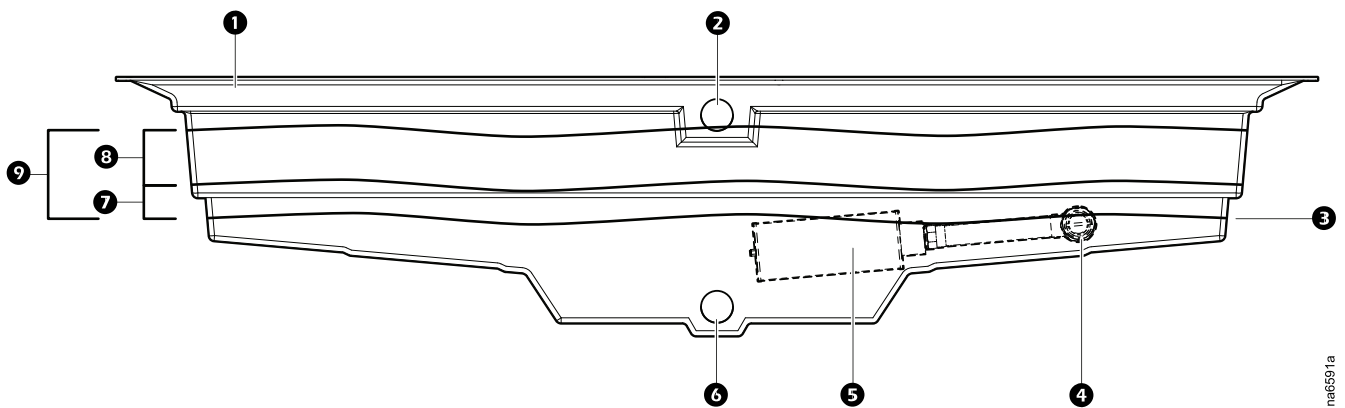
The consequence of using **Water Saver** mode is a higher OA fan speed with the resulting higher energy consumption. By default, **Water Saver** mode is disabled.

## Water Operation Reserve Time

The **Water Operation Reserve Time** determines how much water is maintained in the water basin to provide continual wet operation of the Ecoflair Indirect Air Economizer in case of short-term loss of the main water supply. The user can select to maintain the water in the basin at a volume to provide between 0 and 30 minutes nominally of continuous wet operation if the water supply is lost. This is a volume of water that is always available for use even when the water supply is operational. **Water Operation Reserve Time** is set in the **Service** menus and should only be changed by qualified personnel.

Depending on the value set for **Water Operation Reserve Time**, the water level will be maintained between 337 l (89 gal) and 488 l (129 gal). The water volume at which the water circulation pump will stop operation is 261 l (69 gal). The volume of water maintained in the water basin is calculated by the volume difference of the minimum maintained level and the pump operation stop level based on a nominal water usage rate of 0.13 l/s (2 gpm). For example, if 10 minutes is entered for the **Water Operation Reserve Time** setting, then the basin will be maintained at a water reserve volume level of 76 l (20 gal) above the pump suction connection in order to be able to provide a nominal 10 minutes of wet operation during a loss of water supply.

In wet mode, the water level is regulated between this calculated minimum level and the maximum capacity of the water basin.



na6591a

Item	Description	Item	Description
1	Water basin	6	Drain port
2	Water overflow port	7	Water reserve time volume (always available for use)
3	Minimum required water level	8	Operational water volume
4	Pump suction connection	9	Total usable water volume
5	Water strainers—#20 mesh		

## Standard Features

- Right-hand unit (IAEC25\*\*\*\* unit)
- Frame
  - Self-supporting frame with sectional lifting eyes made from galvanized steel with panels finished in epoxy powders (RAL9022)
  - Access panels with single handle and dual locking mechanism for easy access
  - Fiber reinforced plastic roof panels and vestibule flooring with skid resistant surface
  - Fiber reinforced ambient air intake grilles
  - IT air containment made with double-lined construction and insulated internal air sleeve with an air gap to separate the area from exterior panels for maximum R-value
- Requires zero white space inside the data center
  - The Ecoflair Indirect Air Economizer is installed outside the data center. Since the unit only requires power and water connections, it can be installed in either a perimeter or rooftop configuration based on the layout of the building design. The cooled air is then ducted into the IT space.
- Air flow configuration
  - Straight-thru
- Display language
  - English
- IEC core
  - Modular, field-serviceable, heat exchanger
  - Made from corrosion-proof polymer materials
- Power supply
  - 400 V/3 Ph/50 Hz
  - 460 V/3 Ph/60 Hz
- Cooling capacity
  - (up to) 250-kW for IAEC25\*\*\*\* units
  - (up to) 500-kW for IAEC50\*\*\*\* unit
- Electronically commutated (EC) fans
  - The IT fans are single-inlet centrifugal fans with electronically commutated (EC), backward-curved fan blades made from a composite material. The EC motor is synchronized with electronically commutated permanent magnets that generate the magnetic field. The commutation is electronically made by a power transistor, which uses no mechanical elements to cause wear and tear that can potentially reduce the lifespan of the motor.
- Acoustic-composite fans
  - The OA fans are modulating, acoustic-composite axial fans with sickle blades made from composite material. The fans are equipped with airflow optimization chimneys for higher efficiency and lower acoustic impact.
- IT fan regulation
  - Automatic
    - The IT fans receive a speed percentage command from the unit controller, which receives information from the BMS or equivalent, based on the differential pressure in the data center. The speed of the IT fans is regulated to maintain the differential pressure setpoint in the data center.
  - Manual
    - The IT fans operate at a given fan speed percentage provided by the user.



- Water system
  - Single pump and no water treatment
  - The onboard water system provides a water basin to collect unevaporated water, air-gap water input, a gravity system for waste water drain, and a recirculation system to reuse water from the basin
  - The system provides a strainer on the main line pump intake
  - Water basin is made from non-corrosive materials and equipped with an automatic conductivity control system
  - The water system is drained when the ambient temperature drops below 4.4°C (40°F) to prevent freezing
- Low ambient temperature version
  - –15°C (5°F) ambient temperature
- External static pressure (ESP)
  - Standard
    - 250 Pa (1 in. WC) for IT fans
    - 0 Pa (0 in. WC) for outdoor air (OA) fans
- Monitoring options
  - Unit air volume
- Electrical panel
  - Conforms to Low Voltage Directive, Electromagnetic Compatibility Directive (EMC), and IP54/IP55 rated
  - Equipped with power cut-off switch, Buss bar distribution for power supply, maximum internal temperature control, magneto-thermal cut-off switches, sequence phase, and minimum/maximum power supply monitoring
- Controller
  - Schneider Electric controls with a height-adjustable, seven-inch, touch screen display interface
  - Modbus protocol standard
  - Provides IT air temperature regulation, operational mode management, advanced antifreeze protection and water system management, compressor timing and protection, and pump rotation options
  - USB connection for data downloading and service access
  - Quick restart procedures to attain total economizer cooling capacity upon restart
- Electrical heat tape and insulation for internal water supply piping
- Service vestibule lighting
- Power disconnect button

## Optional Features

### Assemble-to-Order (ATO)

- Left-hand unit (IAEC25\*\*\* unit)
- Trim cooling
  - up to 125-kW DX
    - Factory piped, evacuated, and charged
    - Proportional DX circuits
    - Two R410A refrigerant circuits constructed from copper tubes and equipped with filter driers, sight glasses, pressure switches, transducers, and receiver and electronic expansion valves
    - Air-cooled condenser coils with micro-channel construction and corrosion protection coating
    - Cooling coil mounted downstream from the heat exchanger constructed from copper tubes expanded into hydrophilic aluminum fins with a stainless steel condensate drain pan and flexible drain hoses
- Power supply
  - Dual power supply with Schneider Electric source changeover switch and power disconnect button
- Air filters
  - MERV 8/EU4 for IT fans
  - MERV 4/EU1 for OA fans
- Monitoring options
  - IT pressure (HACS or CACS pressure)

## Engineered-to-Order (ETO)

- Redundant pumps and check valves
- Return dampers/supply dampers
- Water treatment system
  - A chemical-free, pulse-powered water treatment system to maintain low levels of mineral content and bacteria in the water system.
- Air flow configuration
  - Bottom flow—perimeter
  - Bottom flow—roof mounted
  - Side flow—perimeter
- Display languages
  - Italian
  - French
  - German
  - Spanish
  - Simplified Chinese
- Trim cooling
  - up to 75-kW DX
    - Single proportional DX circuit
    - One R410A refrigerant circuit constructed from copper tubes and equipped with filter drier, sight glass, pressure switch, transducer, and receiver and electronic expansion valves (EEV)
    - Air-cooled condenser coils with micro-channel construction and corrosion protection coating
    - Cooling coil mounted downstream from the heat exchanger constructed from copper tubes expanded into hydrophilic aluminum fins with a stainless steel condensate drain pan and flexible drain hoses
  - Chilled water circuit
    - With 2-way or 3-way valves
    - Cooling coil mounted downstream from the heat exchanger constructed from copper tubes expanded into hydrophilic aluminum fins with a stainless steel condensate drain pan and flexible drain hoses
  - Heat reclaim
    - Cooling coil mounted upstream from the heat exchanger constructed from copper tubes expanded into aluminum fins
- Power supply
  - Single power supply with power monitoring
  - Dual power supply for essential and non-essential power feeds (no source changeover switch)
  - Dual power supply for essential and non-essential power feeds with power monitoring (no source changeover switch)
  - Dual power supply with Schneider Electric source changeover switch, power monitoring, and power disconnect button
- Noise option/temperature version
  - Quiet fans
    - –15°C (5°F) ambient temperature
  - Ultra Quiet fans
    - –15°C (5°F) ambient temperature
  - Basic fans
    - –40°C (–40°F) low ambient temperature
  - Quiet fans

- –40°C (–40°F) low ambient temperature
- Ultra Quiet fans
  - –40°C (–40°F) low ambient temperature
- Air filters
  - MERV 4/EU1 for outside air (OA) fans
  - MERV 8/EU4 for IT fans
- Monitoring options
  - Water consumption
  - IT pressure
- External static pressure (ESP)
  - High ESP on OA fans
  - High ESP on IT fans
  - High ESP on OA and IT fans
- Controller
  - No controls
- Service options
  - Electrical service receptacle (customer powered)
  - Electrical service receptacle (unit powered)
  - Return air compartment overhead rail
    - Overhead rail used to assist in removing heavy components in the service vestibule.
- Safety options
  - Roof safety rails
  - Roof access safety ladder

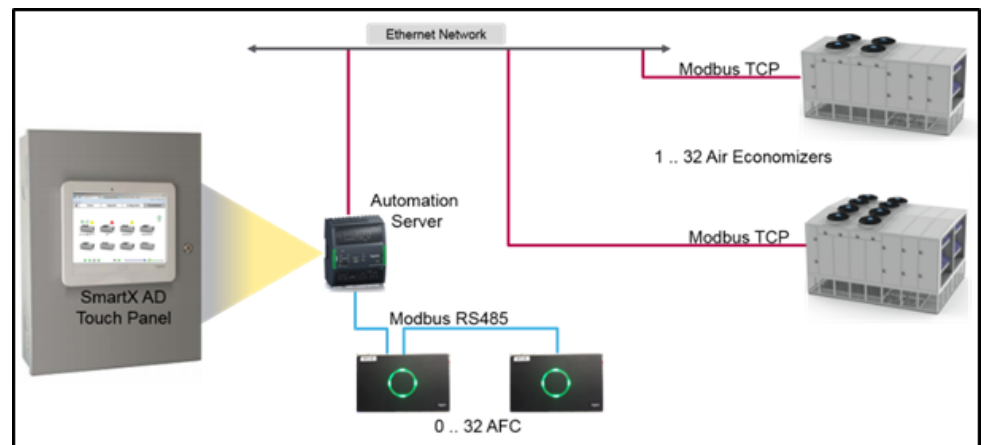
## Accessories

- Active Flow Controller:
- Group controller:

### Group Controller

The group controller is based on the use of the Automation Server as a multipurpose controller to act as data aggregator, Web server, configuration monitor, PID controller, and user interface for the system. The Automation Server has multiple purposes in the solution:

- Data aggregator to read data (temperature, setpoints, configuration data) from one or more Ecoflair Indirect Air Economizers (IAEC)
- Data aggregator to read pressure readings from one or more Air Flow Controller (AFC) devices
- Web server to provide a user interface to a touch-screen display interface connected directly to the Automation Server
- Configuration monitor to validate various settings in each IAEC or AFC to determine that all systems stay synchronized
- PID controller using data read from both the AFC and IAEC



## Equipment Guidelines

### Working Conditions and Environmental Limits

<b>Limit Working Conditions</b>	
Power supply	400 V/ 3 ph/ 50 Hz (TN) 460 V/ 3 ph/60 Hz 380 V/ 3 ph/60 Hz 575 V/ 3 ph/60 Hz
Lighting power supply	230 V/1 ph/50 Hz (TN) 115 V/1 ph/60 Hz
Refrigerant type	R410A
Compressor oil type	POE oil 160sz
Voltage input tolerance*	-5% / +10%
Ambient temperature**	-15°C to +50°C (5°F to +122°F) Optional: -40°C to +50°C (-40°F to +122°F)
Ambient %RH	0 to 100%RH
Altitude	-150 meters below to 3500 meters above sea level (-492 feet below to 11,483 feet above sea level)
IT room conditions (temperature/humidity)	Temperature: 18°C to 40°C (65°F to 104°F) Relative humidity: 30% to 70% and humidity ratio 5 to 12 grains/kg
Maximum inlet dew point	15°C (59°F)
<b>Storage Conditions</b>	
Temperature	-30°C (-22°F) to 80°C (176°F)
Humidity	<85%RH

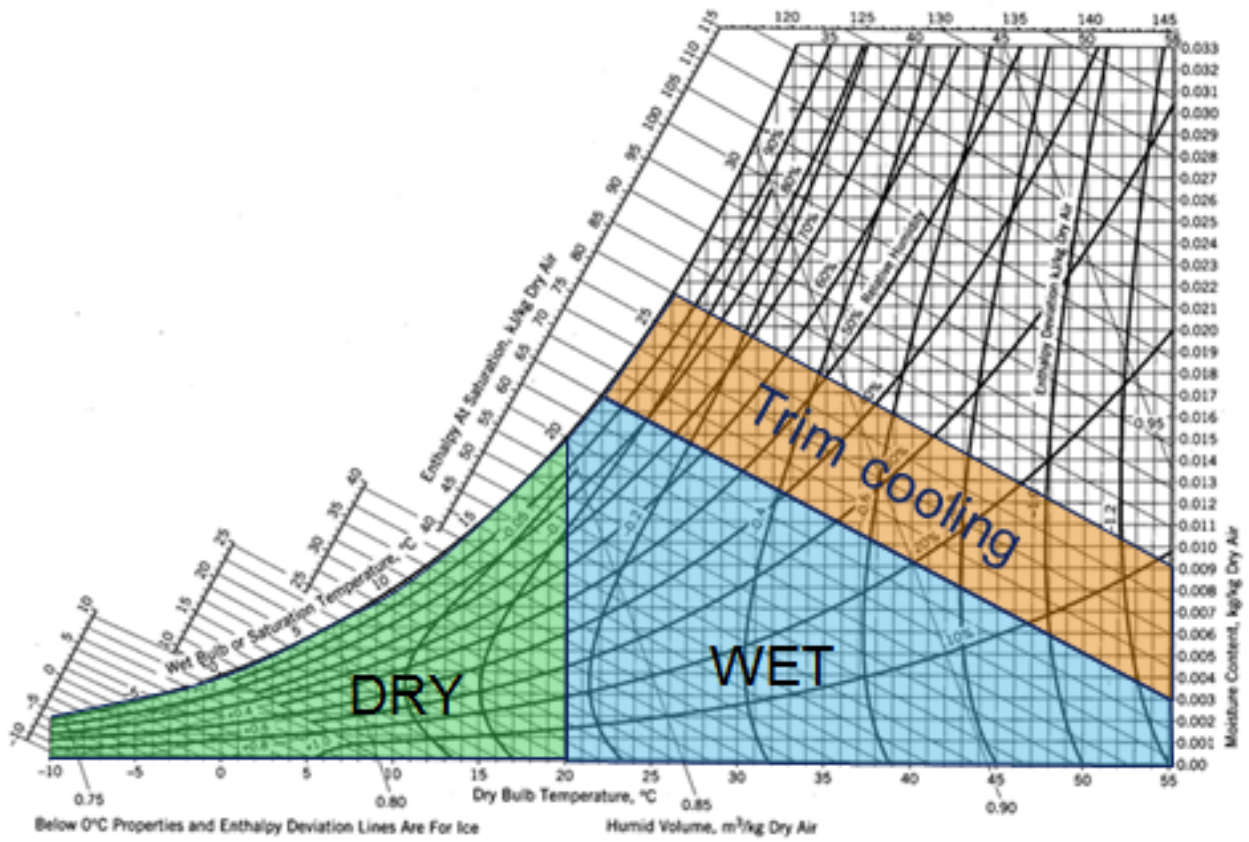
\*In accordance with the Standard Electromagnetic Compatibility (EMC): CEI EN 61000-4-11:2006-02, EN 61000-4-11:2004-08, IEC 61000-4-11:2004-03, FCC

\*\*Maximum temperature for IT return air is 40°C (104°F).

