

Uniflair™ InRow® Direct Expansion Air Conditioners

CU300 Series (Heat Rejection Unit)

Installation Manual

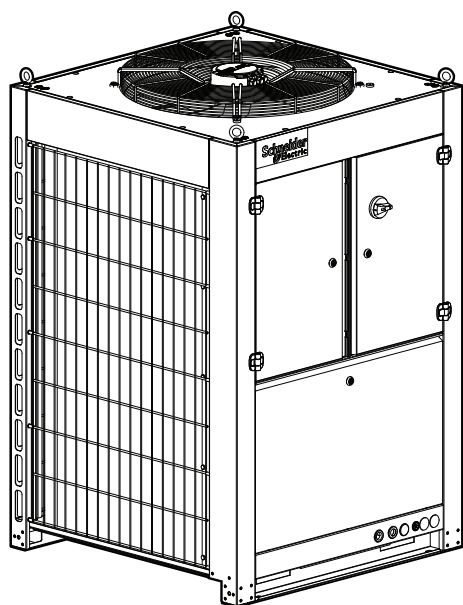
ACCU300 (D): 200-240V/3ph/50/60Hz, Single Power (Dual Power)

ACCU301 (D): 460-480V/3ph/50/60Hz, Single Power (Dual Power)

ACCU302 (D): 380-415V/3ph/50/60Hz, Single Power (Dual Power)

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This product is for industrial use only. It should only be used for the functions for which it has been designed as set out in this manual. User must evaluate and take adequate precautions to address risks associated with use of this product in environments and/or processes not specifically addressed in this manual (e.g. heavy industry, medical, marine environments, railway, etc.).

This product should be installed, configured, used, serviced, maintained, replaced or have similar work carried out on it only by suitably qualified, trained, experienced and competent personnel who hold any necessary authorizations (e.g. licenses, permits or certifications) to perform such work. User must ensure that all work is carried out in compliance with the manufacturer's instructions (including the product labels/markings, technical specification manual, installation manual, and operation and maintenance manual) and with all applicable laws, regulations, standards and guidance (including standards and guidance applicable to the installation location).

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Safety

Important Safety Instructions — SAVE THESE INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in personal injury if the related instructions are not followed.



This is the safety alert symbol. It is used to alert the user to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in death or serious injury.**

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in death or serious injury.**

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in minor or moderate injury.**

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.

Failure to follow these instructions can result in equipment damage.

Please Note

Electrical equipment should only be installed, operated, serviced, and maintained by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Always abide strictly by local laws and regulations in force in the place of installation.

Safety During Installation

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must be installed and serviced by qualified and trained personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

WARNING

HAZARD TO EQUIPMENT OR PERSONNEL

This equipment is not to be operated or installed by persons with reduced physical, sensory, or mental capabilities, or persons lacking experience or knowledge. Children are not to operate or play on or around this equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

WARNING

HAZARD OF EQUIPMENT FALLING OVER

- Use two or more persons at all times to move or turn this equipment.
- Always push, pull, or turn while facing the front and rear of this equipment. Never push, pull, or turn while facing the sides of this equipment.
- Slowly move this equipment across uneven surfaces or door thresholds.
- Lower leveling feet to floor when this equipment is at rest.
- Lower leveling feet and attach joining brackets to adjacent racks when this equipment is in final position.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

WARNING

HAZARD FROM MOVING PARTS

Keep hands, clothing, and jewelry away from moving parts. Check the equipment for foreign objects before closing the doors and starting the equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING
<p>HAZARD TO EQUIPMENT OR PERSONNEL</p> <p>All work must be performed by Schneider Electric qualified and trained personnel.</p> <p>Failure to follow these instructions can result in death, serious injury, or equipment damage.</p>

NOTICE
<p>RISK FROM SHARP EDGES</p> <ul style="list-style-type: none"> • Edges of the knock-out panel may be sharp. • Use a grommet, bushing, or other protective covering for the section of power cable routed through the knock-out panel. <p>Failure to follow these instructions can result in equipment damage.</p>

Personal Protective Equipment (PPE)

To carry out the tasks described in this manual, make sure to wear suitable PPE:



Intended Use

It is crucial to adhere to the guidelines provided in the manual for operating the cooling units effectively and safely.

1. **Intended Use:** The outdoor cooling unit is designed to be used in conjunction with the indoor unit. The outdoor unit and the indoor unit work together to provide air conditioning within specific limits, which are outlined in the manual. Make sure to use the units only for their intended purpose.
2. **Outdoor Use Only:** The unit must be used exclusively outdoors.
3. **No Unauthorized Modifications:** It is strictly prohibited to make any modifications to the units or their components without explicit written consent from Schneider Electric. Unauthorized alterations may lead to unsafe operation and will void the factory warranty.

General Information

Document Overview

Original Instructions

These are the original instructions provided by the manufacturer.

Save These Instructions

This manual contains important instructions that must be followed during the installation and maintenance of this equipment.

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.

NOTE: Unit images and component identification information are examples only.

For any updates to this manual, please contact Schneider Electric™ providing the related part number displayed on the manual back cover.

Cross-Reference Symbol Used in This Manual



See another section of this document or another document for more information on this subject.

Abbreviations

The following are abbreviations and terms used in this manual:

- EEV: Electronic expansion valve
- VFD/VSD: Variable-frequency drive/variable-speed drive
- DX: Direct expansion
- BMS: Building management system
- ATS: Automatic transfer switch
- HACS: Hot aisle containment system
- CACS: Cold aisle containment system
- RACS: Rack aisle containment system

Receiving and Inspecting the Equipment

Uniflair Direct Expansion InRow air conditioner has been tested and inspected for quality assurance before shipment from Schneider Electric. Carefully inspect both the exterior and interior of the equipment immediately upon receipt to ensure that the equipment has not been damaged during transit.

Verify that all parts ordered were received as specified and that the equipment is the correct type, size, and voltage.

Filing a Claim

If damage is identified on receipt of the equipment, note the damage on the bill of lading and file a damage claim with the shipping company. Contact Schneider Electric Worldwide Customer Support at one of the numbers listed on the Web page on the back page of this manual for information on how to file a claim with the shipping company*. The shipping claim must be filed at the receiving end of the delivery and shall be sent no later than 30 days upon unit receipt.

NOTE: In case of shipping damage, do not operate the equipment. Keep all packaging for inspection by the shipping company and contact Schneider Electric.

*e.g. a freight forwarder or an insurance company, depending on shipment arrangement

Radio Frequency Interference

NOTE: The Radio Frequency Interference directive applies to units installed in US and in Canada only.


Cooling units comply with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. These devices may not cause harmful interference.
2. These devices must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

California Proposition 65—Warning Statement for California Residents

NOTE: This directive applies to units installed in US and in Canada only.

 **WARNING:** This product can expose the user to chemicals including lead and lead compounds, that are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Storing the Cooling Unit Before Installation

NOTICE

DAMAGE FROM EXPOSURE

Leaving the equipment uncovered and exposed to possible damage from the environment will void the factory warranty.

Failure to follow these instructions can result in equipment damage.

If the cooling unit will not be installed immediately, store it in a safe place, protected from the weather.

Moving the Unit

⚠ WARNING

DAMAGE TO EQUIPMENT OR PERSONNEL

- The equipment is heavy. For safety purposes, adequate personnel must be present when moving this item.
- The load must always be solidly anchored to the bearing element of the lifting equipment and means of transport.
- No one should be near the suspended load, nor in the working area of the crane, forklift, truck, or any other lifting equipment or means of transport.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Lifting and transporting the units must be carried out by qualified personnel as described in this manual.

Use all relevant safety standards to prevent any possible damage to people or objects.

The condensing unit is packaged in a wooden crate. The recommended tools for moving and installing the equipment include the following:

Forklift

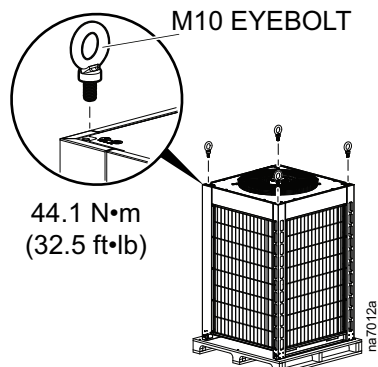


Crane

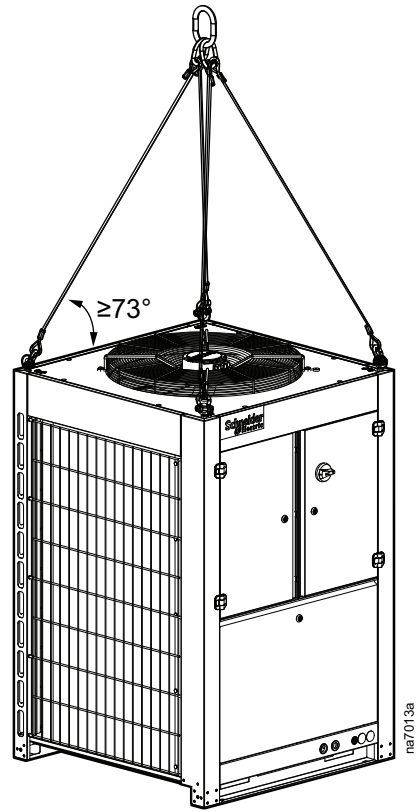


Use field-supplied eyebolts rated for angular lifting with a shoulder similar to the one shown below. The minimum weight rating for a 90° lift is 726 kg (1600 lb).