### Operating Limits



See *Heat Exchange*, page 9 for more information on types of cooling.



## Voltage, Frequency, and THD Limits

- Voltage: Intended operating voltage and frequency

Nominal Input Voltage	Frequency – Hz	Phases	Operating Voltage Range
400 VAC	50	3	360 VAC/440 VAC
460 VAC	60	3	456 VAC/504 VAC
575 VAC	60	3	570 VAC/600 VAC

- Equipment includes monitoring for the following
  - Missing phase
  - Sequence phase
- Frequency
  - 0.99 to 1.01 of nominal frequency continuously; 0.98 to 1.02 short time.
- Harmonics distortions: Units should operate correctly within certain limits of THD values. Best practices indicate 5% of the pick as an admitted value for THDu.
- THDu: Harmonic distortion not exceeding 10 % of the total r.m.s. voltage between live conductors for the sum of the 2<sup>nd</sup> through to the 30<sup>th</sup> harmonic.
- Voltage unbalance: Neither the voltage of the negative sequence component nor the voltage of the zero-sequence component in three-phase supplies exceeding 2% of the positive sequence component.
- Voltage interruption: Supply interrupted or at zero voltage for no more than three (3) milliseconds at any random time in the supply cycle with more than one (1) second between successive interruptions.
- Voltage dips: Voltage dips not exceeding 20% of the peak voltage of the supply for more than one cycle with more than one (1) second between successive dips.
- Reference standards
  - UL1995
  - 60335-2-40
  - EN 60204
  - NEC 70
  - NEC 79
  - ANSI C84.1
  - EN 50160
  - EN/IEC 61000-6-2
  - EN/IEC 61000-6-4
  - FCC Title 47



## Water Quality

The quality of the water used for the Ecoflair™ Indirect Air Economizer evaporative cooling system can impact both the system performance and maintenance requirements. While it may be possible to utilize an alternative water source when combined with an appropriate treatment strategy, Schneider Electric does not provide guidance in this regard.

The Ecoflair™ Indirect Air Economizer unit has been extensively tested by Schneider Electric for use with domestic, potable water supplies, and the materials selected for construction in the wet areas were specifically selected to sustain prolonged wet operational periods if proper maintenance of the water supply is performed. The use of diluted mixtures of chlorine (free chlorine maintained from 0.5 to 2.0 ppm for supply water with pH ≤ 8) is acceptable and will not affect the life expectancy of this equipment. The use of other oxidizing or non-oxidizing biocides has not been tested by Schneider Electric.

Any other chemical or water treatment used should be safe for use with the following materials used in the Ecoflair wet areas:

- PVC, Polypropylene, ABS
- Stainless steel 304
- Stainless steel 316
- Painted and zinc coated steel

Each Ecoflair™ Indirect Air Economizer unit should be enrolled in a water monitoring program by the customer for the life of the equipment. The proper establishment of a water monitoring program is the responsibility of the customer and may be governed under local, state or federal laws. The Ecoflair™ Indirect Air Economizer operates in the same manner as an Open-Recirculating Cooling Tower. The following 3<sup>rd</sup> party resources can be used in the creation of a water-monitoring program.

1. Cooling Tower Institute

*www.CTI.org*

- Guidelines for Evaluation of Cooling Tower Treatment Effectiveness—WTG-130
- Application of Oxidizing Biocides—WTP-141
- Corrosion Testing Procedures—STD-149
- Legionellosis—WTB-148

2. NSF International (formerly National Sanitation Foundation)

- NSF P453: Cooling Towers—Treatment, Operation, and Maintenance to Prevent Legionellosis

3. ASHRAE

Standard 188P—Prevention of Legionellosis Associated with Building Water Systems

4. Association of Water Technologies

*www.awt.org*

**IMPORTANT:** Schneider Electric does not own, operate, or endorse any of these independent companies and organizations. This resource is provided for the customers convenience only and should not be considered “all inclusive.”

### General Recommendation for Quality of Inlet Water from Potable Source

Contaminant	US EPA Secondary Standard (SMCL)	Recommended Best Practices for Potable Make-Up Water Quality
pH – ppm	6.5–8.5	6.8-7.8
Total Dissolved Solids (TDS) – ppm	500	100
Total Hardness – ppm as CaCO <sub>3</sub>	–	80-100
Chlorides – ppm	250	20-30
Sulfates – ppm	250	30-40
Silica – ppm	–	<5
Other Metals (Iron, Aluminum, etc.)	*	Should not exceed regulated limits
Turbidity	–	Zero

\*See <https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemical>.

# Performance Specifications

## Cooling Capacity Data

The following data is based on these conditions:

- Supply air setpoint : 25°C (77°F)  
**NOTE:** The supply air temperature was allowed to rise as high as 25.8°C (78.4°F). No additional trim cooling was required at these conditions.
- Outdoor air dry bulb temperature: 22°C (71.6°F)
- Outdoor air wet bulb temperature: 19°C (66.2°F)
- Airflow: 55 455 m<sup>3</sup>/hr (32,640 CFM) for IAEC25\*\*\* units
- Airflow: 110 911 m<sup>3</sup>/hr (65,280 CFM) for IAEC50\*\*\* units

Delta T – °C (°F)	Net Sensible Cooling Capacity – kW (ton)	
	IAEC25***	IAEC50***
<b>Altitude: 0 m (0 ft)</b>		
10 (18.0)	185 (52.6)	371 (105.5)
12 (21.6)	222 (63.1)	445 (126.5)
14 (25.2)	256 (72.8)	513 (145.9)
16 (28.8)	283 (80.5)	566 (161.0)
<b>Altitude: 250 m (820 ft)</b>		
10 (18.0)	180 (51.2)	361 (102.6)
12 (21.6)	216 (61.4)	434 (123.4)
14 (25.2)	253 (71.9)	504 (143.3)
16 (28.8)	278 (79.0)	557 (158.4)
<b>Altitude: 500 m (1640 ft)</b>		
10 (18.0)	175 (49.8)	351 (99.8)
12 (21.6)	210 (59.7)	420 (119.4)
14 (25.2)	245 (70.0)	489 (139.0)
16 (28.8)	275 (78.2)	549 (156.1)
<b>Altitude: 750 m (2460 ft)</b>		
10 (18.0)	169 (48.1)	338 (96.1)
12 (21.6)	204 (58.0)	409 (116.3)
14 (25.2)	237 (67.4)	473 (134.5)
16 (28.8)	265 (75.4)	530 (150.7)

## General Data

Unit Data	IAEC25*** Unit	IAEC50*** Unit
<b>Connection Sizes – mm (in.) OD – Nominal</b>		
Supply water inlet – mm (in.) (factory-supplied brazed union)	42 (1.7) x 1	42 (1.7) x 2
Water drain – mm (in.) (factory-supplied brazed union)	54 (2.1) x 1	54 (2.1) x 2
<b>Operating Temperature</b>		
Maximum Ambient Operating Temperature – °C (°F)	50°C (122°F)	50°C (122°F)
Minimum Ambient Operating Temperature – °C (°F)	-15°C (5°F)	-15°C (5°F)
<b>Number of Refrigeration Circuits</b>		
75-kW DX trim cooling	1	N/A
125-kW DX trim cooling	2	2
250-kW DX trim cooling	N/A	4
<b>Refrigerant Data</b>		
Type of Refrigerant	R410A	R410A
System Charge per Circuit – kg (lb)	15.4 (34)	15.4 (34)
<b>Number of Compressors**—Variable Frequency Drive Scroll Compressor (25–100 Hz)</b>		
75-kW DX trim cooling	1	N/A
125-kW DX trim cooling	2	2
250-kW DX trim cooling	N/A	4
<b>Water Data†</b>		
Volume of Each Water Basin – l (gal)	673.8 (178)	673.8 (178) x 2
Recommended Water Inlet Flow – l/s (GPM)	1.6–1.9 (25–30)	1.6–1.9 (25–30)
Maximum Water Inlet Pressure – bar (PSIG)	5.5 (85)	5.5 (85)
<b>Filter Data (MERV 8/EU4)</b>		
Quantity	12	24
Size – mm (in.)	784 x 492 (30.9 x 19.4)	784 x 492 (30.9 x 19.4)
Depth – mm (in.)	95 (3.74)	95 (3.74)
<b>IT Fan Data</b>		
Quantity	4	8
Maximum Air Volume* – m <sup>3</sup> /hr (ACFM)	13 864 (8160)	13 864 (8160)
<b>OA Fan Data</b>		
Quantity	4	8
Air Volume* – m <sup>3</sup> /hr (ACFM)	8495 (5000)	8495 (5000)

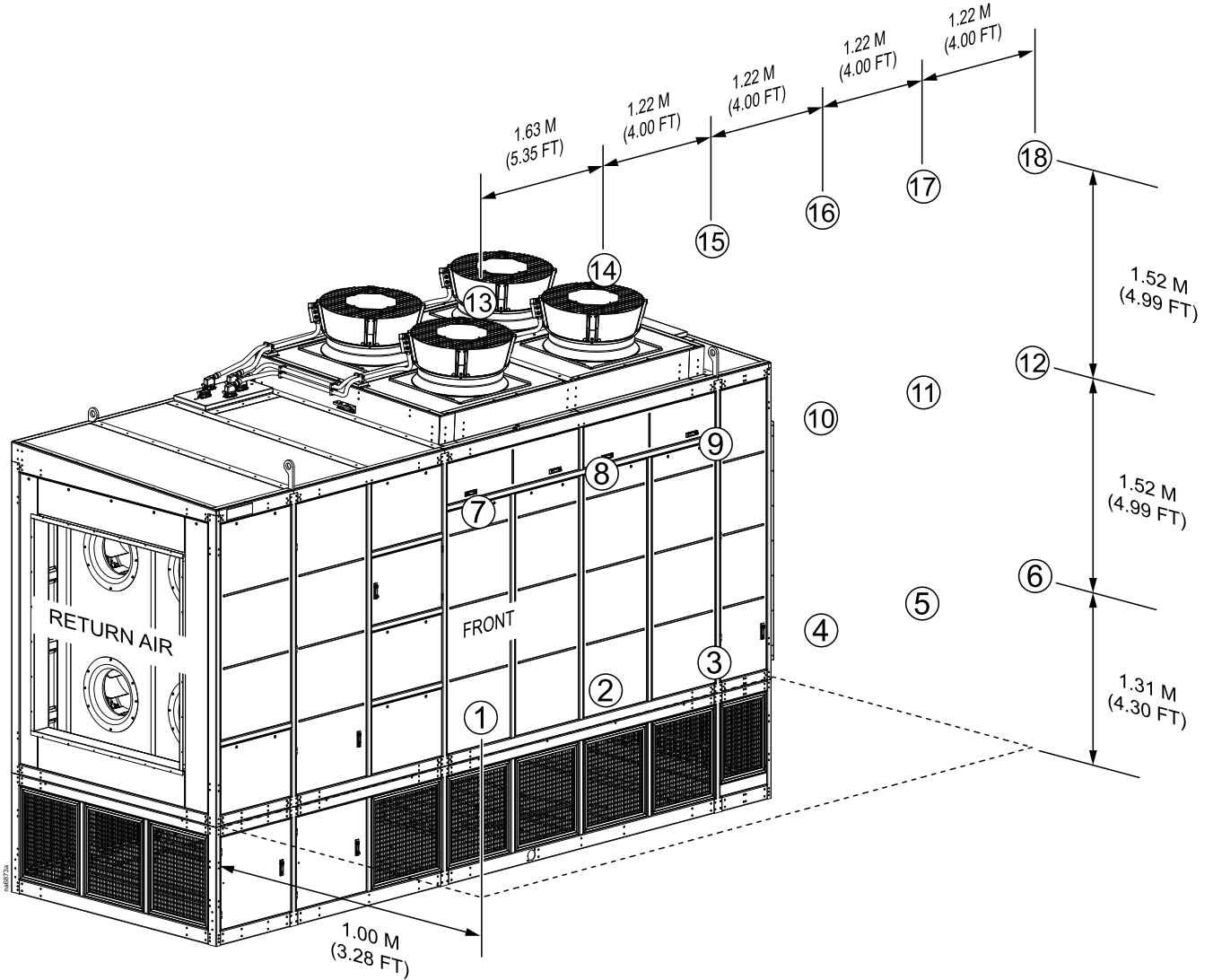
\* Per fan

\*\* Per circuit

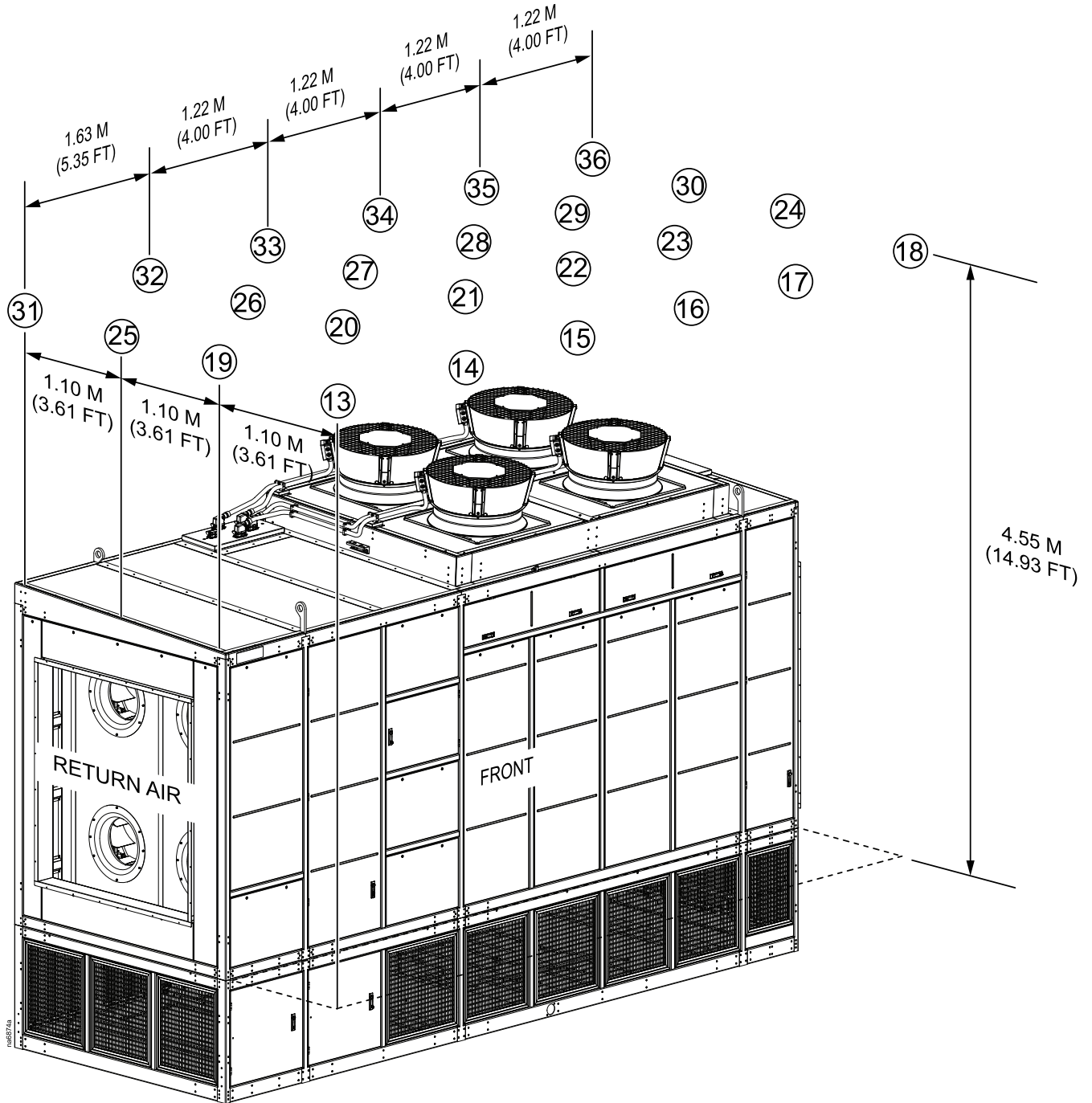
† Per IAEC25\*\*\* unit

Sound Data

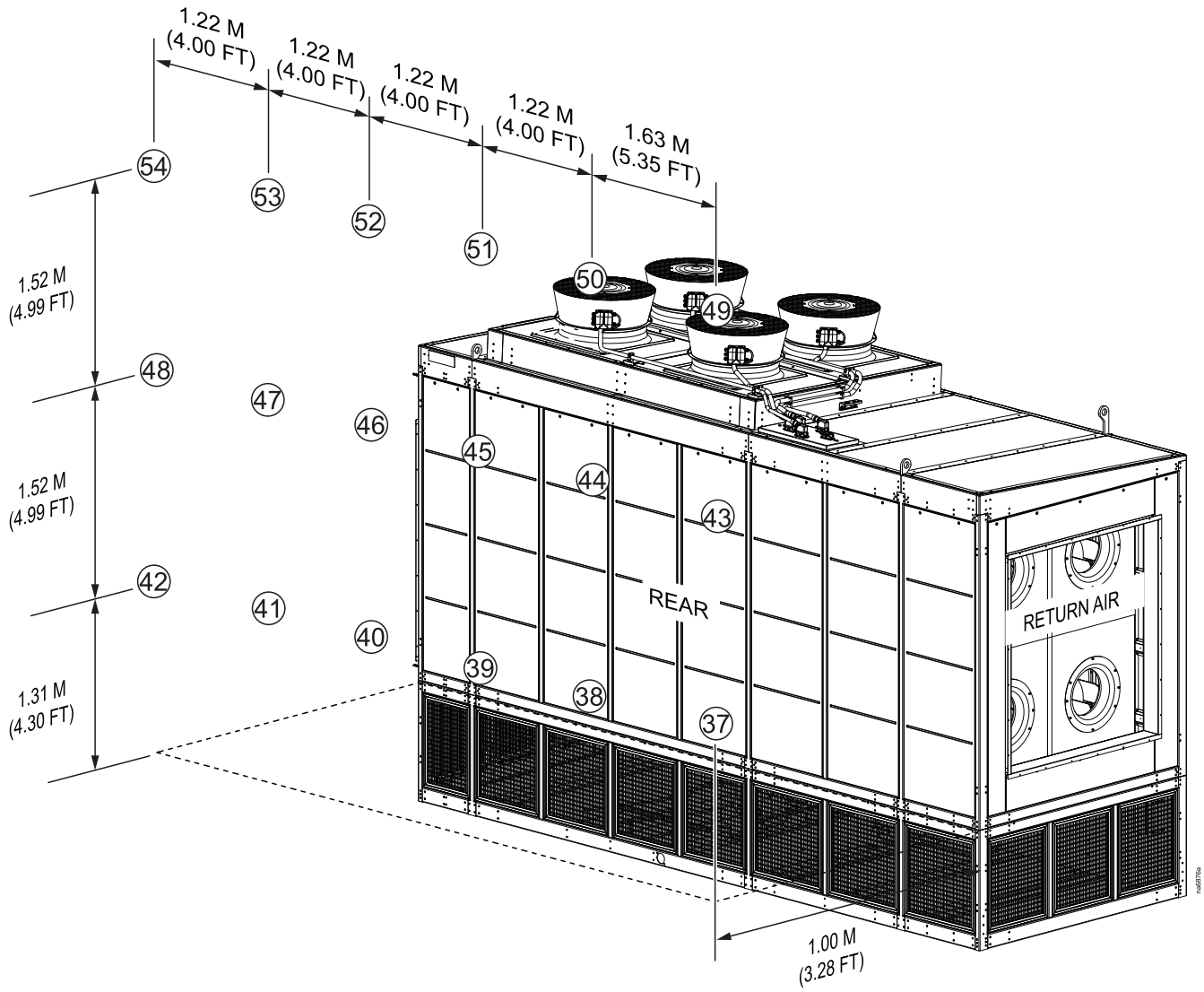
- Unit testing conditions
  - Microphones located on front and rear sides are 1.1 m (3.6 ft) from the front and rear faces of the unit
  - Unit operating in wet mode with water pump on
  - IT airflow: 40 000 m<sup>3</sup>/hr (23,543 ACFM)
  - OA fan speed: 1060 rpm
  - DX circuit 1: Circuit on at 100 Hz
  - DX circuit 2: Circuit on at 100 Hz



Microphone Position	Sound Pressure Level – db(A)	Microphone Position	Sound Pressure Level – db(A)	Microphone Position	Sound Pressure Level – db(A)
1	68.6	7	74.9	13	71.6
2	70.1	8	75.7	14	75.1
3	70.2	9	76.5	15	78.0
4	70.1	10	78.6	16	79.2
5	70.3	11	78.3	17	78.4
6	69.5	12	77.8	18	76.1



Microphone Position	Sound Pressure Level – db(A)	Microphone Position	Sound Pressure Level – db(A)	Microphone Position	Sound Pressure Level – db(A)
19	70.5	25	70.8	31	69.9
20	74.9	26	74.7	32	73.6
21	80.3	27	80.7	33	78.1
22	82.3	28	83.9	34	81.4
23	82.5	29	84.3	35	81.4
24	77.4	30	78.5	36	76.4



Microphone Position	Sound Pressure Level – db(A)	Microphone Position	Sound Pressure Level – db(A)	Microphone Position	Sound Pressure Level – db(A)
37	69.2	43	70.1	49	71.4
38	70.0	44	72.0	50	74.1
39	69.5	45	73.9	51	76.4
40	69.9	46	74.7	53	77.9
41	69.7	47	74.1	53	77.6
42	69.7	48	72.8	54	75.5

## Electrical Data

### Single Power Supply—IAEC25\*\*\* Units

Model	Trim Cooling	Voltage	MCA	MOP	FLA	FLI (kW)	Power Factor
IAEC25*0A	None	400 V	N/A	N/A	63.2 A	40.7	0.93
IAEC25*0G	None	460 V	54.7 A	60.0 A	53.1 A	39.3	0.93
IAEC25*1A	125-kW DX	400 V	N/A	N/A	131.2 A	84.5	0.93
IAEC25*1G	125-kW DX	460 V	122.9 A	150.0 A	115.8 A	85.8	0.93
IAEC25*1A	75-kW DX	400 V	N/A	N/A	97.2 A	62.6	0.93
IAEC25*1G	75-kW DX	460 V	91.9 A	110.0 A	84.8 A	62.8	0.93

MCA: Minimum current ampacity  
 MOP: Maximum overcurrent protection  
 FLA: Full load amps  
 FLI: Full load input

**NOTE:** Standby current is less than five (5) amps for all models.

**NOTE:** Locked rotor amps (LRA) does not apply to these units: compressors are VFD driven and fans are electronically commutated.

**NOTE:** '\*' represents the airflow direction.

**NOTE:** An IAEC50\*\*\* unit is two IAEC25\*\*\* units with individual power connections. Data provided for an IAEC25\*\*\* unit will apply to each half of an IAEC50\*\*\* unit.

### Double Power Supply with Source Changeover—IAEC25\*\*\* Units

Model	Trim Cooling	Voltage	MCA	MOP	FLA	FLI (kW)	Power Factor
IAEC25*0A	None	400 V	N/A	N/A	65.7 A	42.3	0.93
IAEC25*0G	None	460 V	56.9 A	60.0 A	53.8 A	39.9	0.93
IAEC25*1A	125-kW DX	400 V	N/A	N/A	133.7 A	86.1	0.93
IAEC25*1G	125-kW DX	460 V	125.0 A	150.0 A	117.9 A	87.4	0.93
IAEC25*1A	75-kW DX	400 V	N/A	N/A	99.7 A	64.2	0.93
IAEC25*1G	75-kW DX	460 V	94.0 A	125.0 A	86.9 A	64.4	0.93

MCA: Minimum current ampacity  
 MOP: Maximum overcurrent protection  
 FLA: Full load amps  
 FLI: Full load input

**NOTE:** Standby current is less than five (5) amps for all models.

**NOTE:** Locked rotor amps (LRA) does not apply to these units: compressors are VFD driven and fans are electronically commutated.

**NOTE:** '\*' represents the airflow direction.

**NOTE:** An IAEC50\*\*\* unit is two IAEC25\*\*\* units with individual power connections. Data provided for an IAEC25\*\*\* unit will apply to each half of an IAEC50\*\*\* unit.



### Double Power Supply Without Source Changeover—IAEC25\*\*\*

Model	Trim Cooling	Voltage	Economizer Only Load				
			MCA	MOP	FLA	FLI (kW)	Power Factor
IAEC25*1A	125-kW DX	400 V	N/A	N/A	63.2 A	40.7	0.93
IAEC25*1G	125-kW DX	460 V	54.7 A	60.0 A	53.1 A	39.3	0.93
IAEC25*1A	75-kW DX	400 V	N/A	N/A	63.2 A	40.7	0.93
IAEC25*1G	75-kW DX	460 V	54.7 A	60.0 A	53.1 A	39.3	0.93

Model	Trim Cooling	Voltage	DX Load				
			MCA	MOP	FLA	FLI (kW)	Power Factor
IAEC25*1A	125-kW DX	400 V	N/A	N/A	68.0 A	43.8	0.93
IAEC25*1G	125-kW DX	460 V	69.8 A	100.0 A	62.0 A	45.9	0.93
IAEC25*1A	75-kW DX	400 V	N/A	N/A	34.0 A	21.9	0.93
IAEC25*1G	75-kW DX	460 V	38.8 A	60.0 A	31.0 A	23.0	0.93

MCA: Minimum current ampacity  
MOP: Maximum overcurrent protection  
FLA: Full load amps  
FLI: Full load input

Standby current is less than five (5) amps for all models.

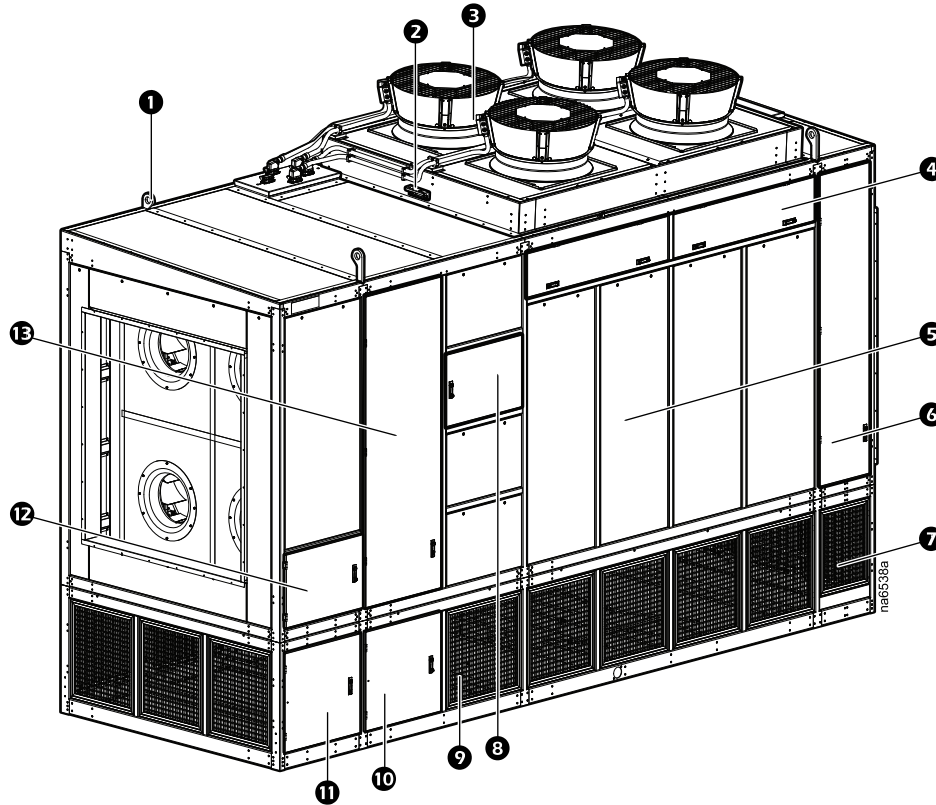
Locked rotor amps (LRA) does not apply to these units: compressors are VFD driven and fans are electronically commutated.

\*\*\* represents the airflow direction.

An IAEC50\*\*\* unit is two IAEC25\*\*\* units with individual power connections. Data provided for an IAEC25\*\*\* unit will apply to each half of an IAEC50\*\*\* unit.

# Component Identification

## External Components



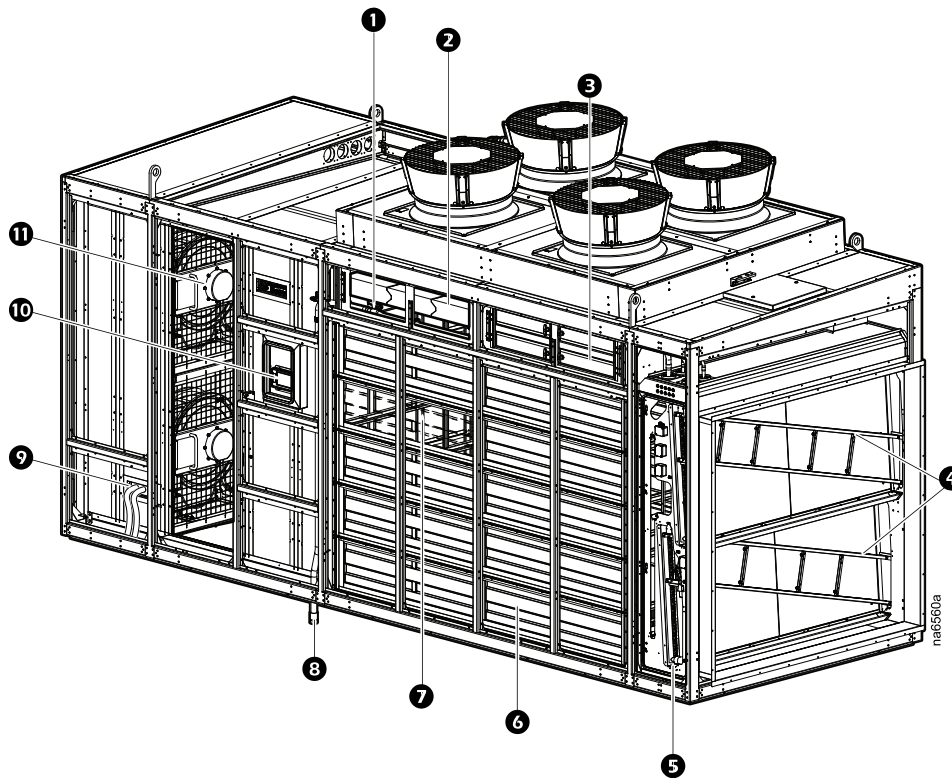
Item	Description	Item	Description
1	Lifting lugs	8	Display interface access*
2	Service personnel tie-off point (one on each side of OA fan section)	9	Air mesh panel—upper-to-lower connections access <ul style="list-style-type: none"> <li>• Water grooved coupling connection</li> <li>• Lighting power quick connection</li> <li>• Communication connection</li> </ul>
3	Outdoor air electronically commutated fans (OA EC fans)	10	Lower section power distribution and customer connections access
4	Mist eliminator and evaporative spray nozzles access	11	Main power connections
5	External panels	12	Main power quick connection access and main power disconnect switch
6	Supply air section and DX trim cooling access (if DX trim cooling option is installed)	13	Service vestibule <ul style="list-style-type: none"> <li>• VSD compressors</li> <li>• Electrical panel</li> <li>• Filters (optional)</li> <li>• IT fans</li> </ul>
7	Air mesh panel—DX condensate drain hose connection and water connection access (if DX trim cooling option is installed)		

\*For IAEC50\*\*\* units, the display interface will be on the main module only

NOTE: A right-hand unit is shown: components are mirrored for a left-hand unit.