NOTE: The images are examples only. The unit in use may differ.



The lifting angle for the lifting straps must be greater than or equal to 73°.



Unit Overview

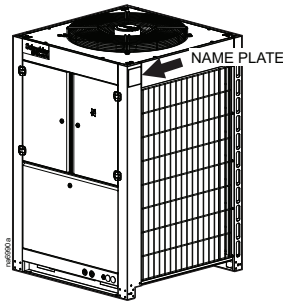
Model Identification

The model number can be found on the outside of the shipping crate and on the name plate located on the unit as shown. Use the table below to verify that the equipment is the right type and voltage.

NOTE: The unit is not to be accessed by the general public.

The model number can be found on the outside of the shipping crate and on the name plate located on the unit as shown. Use the table below to verify that the equipment is the right type and voltage.

NOTE: The unit is not to be accessed by the general public.



SKU	Voltage	Frequency	Power Feed
ACCU300	200–240 V 3~	50/60 Hz	Single feed
ACCU300D	200–240 V 3~	50/60 Hz	Dual feed
ACCU302	380–415 V 3~	50/60 Hz	Single feed
ACCU302D	380–415 V 3~	50/60 Hz	Dual feed
ACCU301	460–480 V 3~	50/60 Hz	Single feed
ACCU301D	460–480 V 3~	50/60 Hz	Dual feed

NOTE: All units are 65 kAIC-ready.

Working Conditions and Environmental Limits

Uniflair Direct Expansion InRow units have a minimum heat load to ensure proper operation. Failure to operate the unit with at least the minimum load will result in one or more of the following conditions:

- Unstable unit operation
- Decreased operating efficiency
- Equipment on/off cycling
- Inadequate dehumidification
- Increased wear and tear caused by frequent on/off cycles
- Decreased group control effectiveness
- Potential increase in cost of ownership

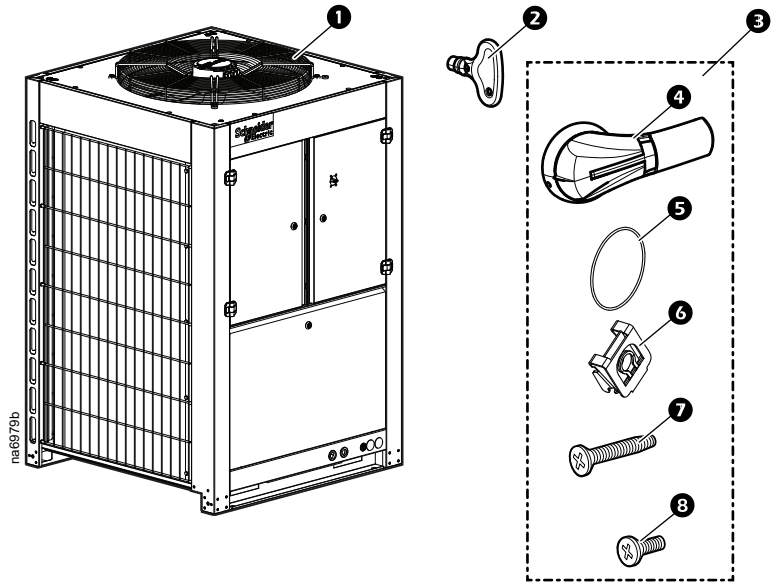
Limit Working Conditions—Outdoor Units (ACCU300, ACCU300D, ACCU302, ACCU302D, ACCU301, and ACCU301D)	
Refrigerant type	R410A
Altitude	2000 m (6561.7 ft)
Storage Conditions	
Temperature	–25°C to +65°C (–13°F to +149°F)
Humidity	5 to 95%RH

NOTE: ACCU302 and ACCU302D are in accordance with the Electromagnetic Compatibility Standard (EMC): EN 55032, EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-3, EN61000-6-1, EN61000-3-11, EN 61000-3-12. ACCU300, ACCU300D, ACCU301, and ACCU301D are in accordance with FCC: ANSI C63.4.

NOTE: The SKUs comply with EN61000-3-12 provided that the short-circuit power SSC is greater than or equal to 350 at the interface point between the user supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power SSC greater than or equal to 350.

Package Contents

ACCU300, ACCU300D, ACCU302, ACCU302D, ACCU301, ACCU301D



Item	Description	Quantity
1	ACCU30X unit	1
2	Key*	1
3	Main switch handle installation kit**	
4	Main switch handle***	1
5	Main switch gasket***	1
6	Nuts***	4
7	Machine screws***	4
8	Tap screws****	4

*Attached to the fan grille with a wire tie.

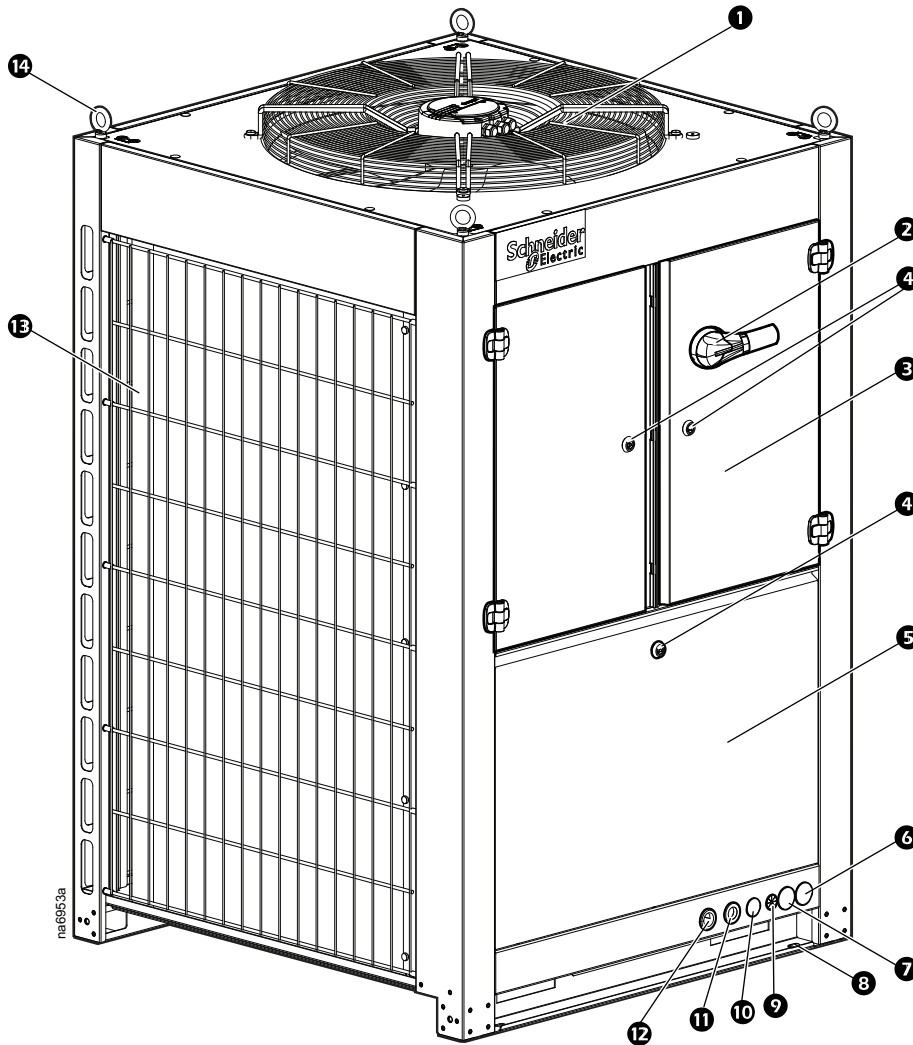
**Shipped inside the electrical panel.