# Internal Components

## Upper Section

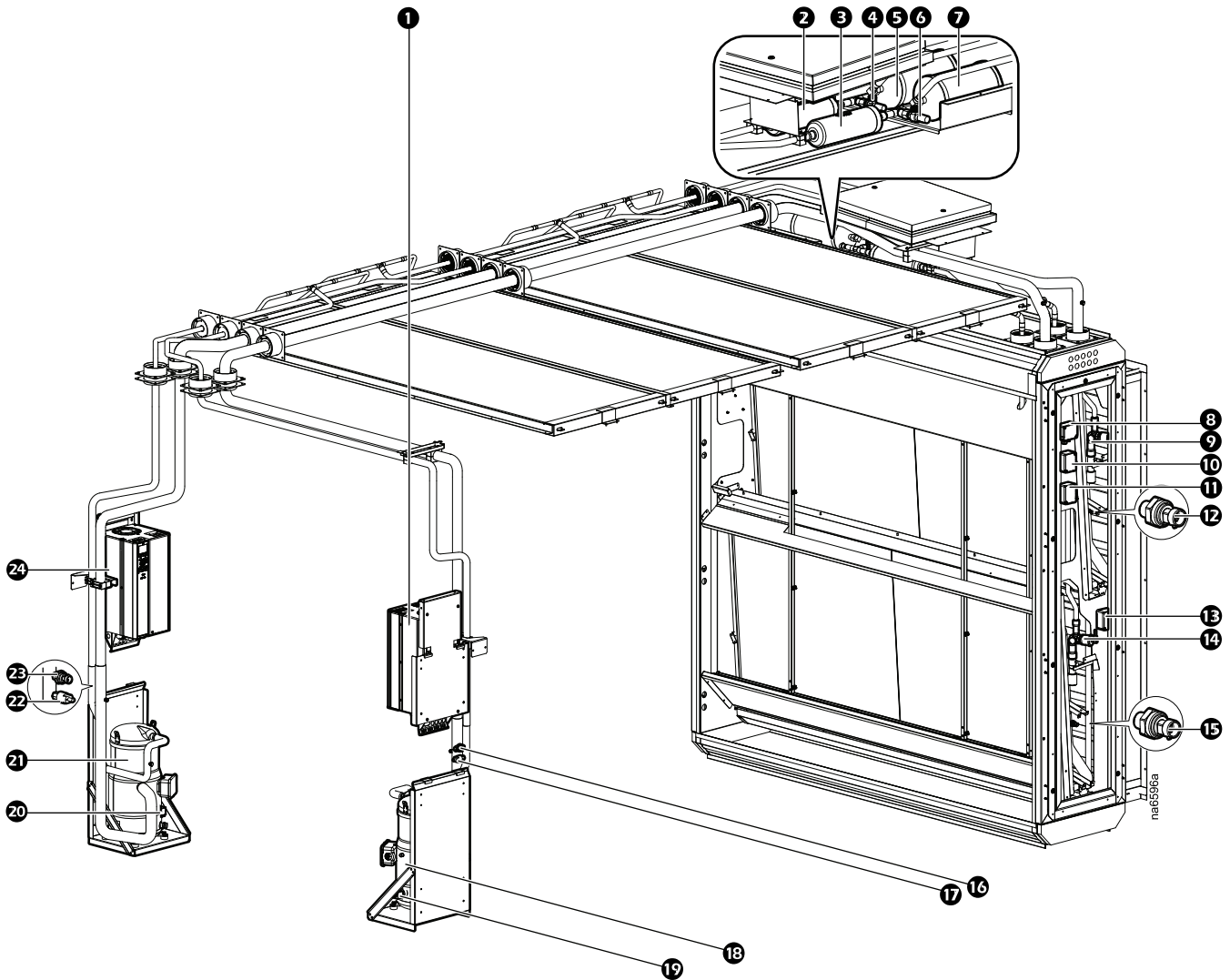


Item	Description	Item	Description
1	Spray nozzles	7	Air filters (accessible from the service vestibule) (optional)
2	Mist eliminator	8	Upper-to-lower supply water connection
3	Mist eliminator and evaporative spray nozzle internal access panel	9	Upper-to-lower power connections (essential power connection and DX power connection if DX trim cooling option is installed)
4	Supply air sensor arrays	10	Display interface*
5	Trim cooling section (125-kW DX trim cooling is shown)	11	IT fans
6	IEC core		

\*For IAEC50\*\*\* units, the display interface will be on the main module only

NOTE: A right-hand unit is shown: components are mirrored for a left-hand unit.

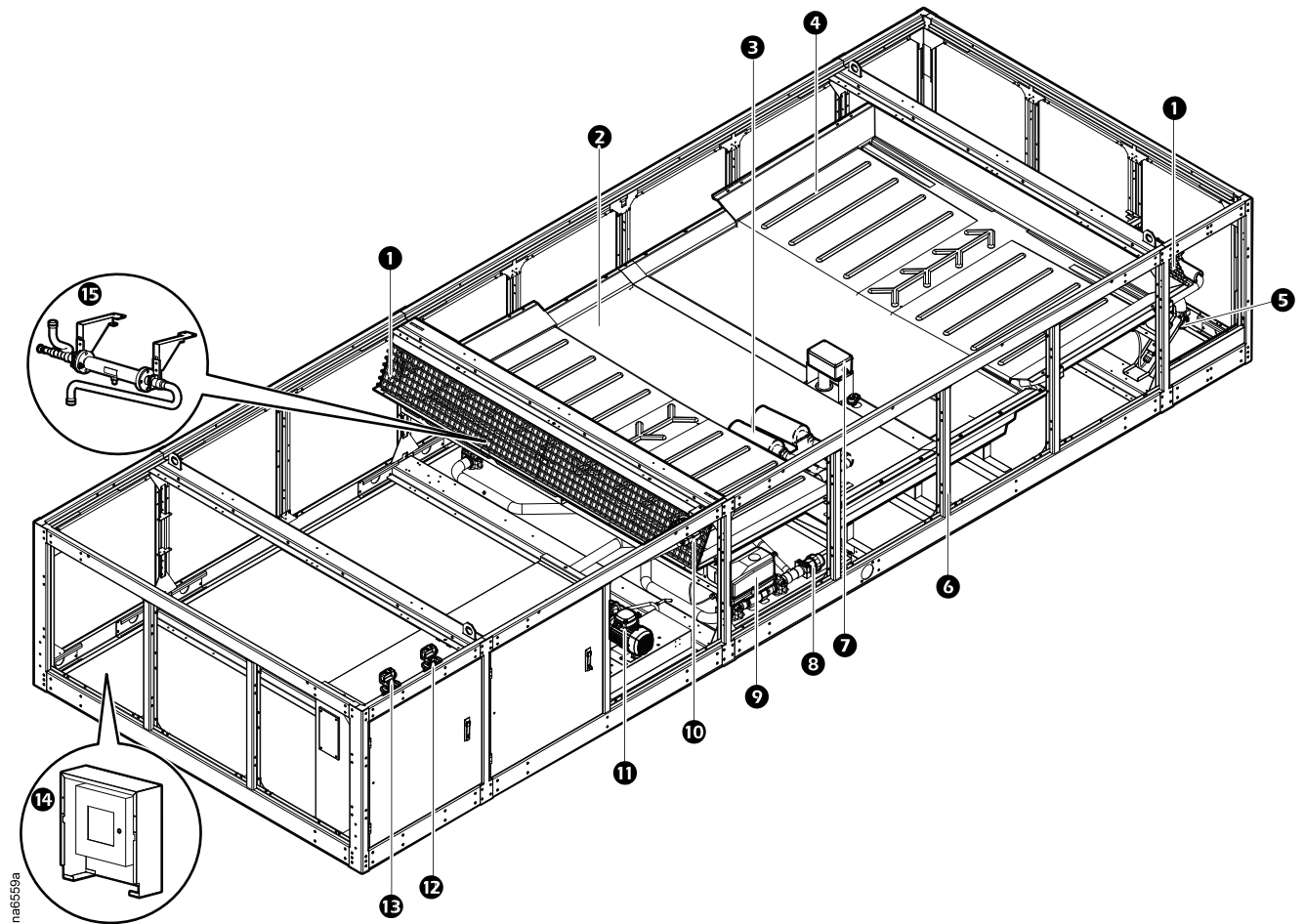
**DX System (Optional)**



Item	Description	Item	Description
1	Variable frequency drive (VFD) (circuit 2)	13	Supply air temperature sensor (circuit 2)
2	Filter drier (circuit 2)	14	Electronic expansion valve (EEV) (circuit 2)
3	Filter drier (circuit 1)	15	Suction pressure and temperature sensor (circuit 2)
4	Pressure relief valve (circuit 2)	16	Discharge pressure sensor (circuit 2)
5	Liquid receiver (circuit 2)	17	High head pressure switch (circuit 2)
6	Pressure relief valve (circuit 1)	18	Variable speed compressor (circuit 2)
7	Liquid receiver (circuit 1)	19	Oil injection solenoid (circuit 2)
8	Supply air temperature sensor (circuit 1)	20	Oil injection solenoid (circuit 1)
9	Electronic expansion valve (EEV) (circuit 1)	21	Variable speed compressor (circuit 1)
10	IEC supply air temperature sensor 1	22	High head pressure switch (circuit 1)
11	IEC supply air temperature sensor 2	23	Discharge pressure sensor (circuit 1)
12	Suction pressure and temperature sensor (circuit 1)	24	Variable frequency drive (VFD) (circuit 1)

NOTE: DX circuit 1 is always located on the side of the service vestibule with the electrical box. A right-hand unit is shown: components are mirrored for a left-hand unit.

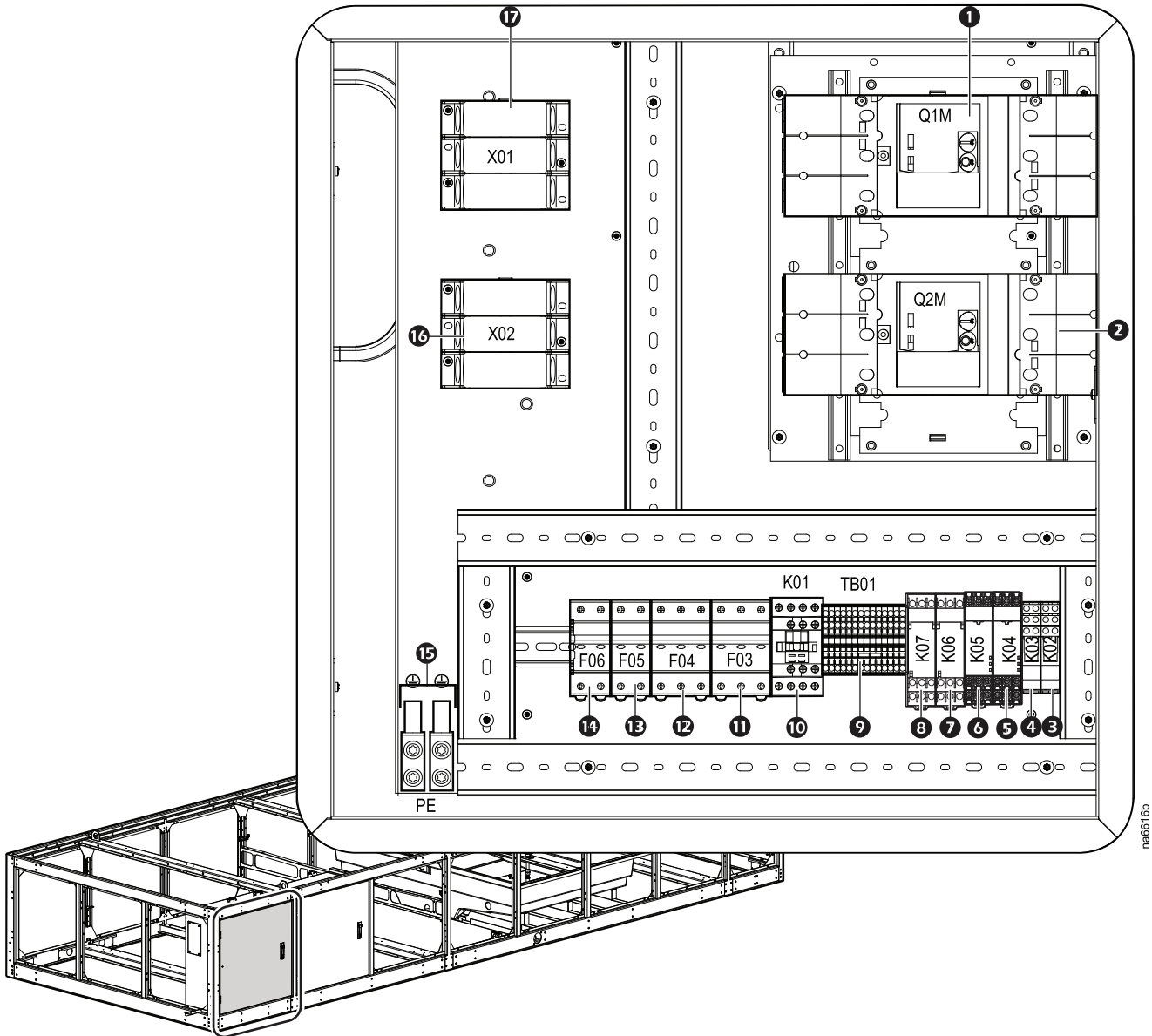
Lower Section



Item	Description	Item	Description
1	Water collection mesh panel	9	Basin drain actuator valve
2	Water basin	10	Upper-to-lower water connection (behind frame)
3	Water basin strainers	11	Evaporative water circulation pump
4	Water basin collection trays	12	Essential power connection
5	Water inlet connection	13	DX power connection (optional)
6	Removable cross member for basin servicing	14	Water treatment control panel (optional)
7	Basin water level sensor	15	Water treatment system (optional)
8	Basin drain connections		

NOTE: A right-hand unit is shown: components are mirrored for a left-hand unit.

Lower Section Electrical Panel—Power Connections

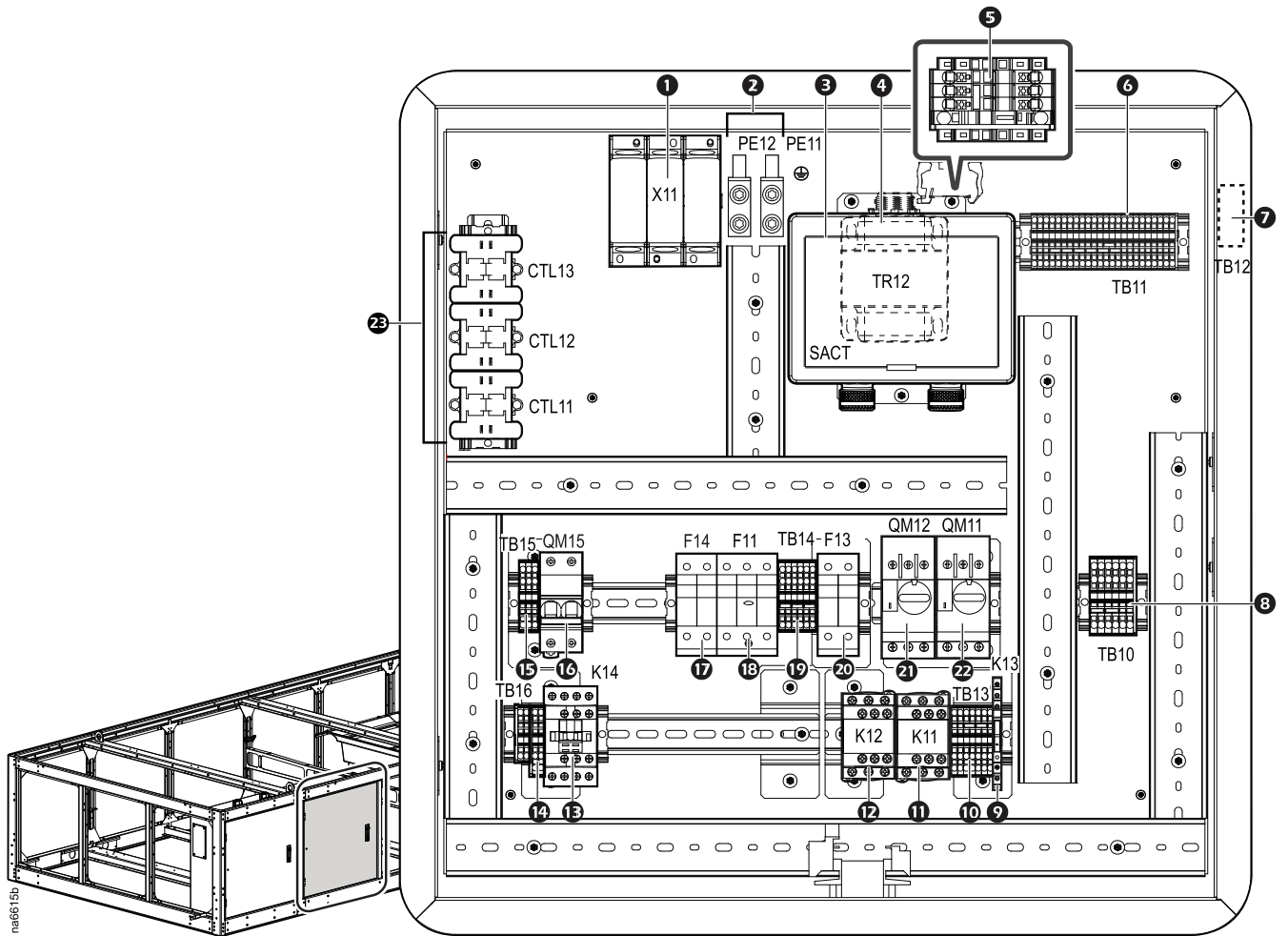


Item	Description	Item	Description
1	Power supply 1 motorized disconnect/power supply 1 motor (Q1/Q1M)	10	SCO motor relay (K01)*
2	Power supply 2 motorized disconnect/power supply 2 motor (Q2/Q2M)	11	Power supply 1 safety fuse (F03)*
3	Q1 primary selection relay (K02)*	12	Power supply 2 safety fuse (F04)*
4	Q2 primary selection relay (K03)*	13	Power supply 1 SCO motor fuse (F05)*
5	Q1 timer relay (K04)*	14	Power supply 2 SCO motor fuse (F06)*
6	Q2 timer relay (K05)*	15	Power supply 1/2 ground (PE)*
7	Power supply 1 phase monitoring relay (K06)*	16	Power supply 2 connection (X02)*
8	Power supply 2 phase monitoring relay (K07)*	17	Power supply 1 connection (X01)*
9	Terminal blocks (TB01)*		

\*Component, if present, associated with the SCO function is still live even when the power disconnect button is activated or if Q1M and Q2M are in Lockout/Tagout state.

NOTE: Right-hand unit is shown above: panel location is mirrored in a left-hand unit.

### Lower Section Electrical Panel—Customer Connections



Item	Description	Item	Description
1	Power splicer block (X11)	13	Water system contactor (K14)**
2	Ground (PE11, PE12)	14	Terminal blocks (TB16)
3	Water conductivity sensor display (SACT)	15	Terminal blocks (TB15)**
4	Customer I/O isolation transformer (TR12)	16	Water system contactor (QM15)**
5	Terminal blocks (TB17)	17	Water system fuse (F14)**
6	Terminal blocks for customer digital I/O (TB11)	18	Power distribution fuse (F11)
7	Terminal blocks (TB12)	19	Terminal blocks (TB14)
8	Terminal blocks for customer lighting power feed (TB10)*	20	Heat trace fuse (F13)
9	Heat trace relay (K13)	21	Pump 2 motor contactor (QM12) (available if two pumps are installed)
10	Terminal blocks (TB13)	22	Pump 1 motor contactor (QM11)
11	Pump 1 contactor (K11)	23	Current transformer (CTL11, CTL12, CTL13) (optional)
12	Pump 2 contactor (K12) (available if two pumps are installed)		

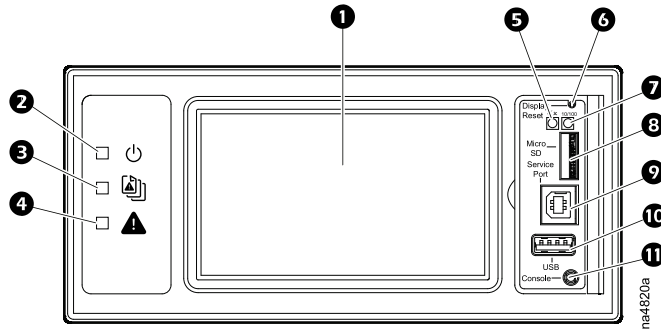
\*Component, if present, associated with the SCO function is still live even when the power disconnect button is activated or if Q1M and Q2M are in Lockout/Tagout state.

\*\*Components are present if the water treatment option is installed.

NOTE: Right-hand unit is shown above; panel location is mirrored in a left-hand unit.



## Display Interface



Item	Description	Function
1	LCD Display	7-inch touch-screen color display
2	Power LED	The cooling unit is powered when the LED is illuminated. Unit firmware is updating when LED is blinking.
3	Check Log LED	When this LED is illuminated, a new entry has been made to the event log.
4	Alarm LED	Displays current alarm condition of unit.
5	Status LED	Displays current network management card status.
6	Display Reset button	Resets the display microprocessor. This has no effect on the air conditioner controller.
7	Link-RX/TX (10/100) LED	Displays current network link status.
8	Micro SD card slot	Memory card expansion slot.
9	Service port	USB-B port used only by service personnel.
10	USB-A port	Supports firmware upgrades.
11	Serial Configuration port	Connects the display to a local computer to configure initial network settings or access the command line interface (CLI).

### Alarm LED

This LED indicates active alarms on the display.

Condition	Description
Off	No alarm
Solid yellow	Warning alarm
Solid red	Critical alarm

### Status LED

This LED indicates the status of the display.



Condition	Description
Off	One of the following situations exist: <ul style="list-style-type: none"> <li>The display is not receiving input power.</li> <li>The display is not operating properly. It may need to be repaired or replaced. Contact Schneider Electric Customer Support.</li> </ul>
Solid green	The display has valid TCP/IP settings.
Solid orange	A hardware malfunction has been detected in the display. Contact Schneider Electric Customer Support.
Flashing green	The display does not have valid TCP/IP settings.
Flashing orange	The display is making BOOTP requests.
Alternately flashing green and orange	If the LED is flashing slowly, the display is making DHCP requests. If the LED is flashing rapidly, the display is starting up.

### Link-RX/TX (10/100) LED

This LED indicates the network status of the display.

Condition	Description
Off	One or more of the following situations exist: <ul style="list-style-type: none"> <li>The display is not receiving input power.</li> <li>The cable or device that connects the cooling unit to the network is disconnected or not functioning properly.</li> <li>The display itself is not operating properly. It may need to be repaired or replaced. Contact Schneider Electric Customer Support.</li> </ul>
Solid green	The display is connected to a network operating at 10 megabits per second (Mbps).
Solid orange	The display is connected to a network operating at 100 Mbps.
Flashing green	The display is receiving or transmitting at 10 Mbps.
Flashing orange	The display is receiving data packets at 100 Mbps.

# Dimensions and Weights

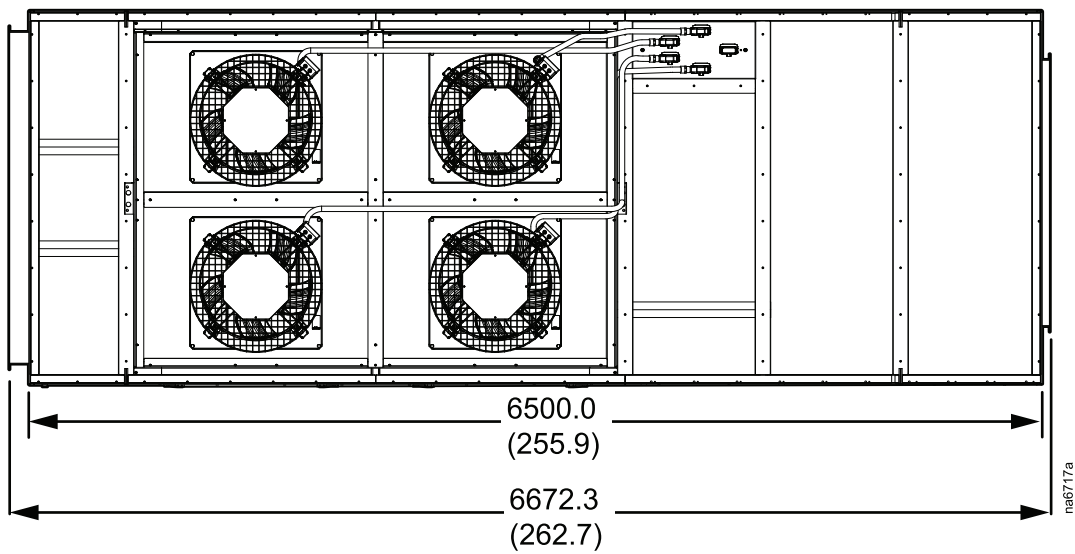
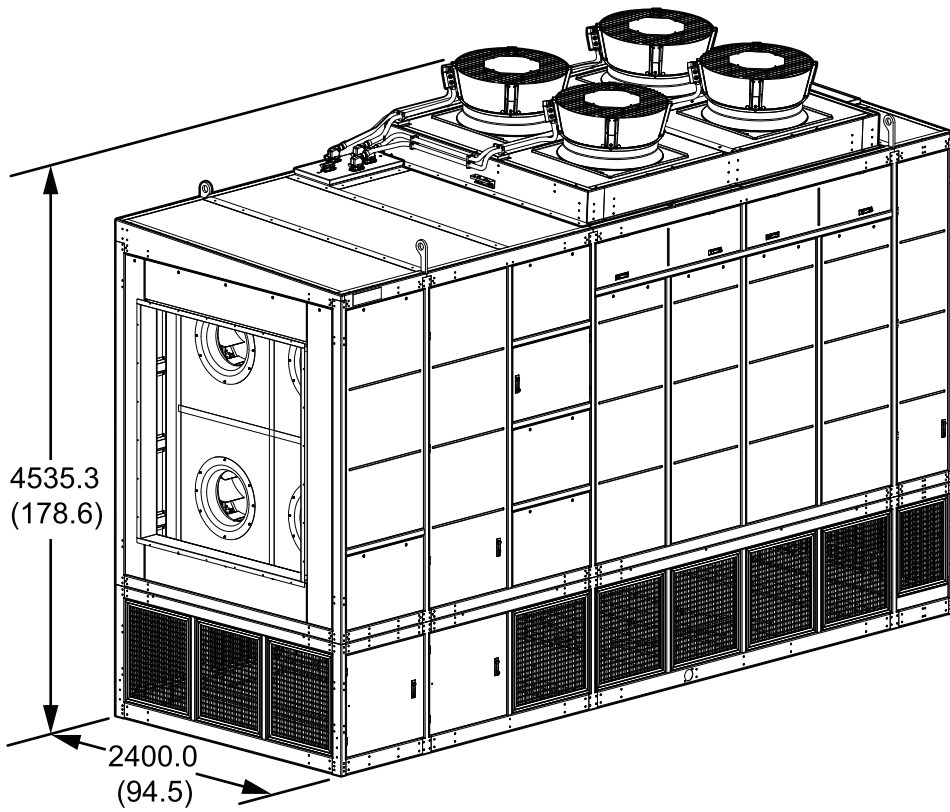
## Weights

**NOTE:** This is preliminary data.

Unit	Straight-Thru Airflow Configuration	
	IAEC25***	IAEC50***
<b>Dry Weight—Installed</b>		
Default Unit with No Options – kg (lb)	6800 (14,991)	13 600 (29,983)
150-kW DX Trim Cooling – kg (lb)	700 (1543)	1400 (3086)
Water Treatment Option – kg (lb)	43 (95)	86 (190)
<b>Operational Weight</b>		
Default Unit with No Options – kg (lb)	7525 (16,590)	15 050 (33,180)
150-kW DX Trim Cooling – kg (lb)	700 (1543)	1400 (3086)
Water Treatment Option – kg (lb)	43 (95)	86 (190)
<b>Shipping Weight—Upper Section</b>		
Default Unit with No Options – kg (lb)	5825 (12,842)	11 650 (25,684)
150-kW DX Trim Cooling – kg (lb)	700 (1543)	1400 (3086)
Water Treatment Option – kg (lb)	–	–
<b>Shipping Weight—Lower Section</b>		
Default Unit with No Options – kg (lb)	1025 (2260)	2050 (4520)
150-kW DX Trim Cooling – kg (lb)	–	–
Water Treatment Option – kg (lb)	43 (95)	86 (190)

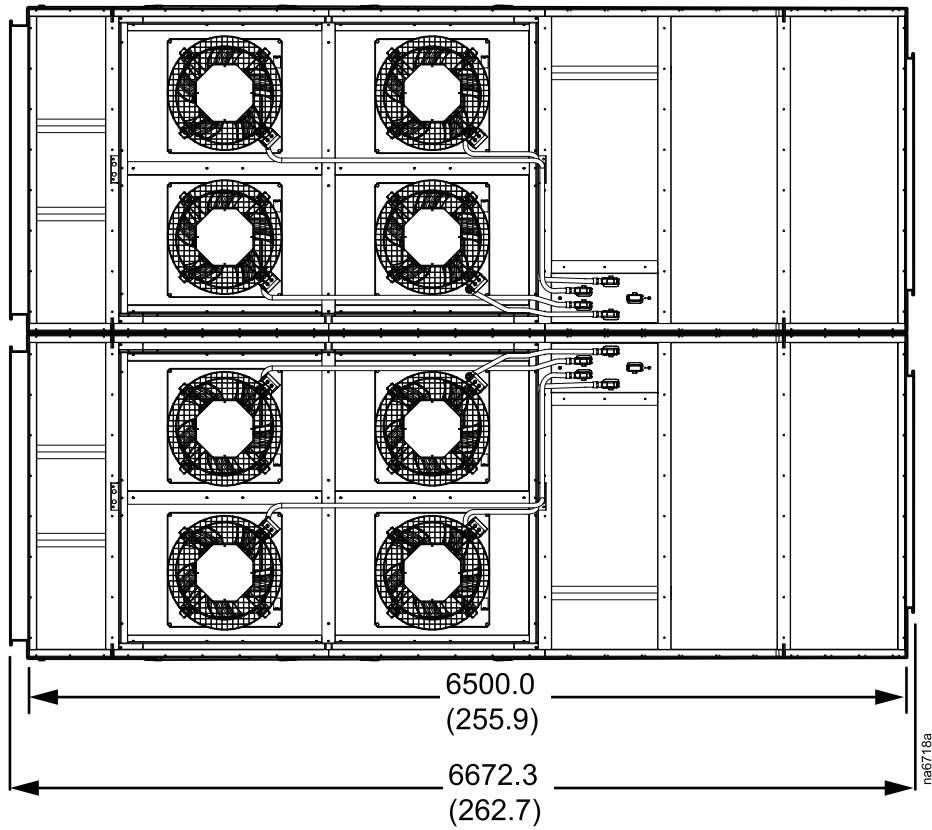
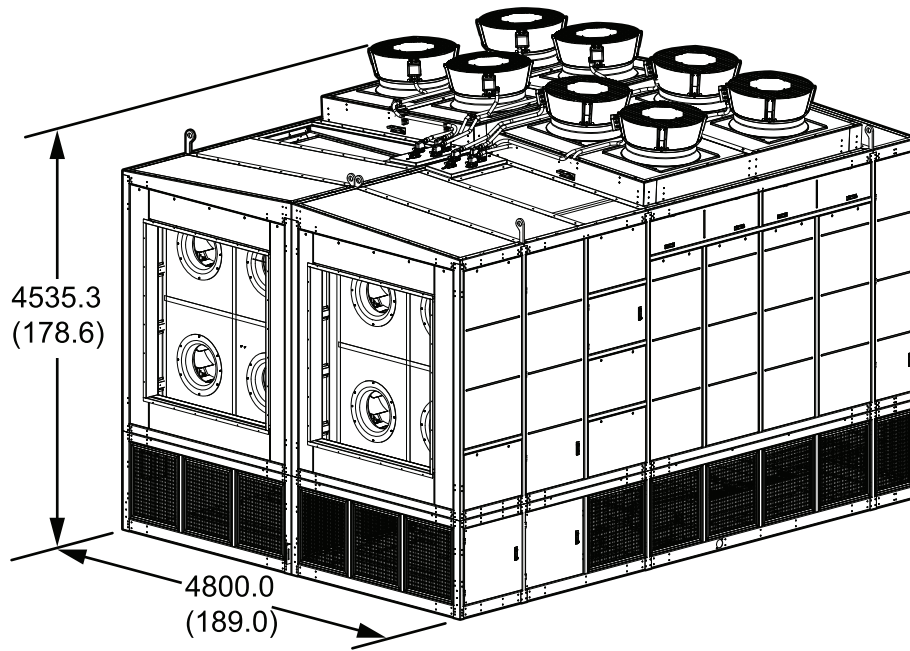
# Dimensions