***Quantity will be doubled for models ACCU300D, ACCU302D, and ACCU301D.

****Not used. This item can be recycled.

Component Identification

External Components



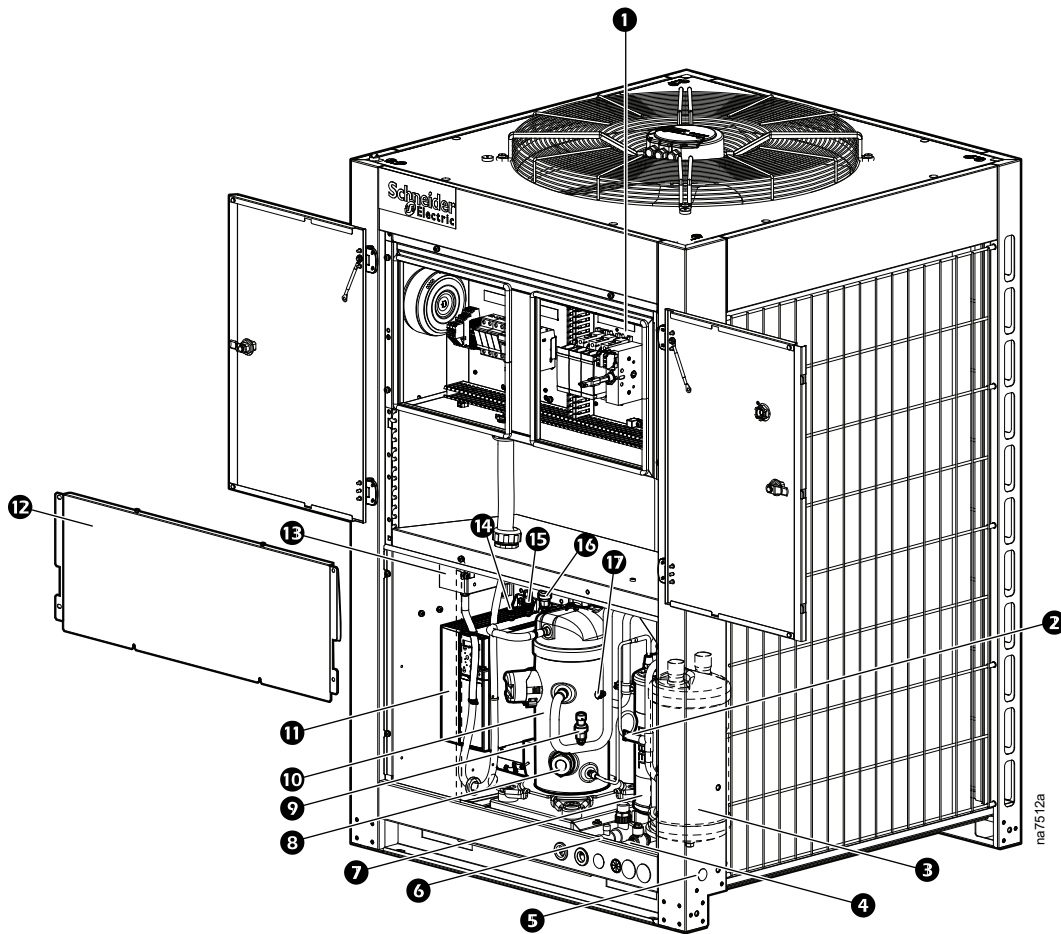
NOTE: Model ACCU300 is shown

Item	Description	Item	Description
1	Fan	8	Mounting holes
2	Main disconnect switch handle (field installed)	9	Signal cable inlet
3	Electrical panel access doors	10	Liquid receiver connection outlet*
4	Quarter-turn latches	11	Liquid line inlet
5	Service panel	12	Suction line inlet
6	Power feed A inlet	13	Coil grilles
7	Power feed B inlet	14	Lifting eyebolts (field supplied)

*ACCU300, ACCU300D, ACCU301, ACCU301D, ACCU302, ACCU302D only

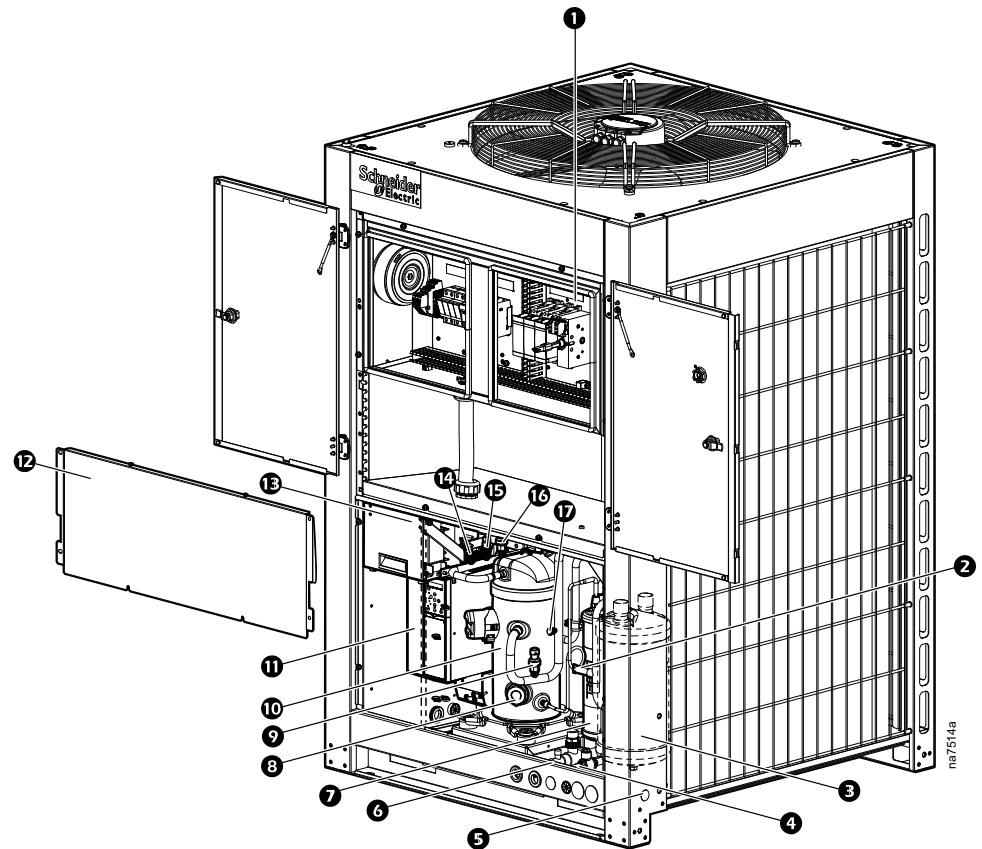
Internal Components

ACCU300, ACCU300D, ACCU301, ACCU301D



Item	Description	Item	Description
1	Electrical panel	10	Variable-speed compressor
2	Pipe stub for connection to liquid receiver	11	Variable frequency drive (VFD)
3	Accumulator	12	Interior protection panel
4	Liquid line connection	13	EMI filter
5	Liquid receiver cable inlet	14	Service port
6	Suction line connection	15	High pressure switch
7	Oil separator	16	High (discharge) pressure sensor
8	Compressor sight glass	17	Service port
9	Low (suction) pressure sensor		

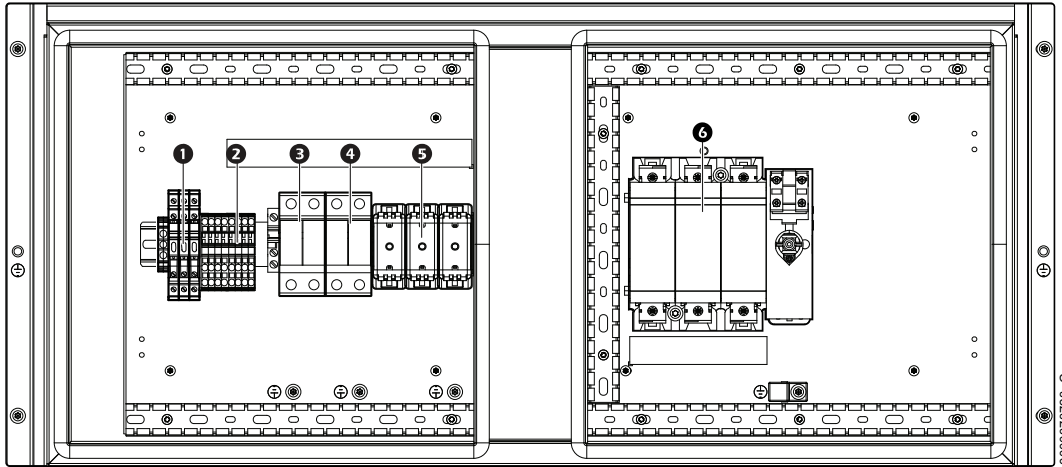
ACCU302, ACCU302D



Item	Description	Item	Description
1	Electrical panel	10	Variable-speed compressor
2	Pipe stub for connection to liquid receiver	11	Variable frequency drive (VFD)
3	Accumulator	12	Interior protection panel
4	Liquid line connection	13	Line reactor and EMI filter
5	Liquid receiver cable inlet	14	Service port
6	Suction line connection	15	High pressure switch
7	Oil separator	16	High (discharge) pressure sensor
8	Compressor sight glass	17	Service port
9	Low (suction) pressure sensor		