## IAEC25\*\*\* Unit—Straight-Thru Airflow



**NOTE:** Dimensions are shown in mm (in.).

**IAEC50\*\*\* Unit—Straight-Thru Airflow**



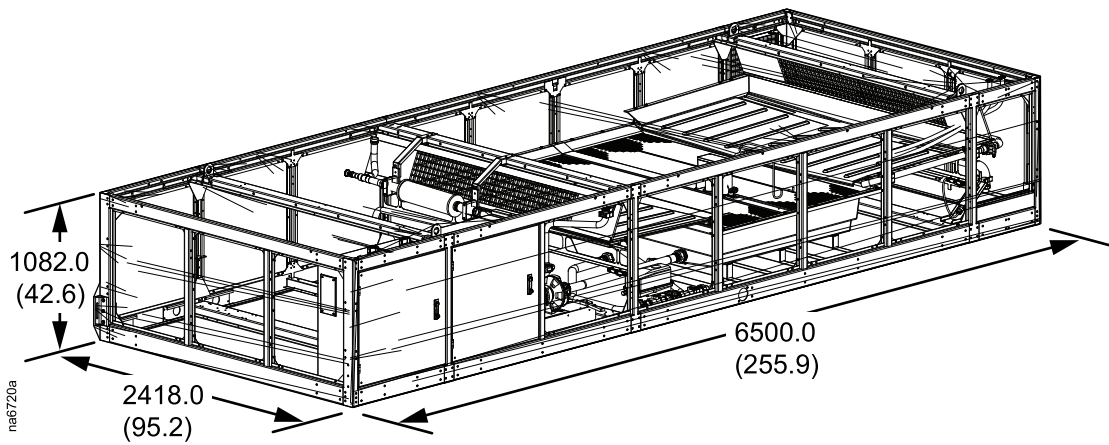
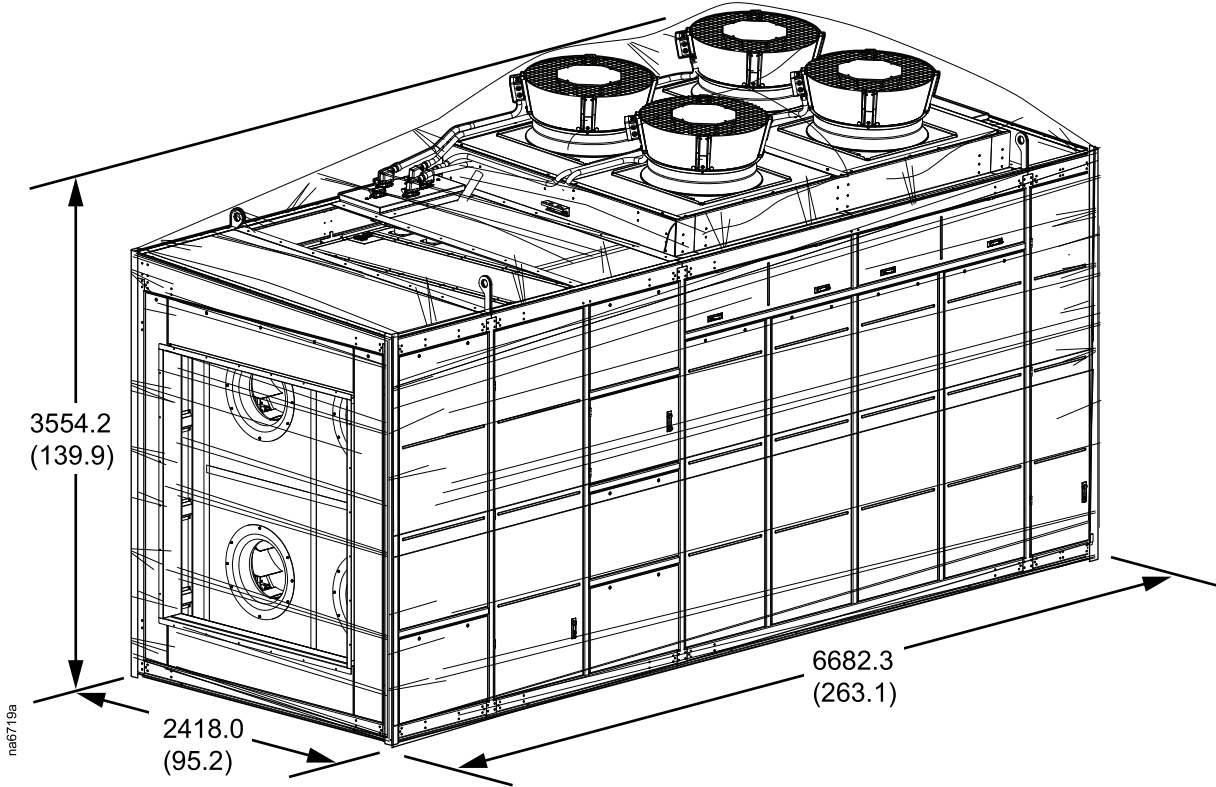
**NOTE:** Dimensions are shown in mm (in.).

## Shipping Dimensions

### Straight-Thru Airflow

Units are shipped wrapped in plastic in two sections: upper and lower. 500-kW units are shipped as two 250-kW units.

**NOTE:** Right-hand units are shown: your unit may differ. Air mesh panels not shown for easier viewing.



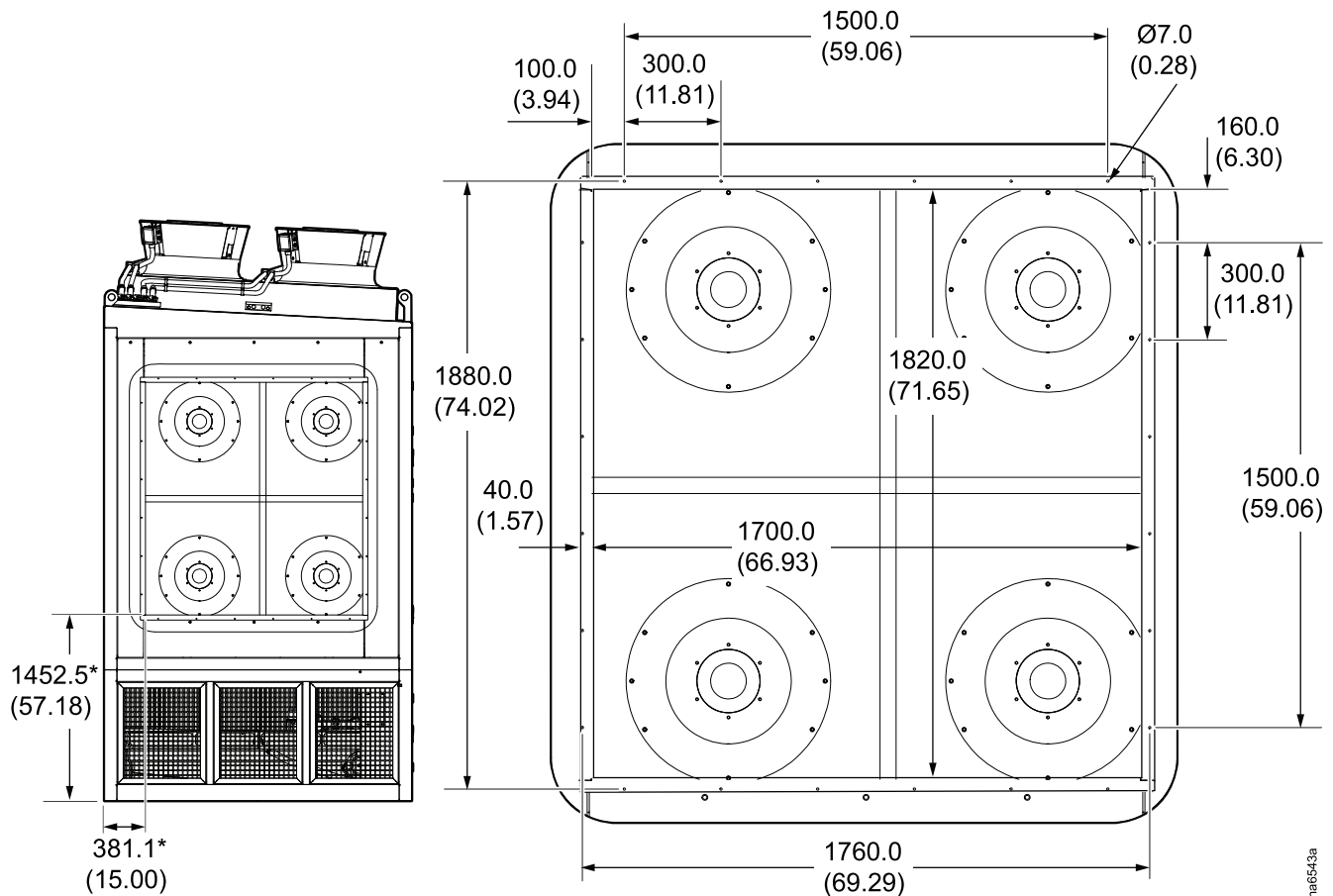
## Ducting

Provide supply and return ducting at the site to connect to the supply and return ducting connections on the Ecoflair Indirect Air Economizer. Duct connection gaskets, hardware, and insulation are the responsibility of the customer. The following are recommendations for ducting:

**NOTE:** Providing ducting is the responsibility of the customer.

- Ducting should be double walled with a minimum of 50 mm (2 in.) of insulation.
- The minimum turning radius of the ducting should be 1.5 m (4.9 ft).
- Ducting should incorporate turning vanes within the turning radius to minimize pressure drop.
- Supply ducting internal dimensions should be no less than 1.5 m (4.9 ft) in height.
- Gaskets should be installed between duct connections to prevent air leakage.
- For units connected to shared supply and return ducts, isolation dampers should be used at the return and supply air of each Ecoflair Indirect Air Economizer to isolate the unit for servicing or during off cycles to prevent air short-cycling within the system.

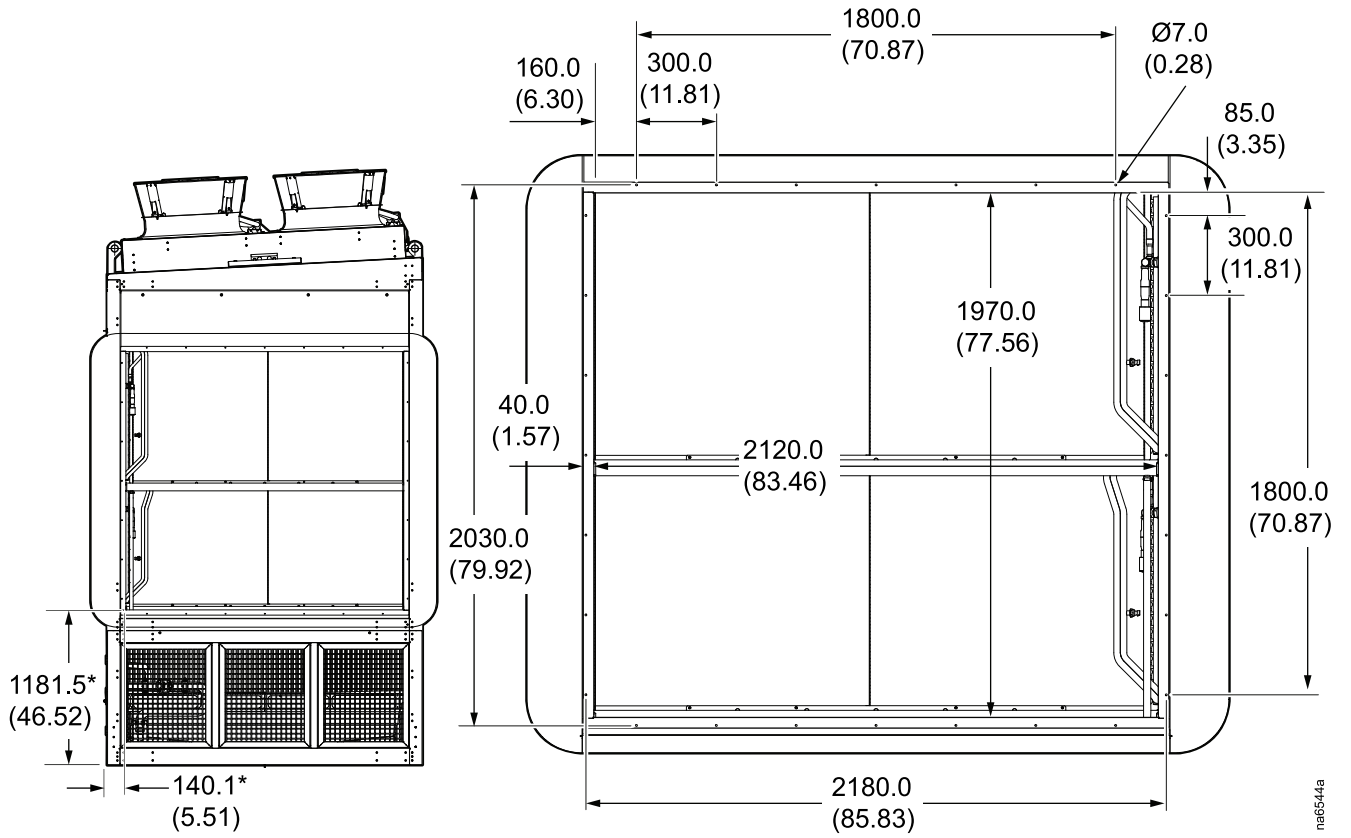
## Return Air



**NOTE:** Dimensions are shown in mm (in.).

\*Dimensions are to the inside of the duct opening.

Supply Air



**NOTE:** Dimensions are shown in mm (in.).

\*Dimensions are to the inside of the duct opening.

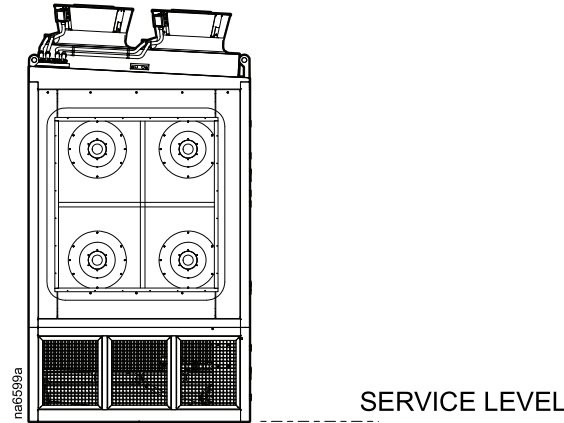
### Installation and Service Access

The Ecoflair Indirect Air Economizer requires 1.6 m (63 in.) of installation and service clearance on the front sides of the unit. Clearance during installation on the return air and supply air sides is what is required by local and national codes for the installer to make duct installation connections safely.

**NOTE:** The front side of the unit is the side containing the display interface.

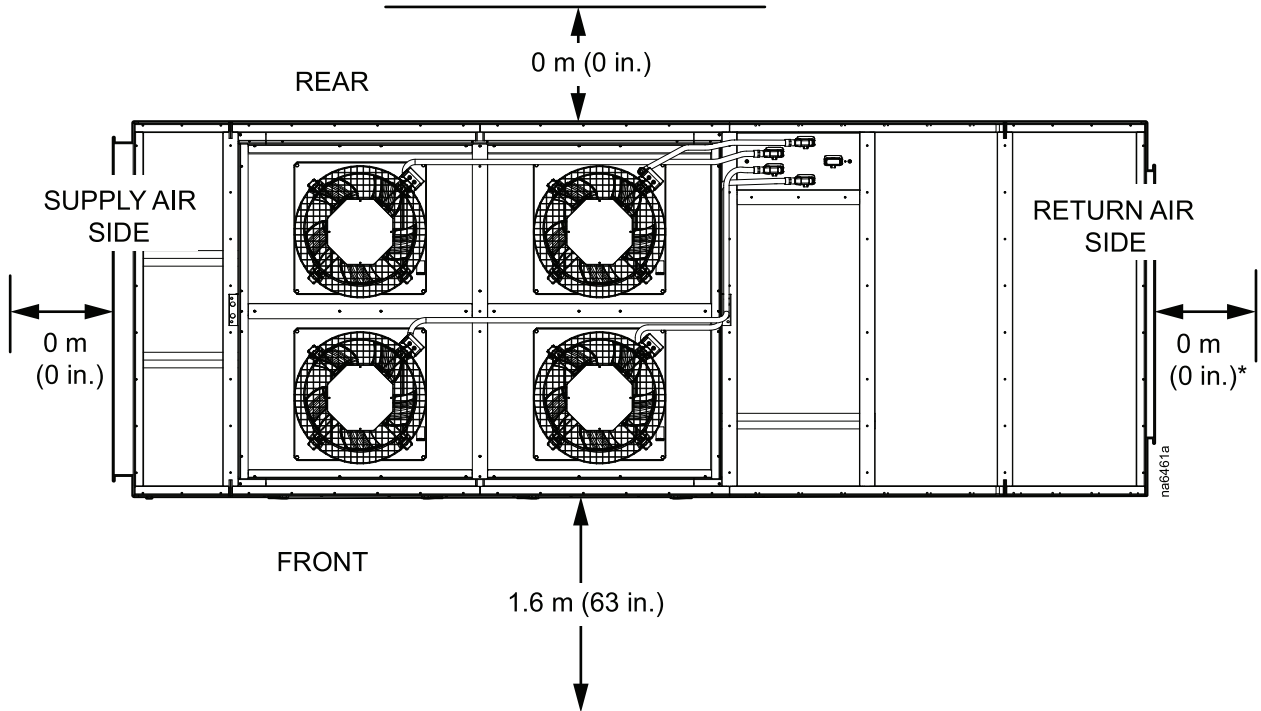
#### Service Level

Servicing level for the unit is even with the base of the lower section.



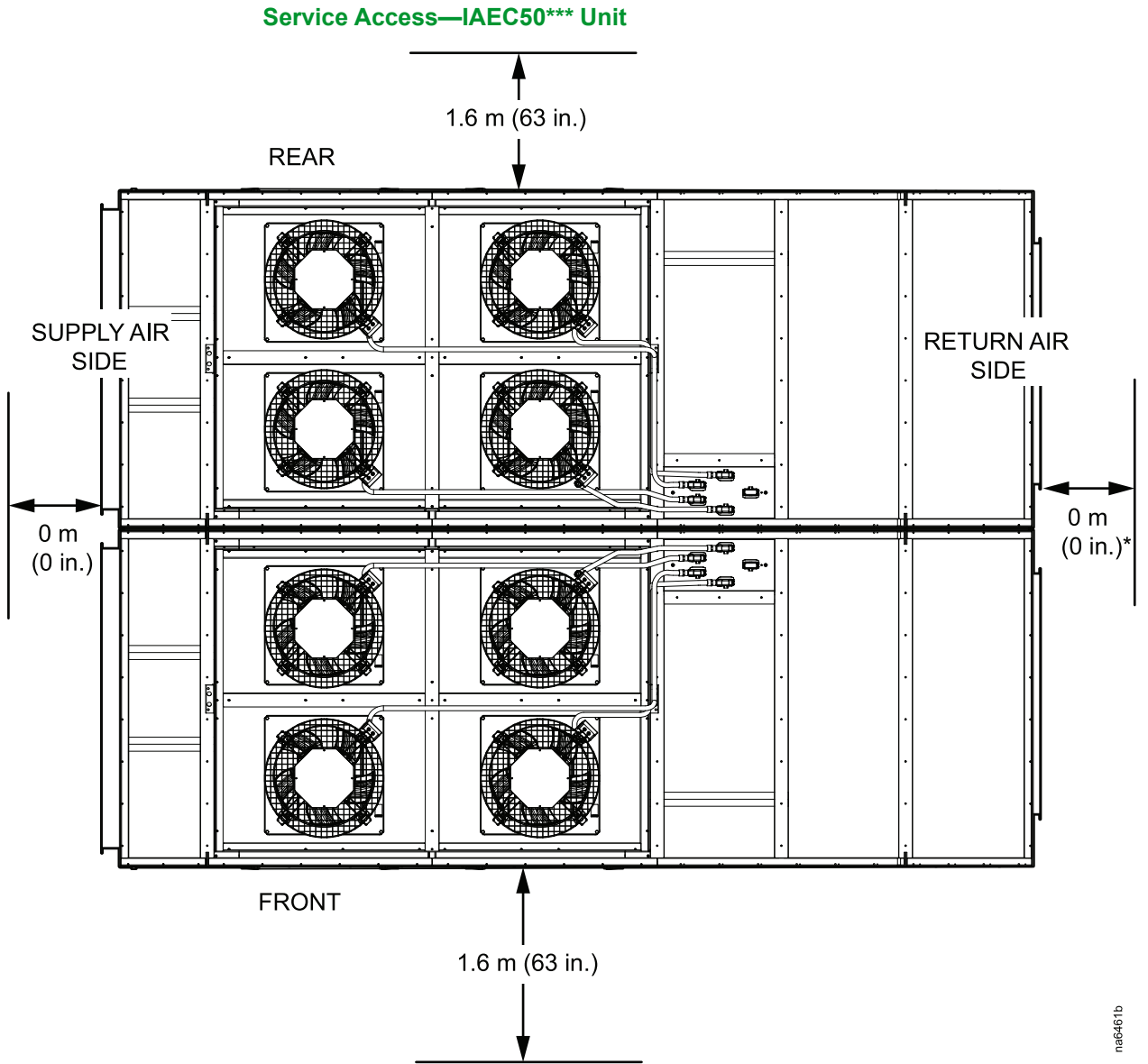
#### Service Access—IAEC25\*\*\* Unit

**NOTE:** Left-hand unit is shown.



**NOTE:** \*If power is routed through the rear or side of the electrical panel or if a water treatment system is installed, a minimum of 1 m (39 in.) of clearance is required on the return air side.

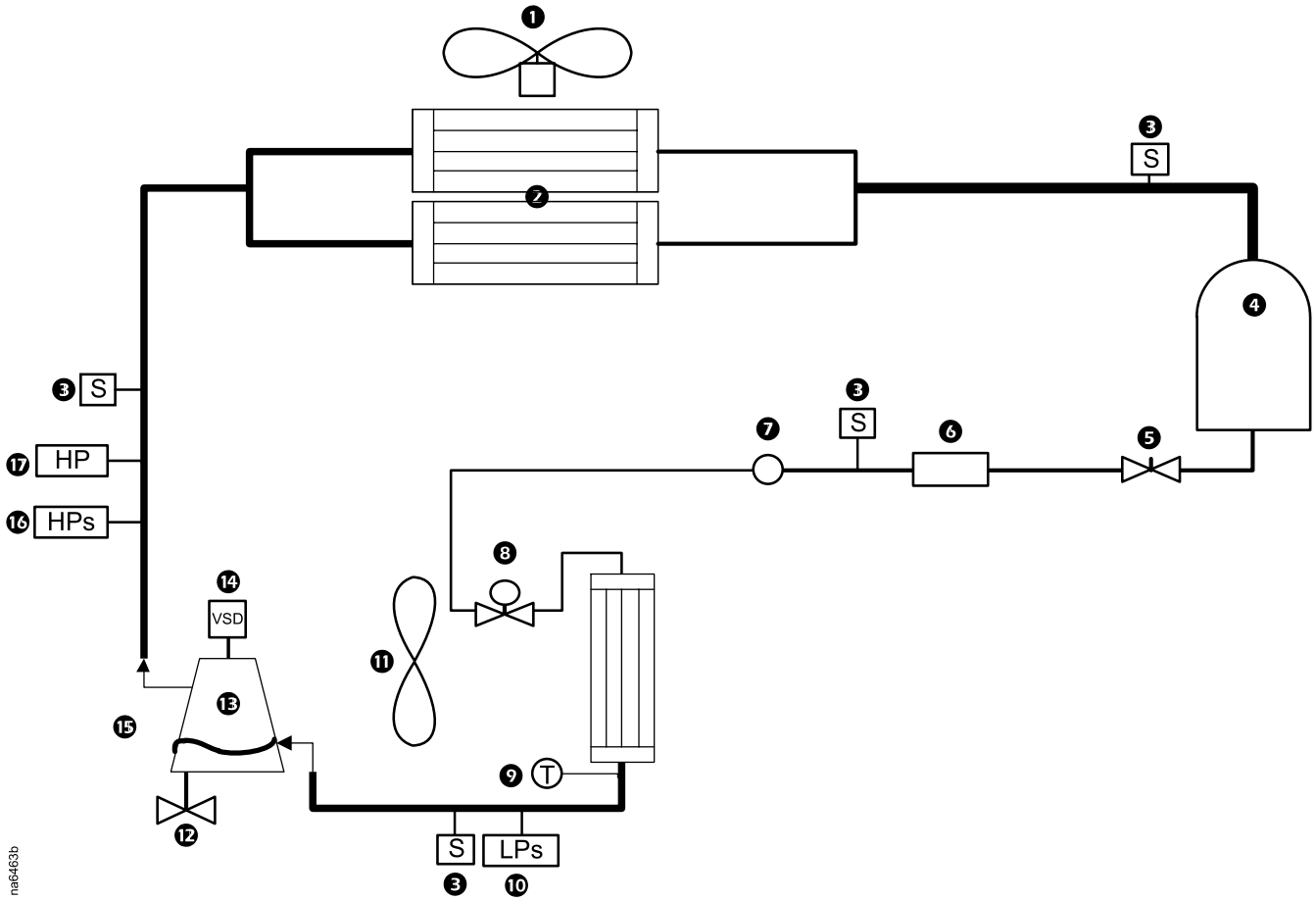




**NOTE:** \*If power is routed through the rear or side of the electrical panel or if a water treatment system is installed, a minimum of 1 m (39 in.) of clearance is required on the return air side.

# Diagrams

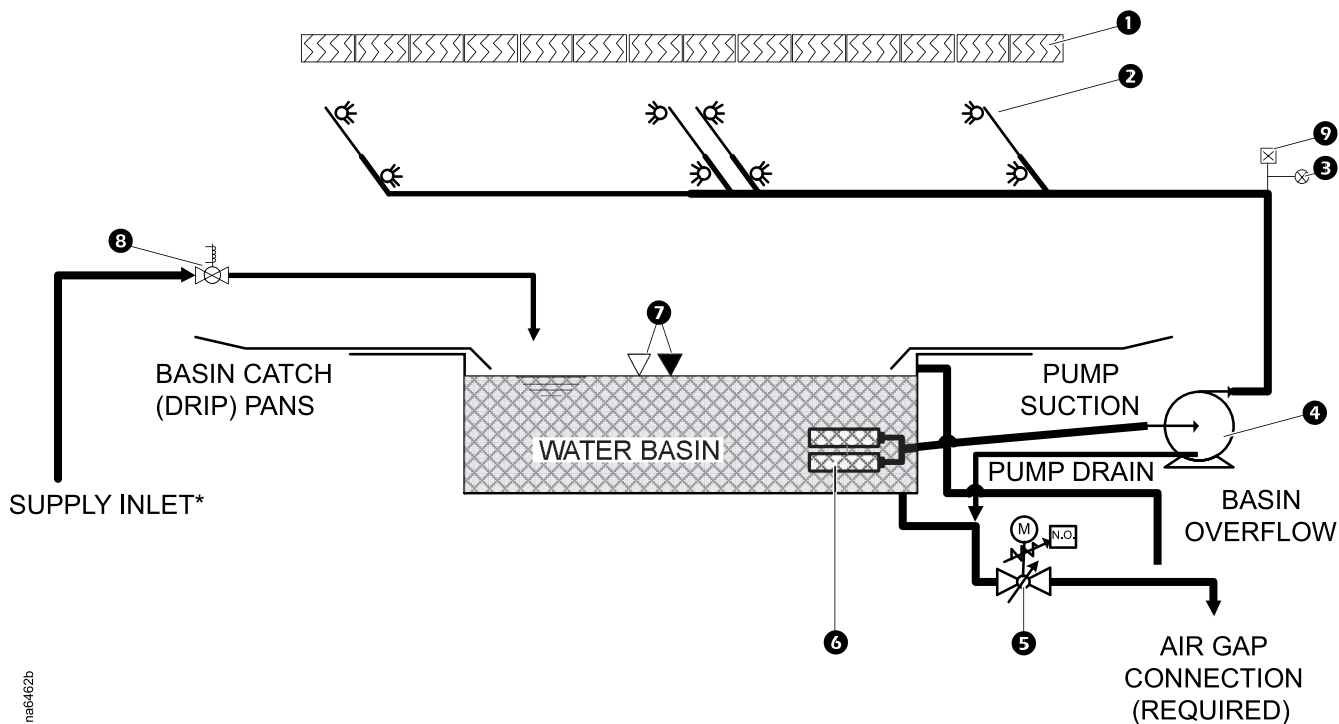
## Refrigerant System Diagram—I AEC25\*\*\* Unit



na6463b

Item	Description	Item	Description
1	Outdoor air (OA) fans	9	Low pressure sensor
2	Condenser coil	11	IT fans
3	Service port	12	Oil control solenoid
4	Receiver	13	Compressor
5	Pressure relief valve	14	Variable-speed drive
6	Filter drier	15	Crankcase heater
7	Sight glass	16	High pressure sensor
8	Electronic expansion valve	17	High pressure switch
8	Temperature sensor		

## Water System Diagram—IAEC25\*\*\* Unit



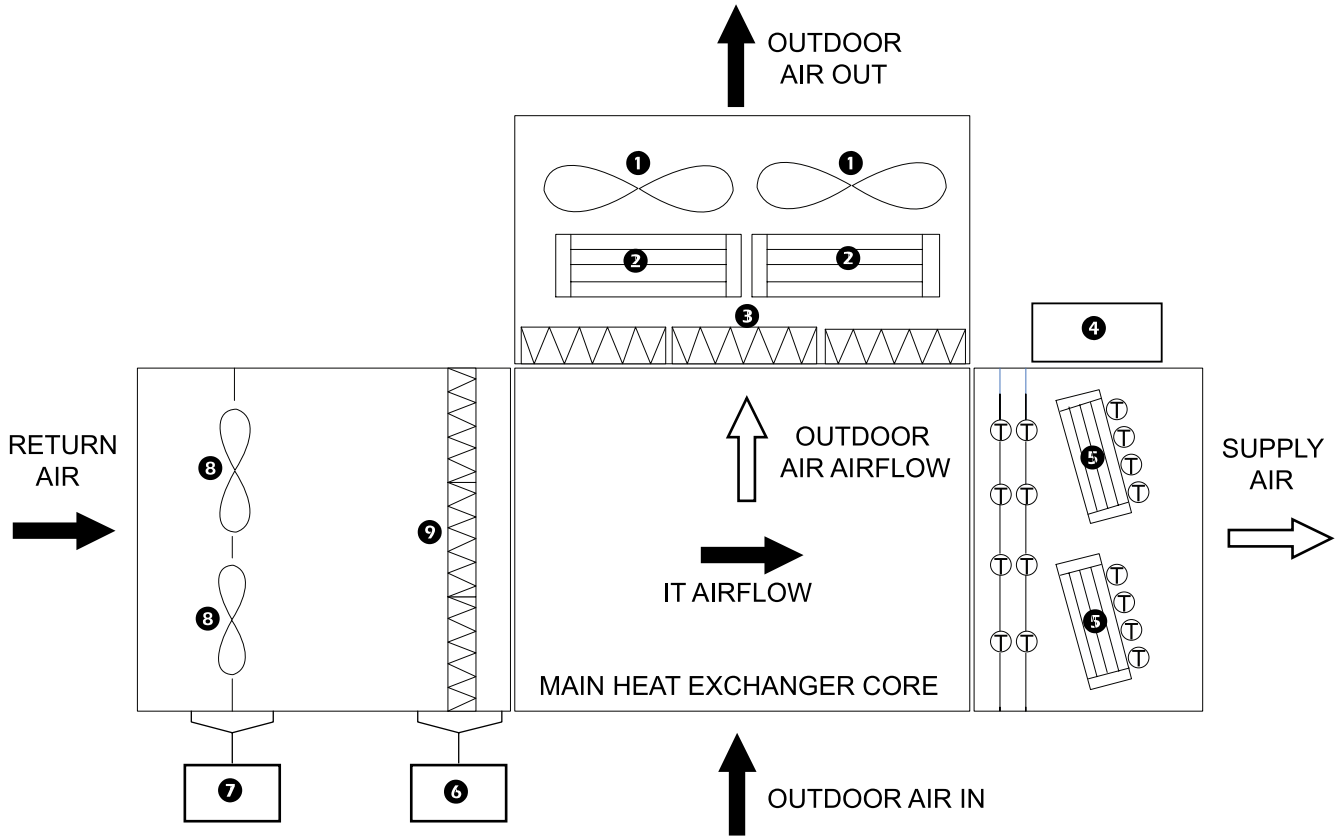
na6462b

Item	Description
1	Mist eliminator
2	Spray nozzle
3	Pressure switch
4	Circulation pump
5	Basin drain valve
6	Basin strainers
7	Water level and conductivity sensors
8	Water fill valve
9	Air vent



\* Recommended supply requirements: 25–30 GPM flow rate (approximately 10 minutes to fill); maximum 80 PSIG inlet pressure.

# Air System Diagram—IAEC25\*\*\* Unit

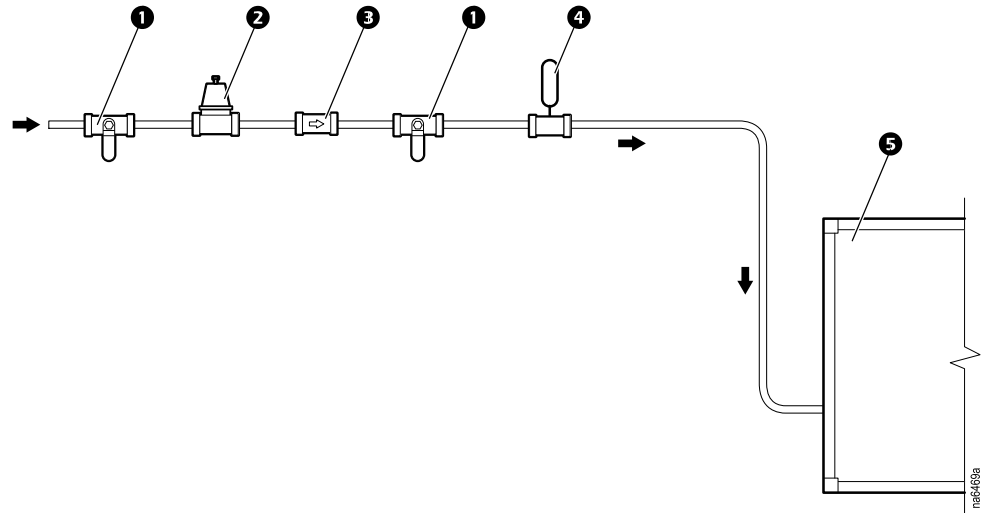


Ⓣ = TEMPERATURE AVERAGING SENSOR

na6464b

Item	Description	Quantity
1	OA fans	4
2	Condenser coil (optional)	—
3	Mist eliminator	—
4	Trim cooling (optional)	—
5	Evaporator coil/chilled-water coil	—
6	Filter differential pressure switch (optional)	—
7	Fan differential pressure switch	—
8	IT fans	4
9	Filter (optional)	12

## External Water Piping



Item	Description
1	Shut-off valve
2	Water pressure reducing valve (if necessary)
3	Backflow preventer
4	Water hammer arrestor
5	Ecoflair

NOTE: All plumbing components shown are field supplied and installed.

NOTE: Customer is responsible for providing freeze protection on field-installed piping.