Electrical Panel

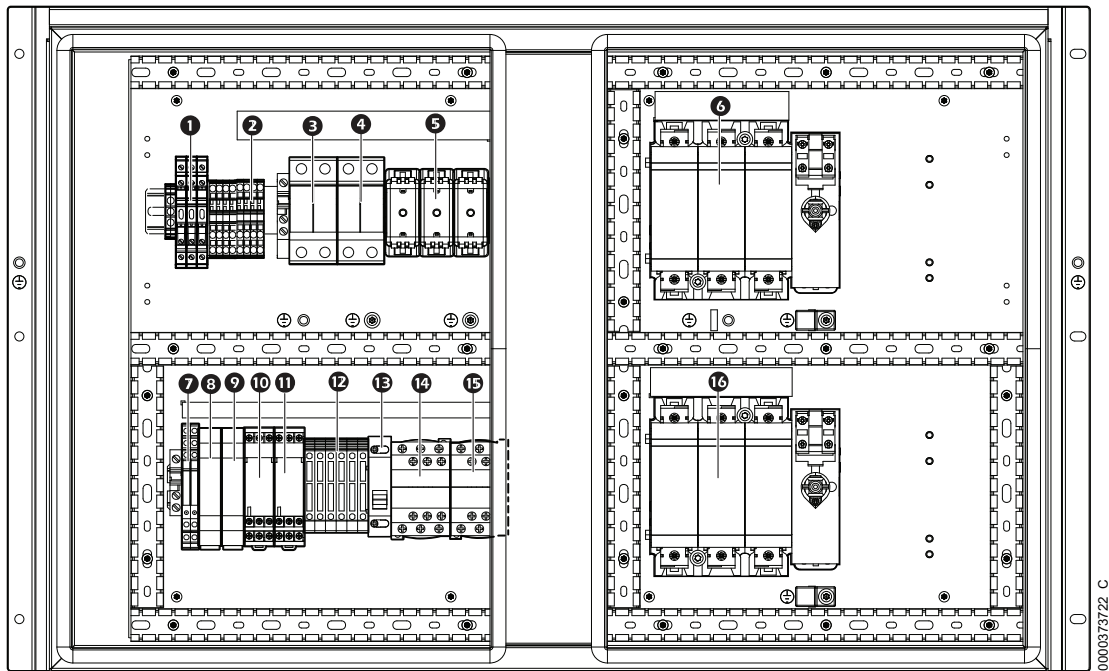
ACCU300



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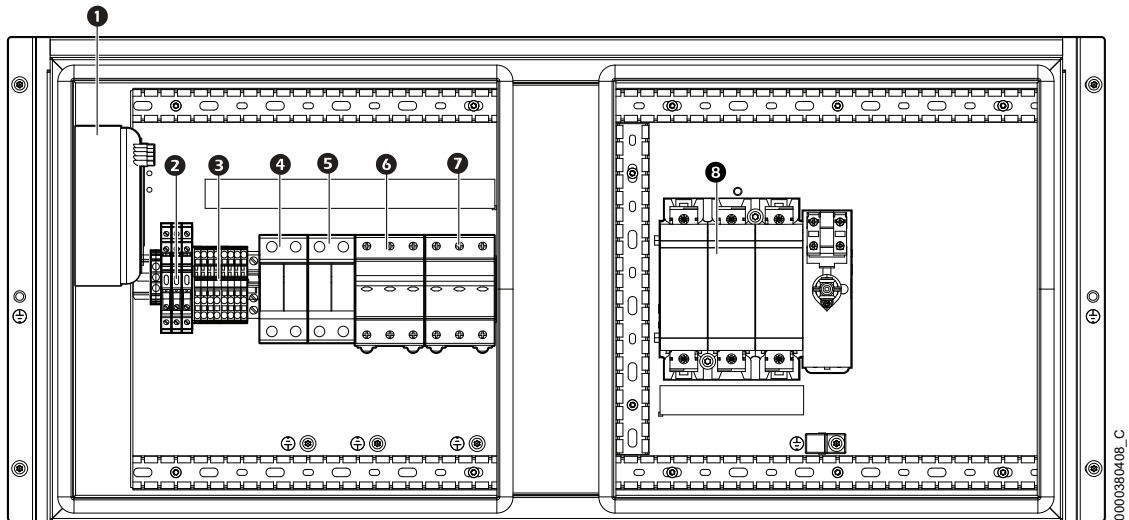
Item	Description	Item	Description
1	Low temperature kit fuse block	4	Fan motor switch
2	Terminal block	5	Compressor variable-speed drive switch
3	Crank case heater switch	6	Main switch

ACCU300D



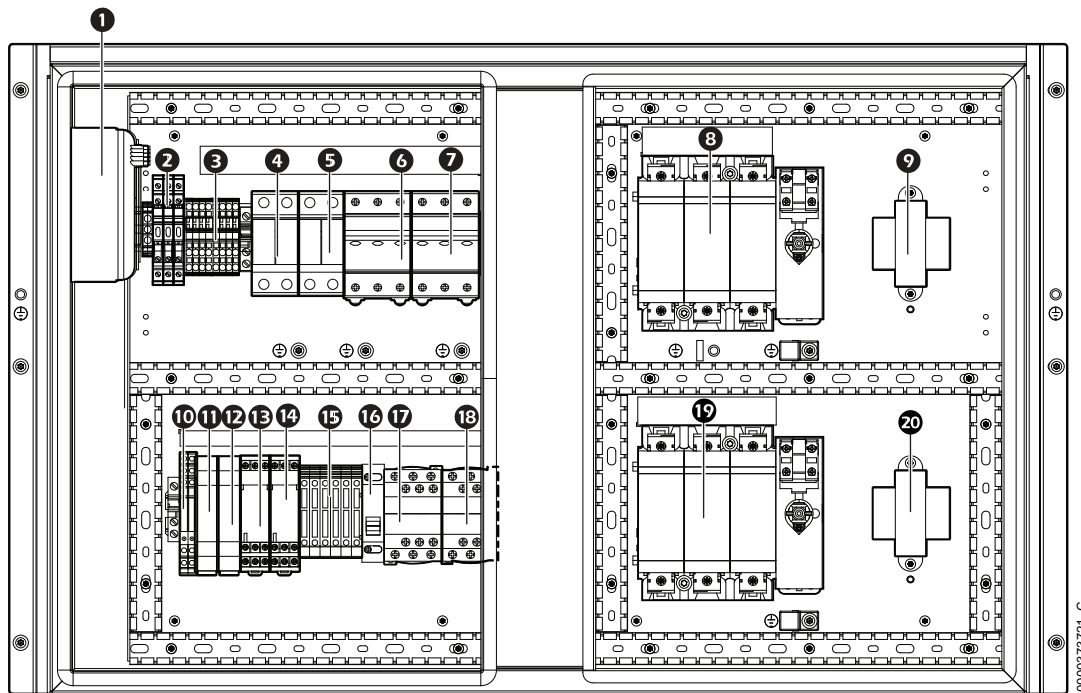
Item	Description	Item	Description
1	Low temperature kit fuse block	9	Supply B line monitor
2	Terminal block	10	Supply A contactor timer
3	Crank case heater switch	11	Supply B contactor timer
4	Fan motor switch	12	ATS circuit fuse
5	Compressor variable-speed drive switch	13	Supply line selector A/B
6	Power supply A main switch	14	Supply A contactor
7	Supply line selector relay	15	Supply B contactor
8	Supply A line monitor	16	Power supply B main switch

ACCU301 and ACCU302



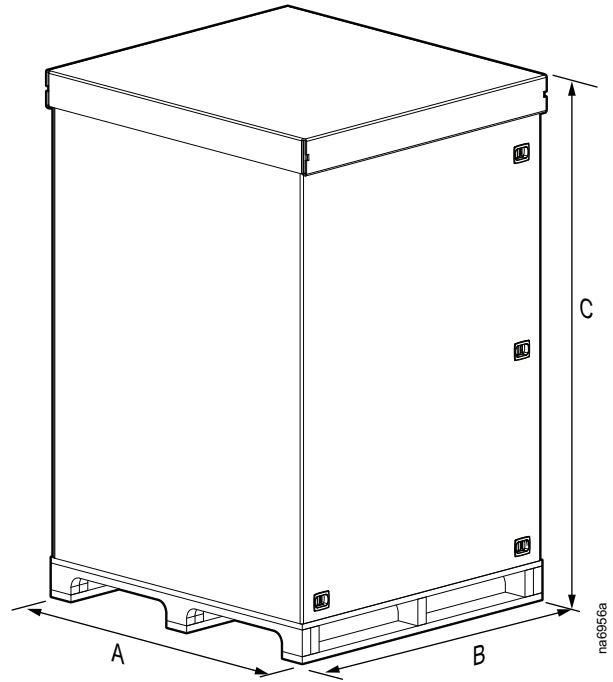
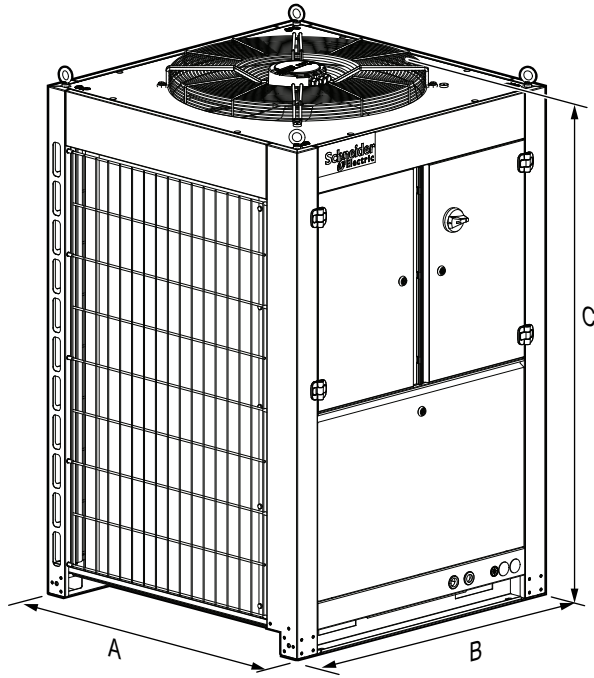
Item	Description	Item	Description
1	Crank case heater power transformer	5	Crank case heater power transformer switch
2	Low temperature kit fuse block	6	Fan motor switch
3	Terminal block	7	Compressor variable-speed drive switch
4	Crank case heater switch	8	Main switch

ACCU301D and ACCU302D



Item	Description	Item	Description
①	Crank case heater power transformer	⑪	Supply A line monitor
②	Low temperature kit fuse block	⑫	Supply B line monitor
③	Terminal block	⑬	Supply A contactor timer
④	Crank case heater switch	⑭	Supply B contactor timer
⑤	Crank case heater power transformer switch	⑮	ATS circuit fuse
⑥	Fan motor switch	⑯	Supply line selector A/B
⑦	Compressor variable-speed drive switch	⑰	Supply A contactor
⑧	Power supply A main switch	⑱	Supply B contactor
⑨	ATS supply A power transformer	⑲	Power supply B main switch
⑩	Supply line selector relay	⑳	ATS supply B power transformer

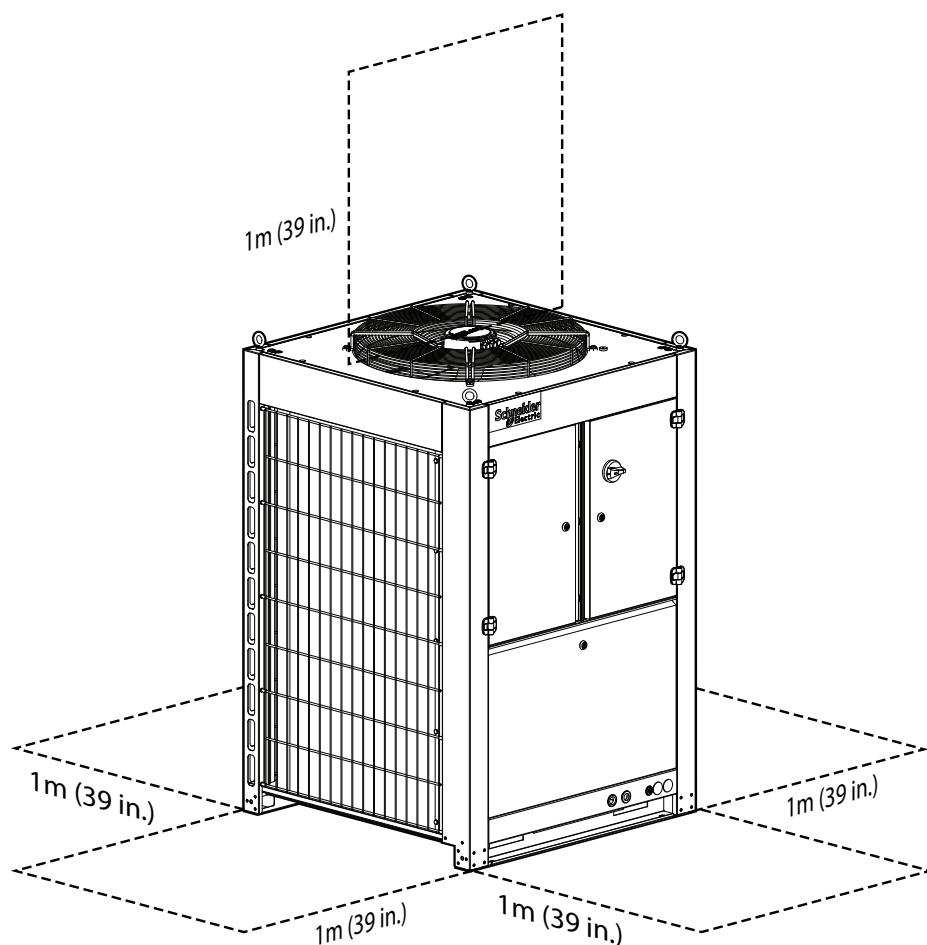
Dimensions and Weights



SKU	Unit Dimensions – mm (in.)			Shipping Dimensions – mm (in.)			Net Weight – kg (lb)	Shipping Weight – kg (lb)
	A	B	C	A	B	C		
ACCU300	1000 (39.4)	1000 (39.4)	1555 (61.2)	1136 (44.7)	1085 (42.7)	1745 (68.7)	267 (588.6)	297 (654.8)
ACCU300D	1000 (39.4)	1000 (39.4)	1555 (61.2)	1136 (44.7)	1085 (42.7)	1745 (68.7)	272 (600.0)	305 (672.4)
ACCU301	1000 (39.4)	1000 (39.4)	1555 (61.2)	1136 (44.7)	1085 (42.7)	1745 (68.7)	267 (588.6)	297 (654.8)
ACCU301D	1000 (39.4)	1000 (39.4)	1555 (61.2)	1136 (44.7)	1085 (42.7)	1745 (68.7)	272 (600.0)	305 (672.4)
ACCU302	1000 (39.4)	1000 (39.4)	1555 (61.2)	1136 (44.7)	1085 (42.7)	1745 (68.7)	273 (601.9)	303 (668.0)
ACCU302D	1000 (39.4)	1000 (39.4)	1555 (61.2)	1136 (44.7)	1085 (42.7)	1745 (68.7)	278 (612.9)	308 (679.0)

Service Access

A minimum of 1 m (39 in.) of clear space on all sides of the equipment is recommended for service access.

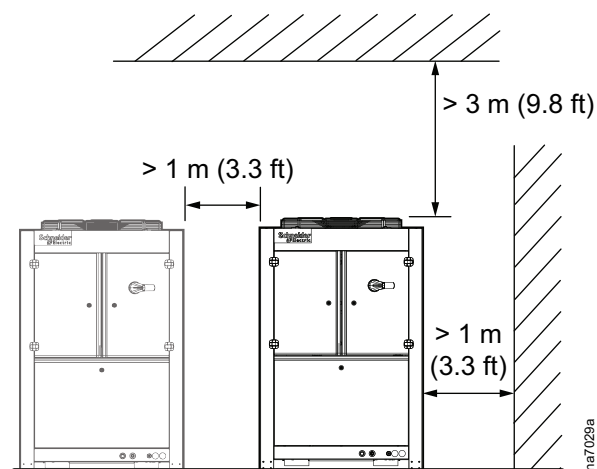


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NOTE: The image is an example only: the unit in use may differ.

Airflow Clearance

The following clearances are required for proper airflow around the outdoor unit.