# Connection Options

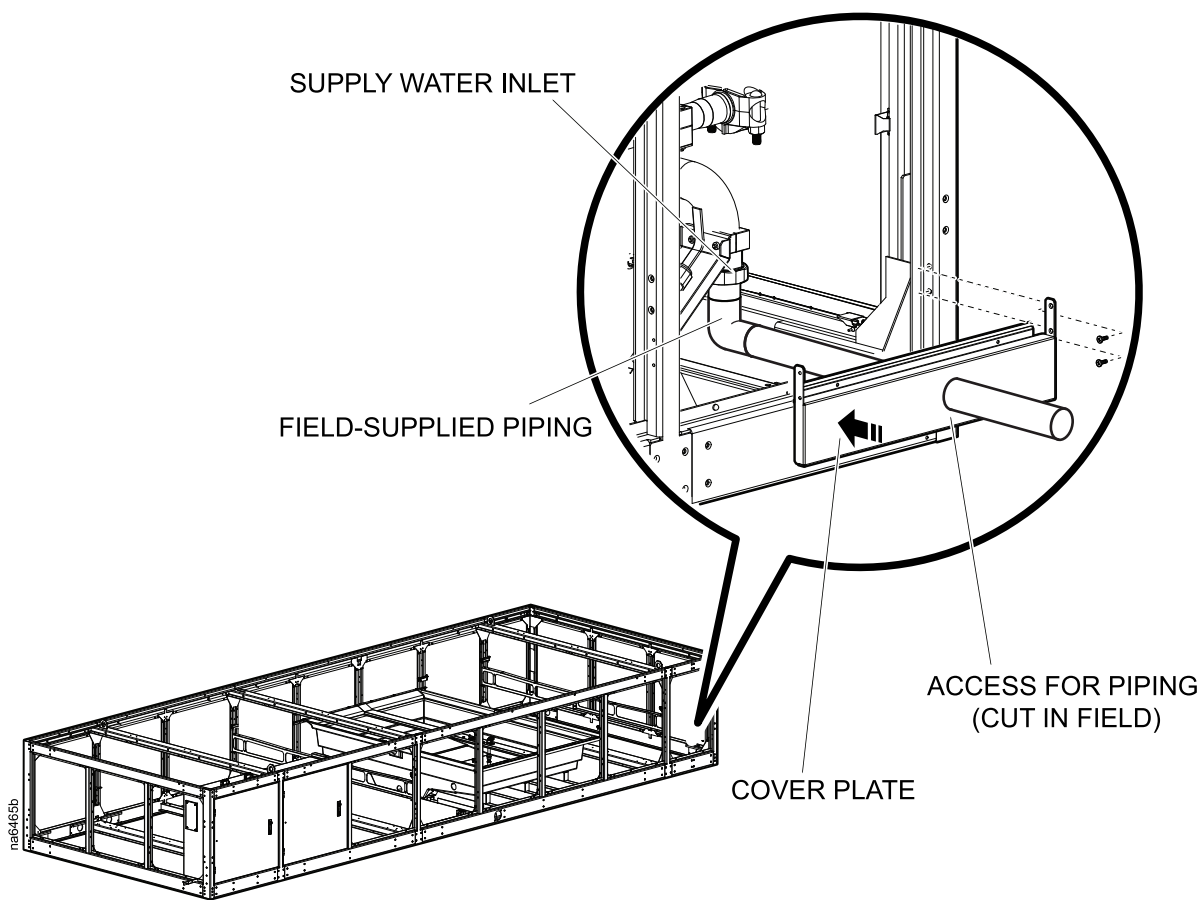
## Water Connection Options

### Water Inlet Connection

The supply water inlet connection is a 42-mm OD (1.7 in.), brazed connection made in the field during installation. There are two options available for this connection: through the side of the unit or through the bottom of the unit. For IAEC50\*\*\* units, supply water connections are required for each IAEC25\*\*\* section.

#### Connection Option 1

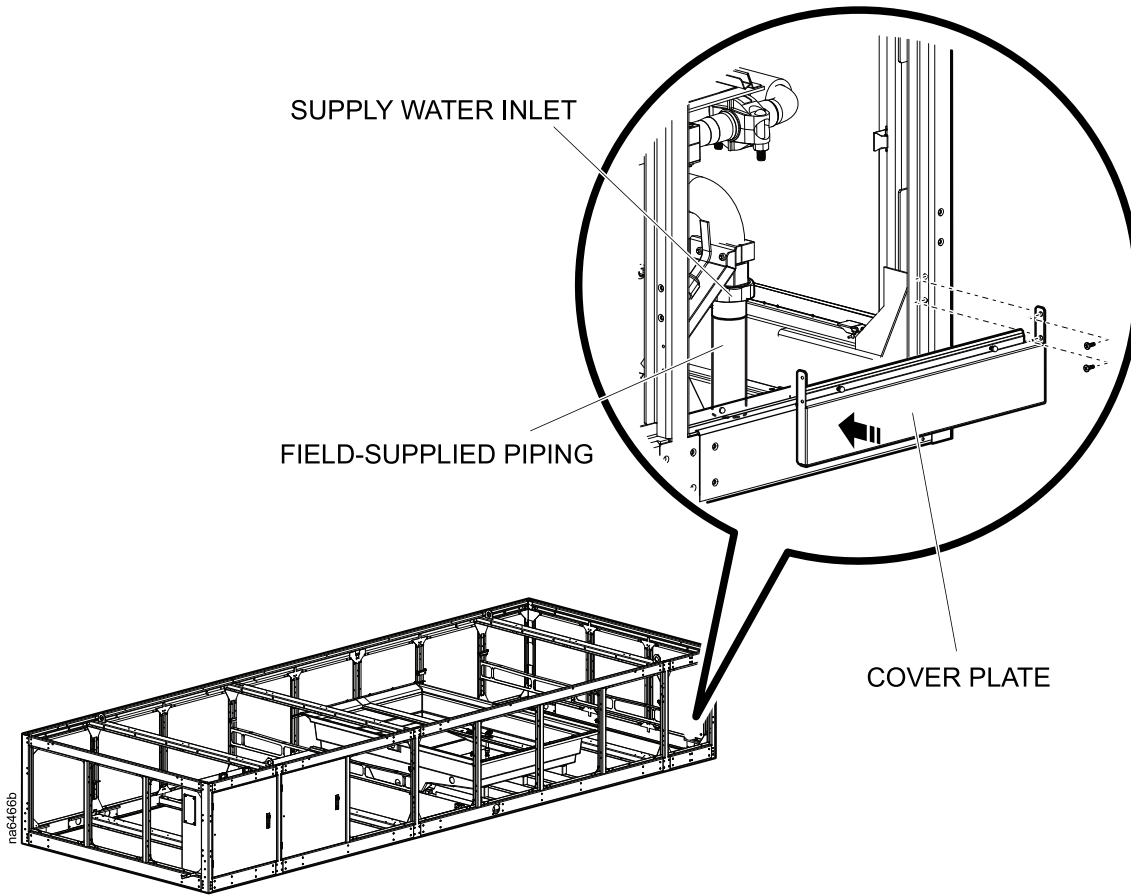
The supply water inlet connection can be made through the side of the unit. A hole for pipe access will need to be cut in the cover plate during installation to allow for pipe routing through the side of the unit.



**NOTE:** Air mesh panels not shown for easier viewing.

**Connection Option 2**

The supply water inlet connection can be made through the bottom of the unit.



**NOTE:** Air mesh panels not shown for easier viewing.

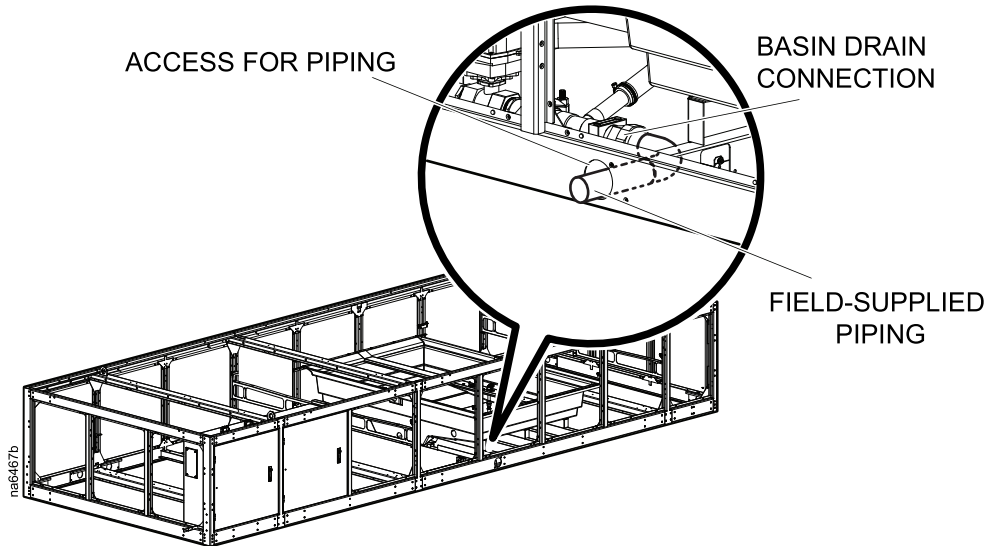
## Basin Drain Connection

The basin drain connection is a 54-mm OD (2.1 in.), brazed connection made in the field during installation. There are two options available for this connection: through the side of the unit or through the bottom. For IAEC50\*\*\* units, basin drain connections are required for each IAEC25\*\*\* section.

**IMPORTANT:** An air gap between the unit piping and the customer drain system is required. The drain system should be sized for a peak flow rate of 65 gpm (4.1 l/s) under gravity flow conditions.

### Connection Option 1

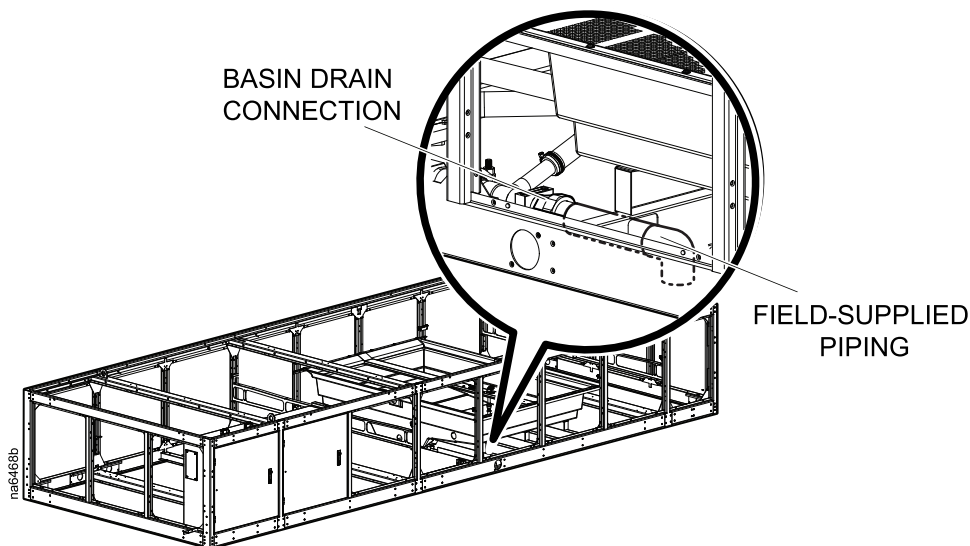
The basin drain connection can be made through the side of the unit by removing the cover plate that covers the opening for pipe access.



**NOTE:** Air mesh panels not shown for easier viewing.

### Connection Option 2

The basin drain connection can be made through the bottom of the unit.



**NOTE:** Air mesh panels not shown for easier viewing.

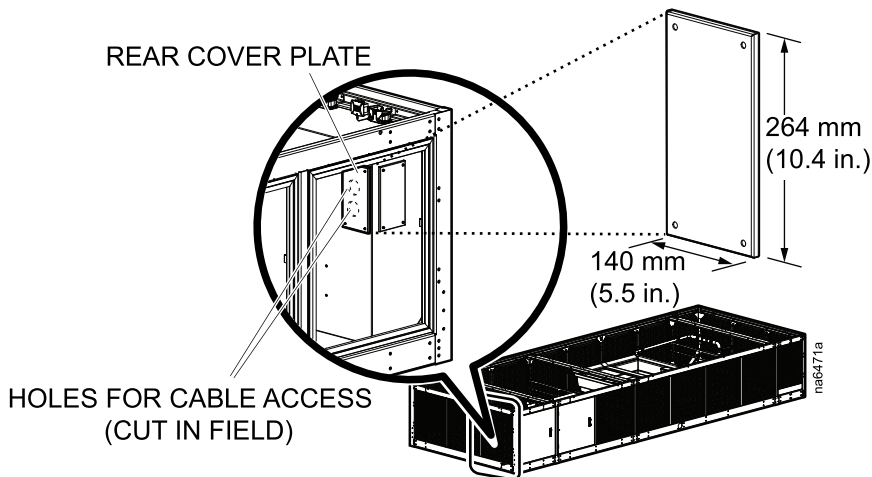


## Power Connection Options

The Ecoflair Indirect Air Economizer provides three options for routing power to the unit through the electrical panel: rear access, side access, or bottom access. For IAEC50\*\*\* units, power connections are required for each IAEC25\*\*\* section.

### Connection Option 1

Power cables to the unit can be routed through a hole made in the cover plate on the rear side of the electrical panel by the installer. The cover plate can be removed to make creating the hole easier.

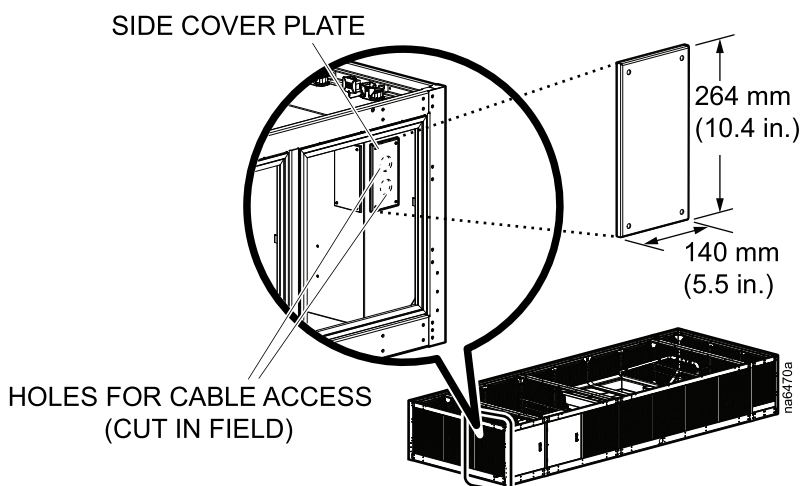


**NOTE:** Air mesh panels not shown in detail view for easier viewing.

### Connection Option 2

Power cables to the unit can be routed through a hole made in the cover plate on the side of the electrical panel by the installer. The cover plate can be removed to make creating the hole easier.

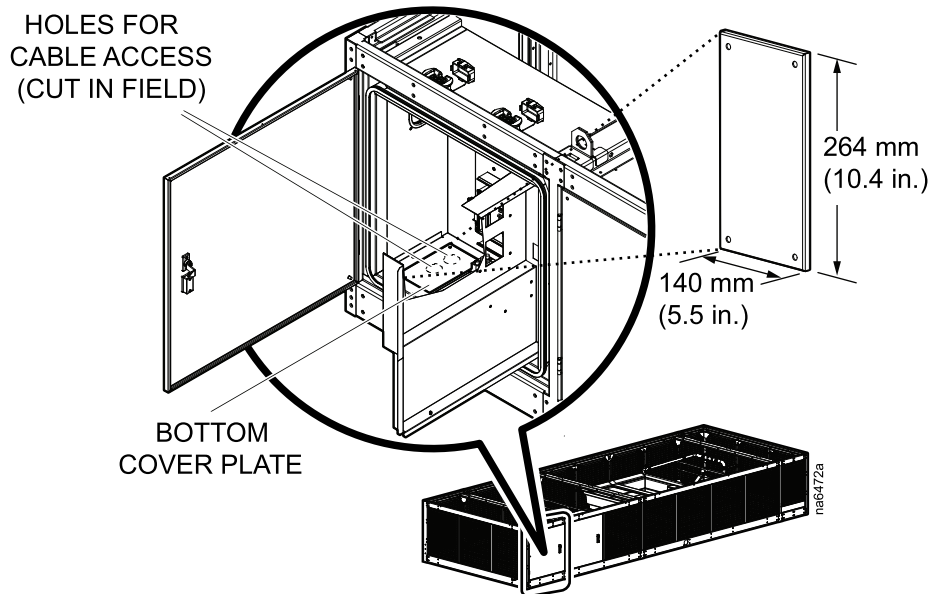
Power cables can be routed through a hole made in the cover plate by the installer on the side of the electrical panel. The cover plate can be removed to make creating the hole easier.



**NOTE:** Air mesh panels not shown in detail view for easier viewing.

### Connection Option 3

Power cables to the unit can be routed through a hole made in the cover plate on the bottom of the electrical panel by the installer. The cover plate can be removed to make creating the hole easier. The bottom cover plate is accessible from inside the electrical panel.



**NOTE:** Air mesh panels not shown in detail view for easier viewing.



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