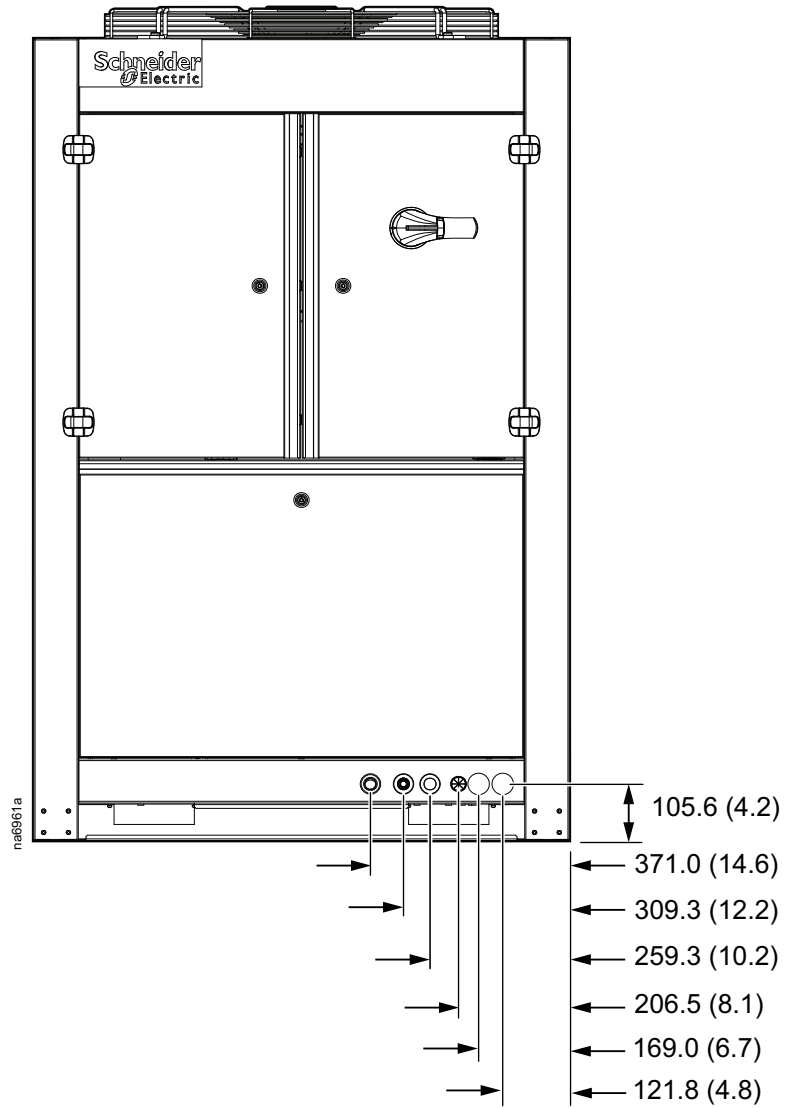


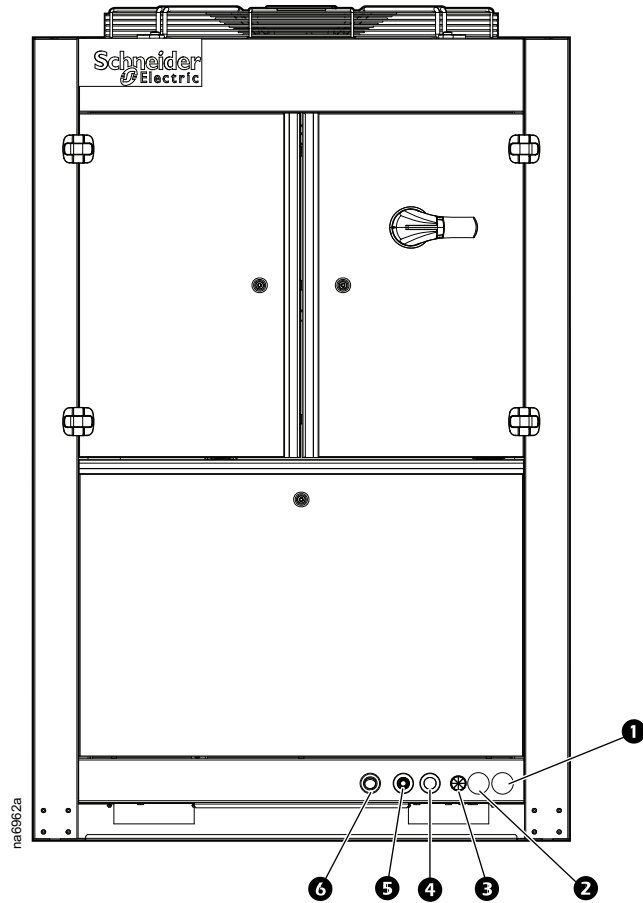
na7029a

Piping and Electrical Access Locations



Refer to the *Installation Drawing* supplied with the unit for more information on this subject.





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

Item	Description
1	Power supply 1 inlet
2	Power supply 2 inlet
3	Communication cable inlet
4	Liquid receiver connection outlet
5	Liquid line connection inlet
6	Suction line connection inlet

Installation

Location and Power Considerations

Incoming Power Supply Requirements

⚠️⚠️ WARNING

ELECTRICAL HAZARD

- Electrical service must conform to local and national electrical codes and regulations.
- The equipment must be grounded.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

See the name plate on the unit to determine the maximum possible current draw of the cooling unit. Provide either a single outlet circuit or a Power Distribution Unit (PDU) with sufficient capacity to handle all loads. Do not plug two Uniflair InRow cooling units into the same branch circuit or PDU.

Unit Location

The installation area must follow these requirements:

- Outdoor units must be installed on a flat, level surface
- Outdoor units should not be exposed to air containing flammable or greasy substances
- Service clearance of 1 m (39 in.) must be available on all sides
- Clearance of 3 m (10.8 ft) from fan grill side to allow for proper airflow
- Installing the unit in areas with increased airborne debris may result in more frequent service intervals
- Secure the unit to its foundation using the mounting holes located on the bottom of the frame.

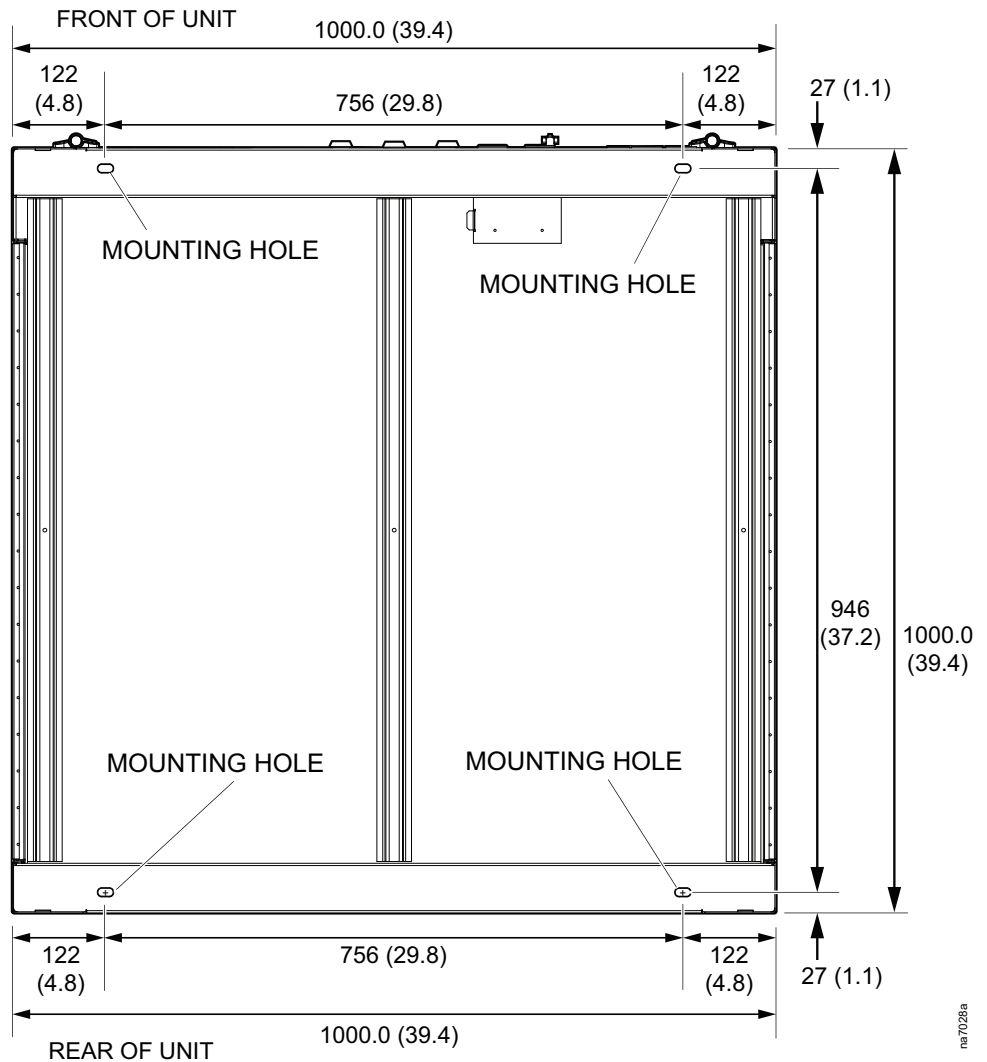


See Stabilizing the Outdoor Unit, page 29.

Stabilizing the Outdoor Unit

Mounting Hole Dimensions

The following image shows the dimensions for the mounting holes located on the frame of the outdoor unit.



na7028a

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

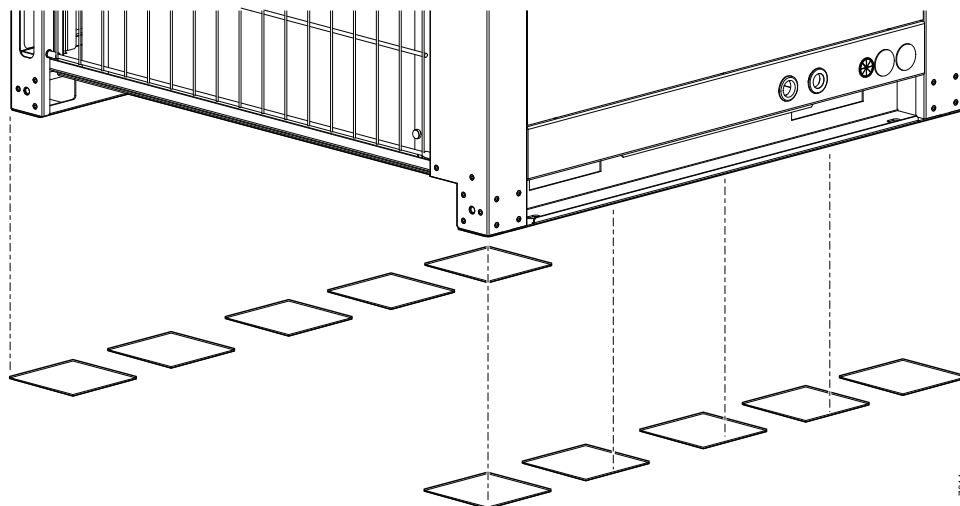
NOTE: View is bottom view looking up.

Vibration Damping Pads

It is recommended to place field-supplied vibration damping pads under the outdoor unit to minimize vibration and noise. The following specs are recommended for the vibration pads:

- Hardness: Durometer 90A
- Material: Green neoprene rubber
- Dimensions: 152 mm x 152 mm (6 in. x 6 in.)
- Thickness: 9.5 mm (3/8 in.)

Place the vibration damping pads to be flush with the edges of the unit so as not be visible. The following is the recommended placement of the vibration damping pads:



NOTE: Do not block the mounting holes with vibration damping pads. Vibration damping pads may need to be cut to size.

Removing Doors and Panels

⚠ WARNING

MOVING PARTS HAZARD

Do not remove rear panels if the equipment is operating.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE

EQUIPMENT DAMAGE

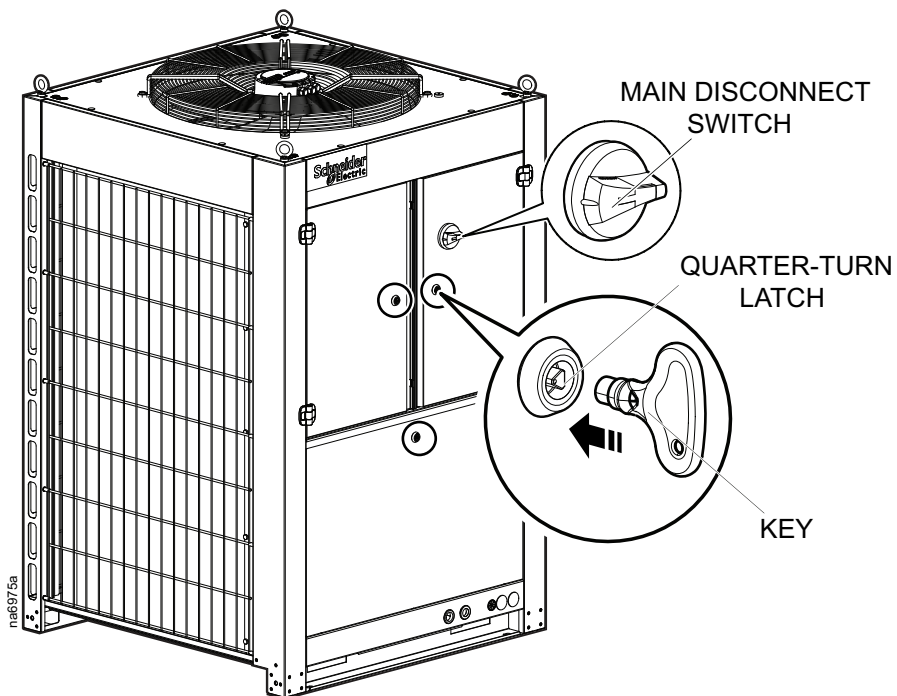
Do not lean the doors against a wall with the side panel latches facing the wall. This can deform the latches and prevent them from working properly.

Failure to follow these instructions can result in equipment damage.

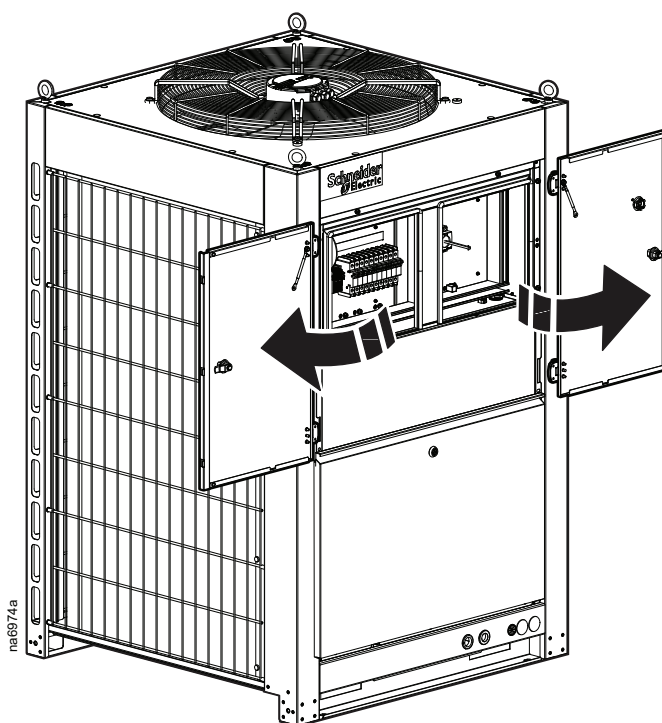
Electrical Panel Access

NOTE: Images are examples only; the unit in use may differ.

1. Turn the main switch to the "Off" position and then rotate the quarter-turn latches to the right.



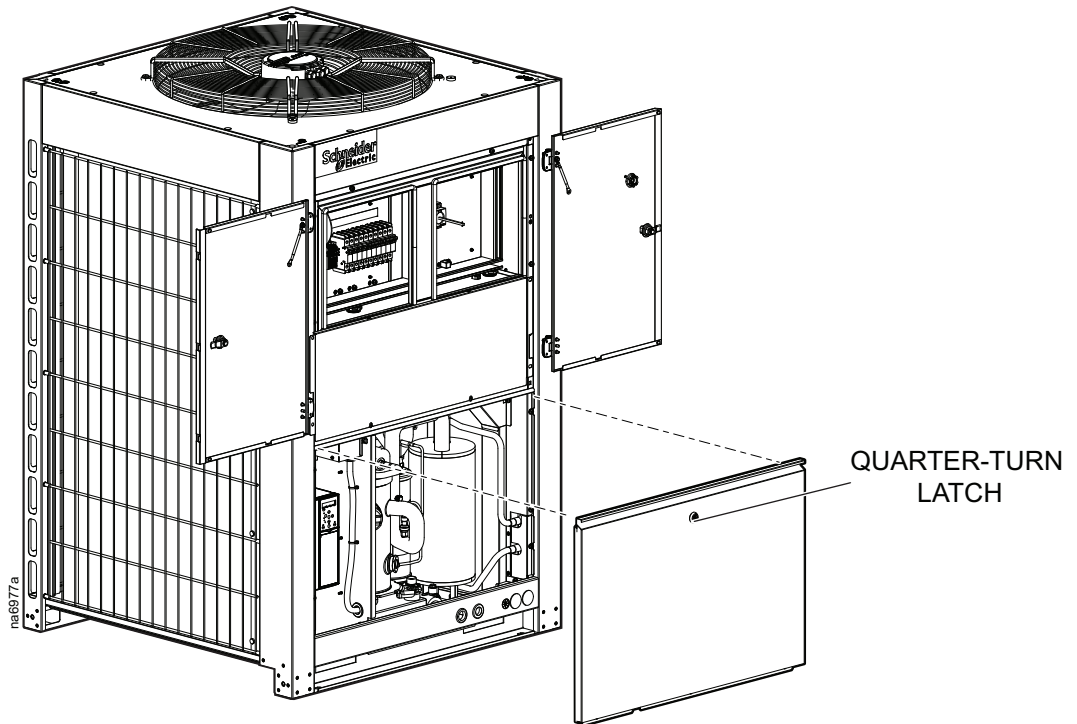
2. Open the electrical panel access doors.



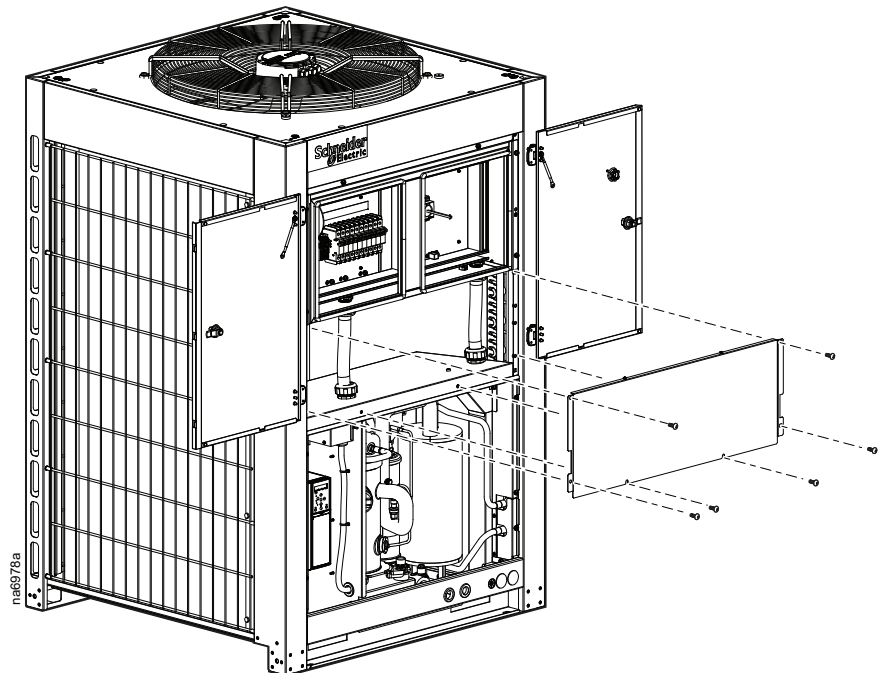
Panel Removal

NOTE: Images are examples only. The unit in use may differ.

1. Turn the quarter-turn latch to the right and pull the service panel away from the unit.



2. Remove the screws and pull the internal protective panel away from the unit.



Installing the Main Switch

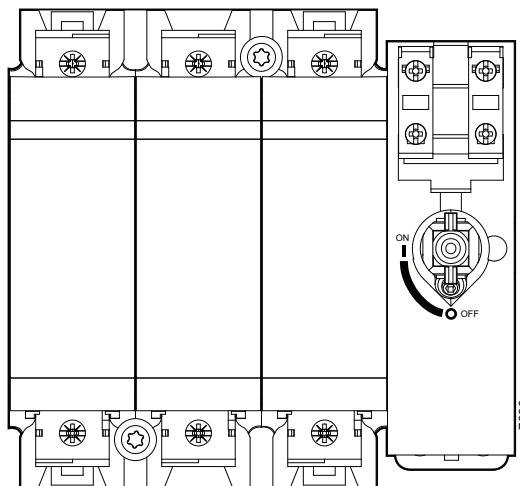
ACCU300, ACCU300D, ACCU301, ACCU301D, ACCU302, and ACCU302D

The main switch handle of the condensing unit is shipped inside the electrical panel of the unit and must be installed in the field.

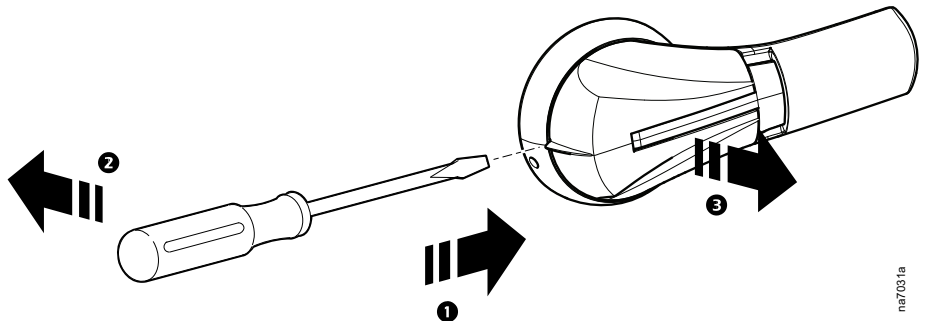
1. Open the electrical panel access door.

2. Make sure the power supply is in the "OFF" position.

NOTE: Make sure both power supplies are in the "OFF" position if two are present.

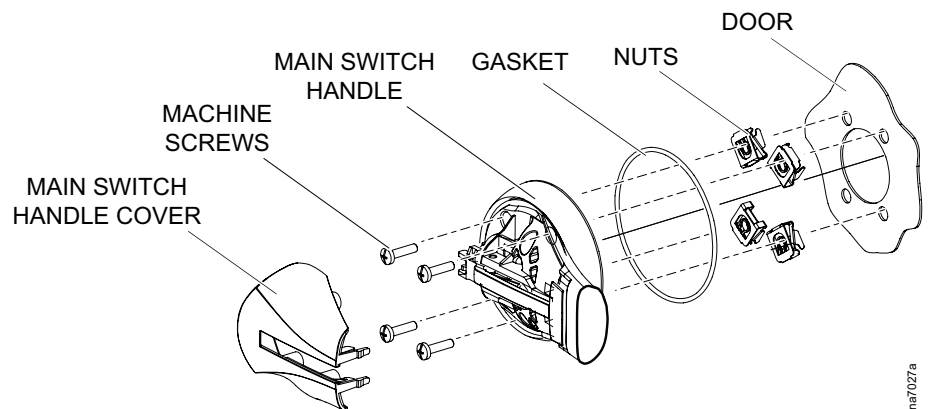


3. Remove the cover from the main switch handle.



4. Install the main switch handle on the outside of the door using the gasket, 4 machine screws, and 4 nuts.

NOTE: Place the flat side of the nuts against the main switch handle.



Connections Overview

All connections to and from the indoor unit can be made through either the top or the bottom of the unit. Once the corresponding connectors are brazed or soldered into place, the equipment can be disconnected without soldering, welding, or gluing. See the following tables for information about the sizes and types of connectors.

Power Connections

Model	Type	Minimum	Maximum	Torque
ACCU300	Screw connector	AWG 6 (4.1 mm ²)	—	3.5 Nm (2.59 ft-lb)
ACCU300D	Screw connector	AWG 6 (4.1 mm ²)	—	3.5 Nm (2.59 ft-lb)
ACCU301	Screw connector	AWG 10 (2.5 mm ²)	—	3.5 Nm (2.59 ft-lb)
ACCU301D	Screw connector	AWG 10 (2.5 mm ²)	—	3.5 Nm (2.59 ft-lb)
ACCU302	Screw connector	AWG 12 (2.0 mm ²)	—	3.5 Nm (2.59 ft-lb)
ACCU302D	Screw connector	AWG 12 (2.0 mm ²)	—	3.5 Nm (2.59 ft-lb)

Piping Size and Type

Connection	Type	ACCU300, ACCU300D, ACCU301, ACCU301D, ACCU302, ACCU 302D,
Suction line	Nominal Pipe	7/8" tube
Liquid line	Nominal Pipe	1/2" tube

Sensor and Communication Connections

Wire Size

Connection	Type	Minimum	Maximum
Modbus D1	Push-in spring connection/ Spring-cage connection	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)
Modbus D0	Push-in spring connection/ Spring-cage connection	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)
Modbus GND	Push-in spring connection/ Spring-cage connection	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)

Mechanical Connections

Refrigerant Piping

An external condensing unit in the outdoor unit connects to the indoor unit. Install all refrigerant lines in accordance with applicable industry guidelines as well as local and national codes and regulations. Calculate an equivalent length based on the actual linear length of the run, including valves and fittings.

NOTE: All fittings should be long-radius to minimize pressure drop.



See Refrigeration Piping Diagram, page 39.

Make all refrigerant lines as short and direct as possible. Horizontal suction lines must be pitched downward at a minimum of 4 mm per m (1/2 in. per 10 ft) in the direction of flow to aid in oil return. Install a trap in the suction line at the bottom of the riser and additional traps approximately every 6 m (20 ft) of rise to ensure proper oil return. Isolate piping from structural surfaces using vibration clamps.

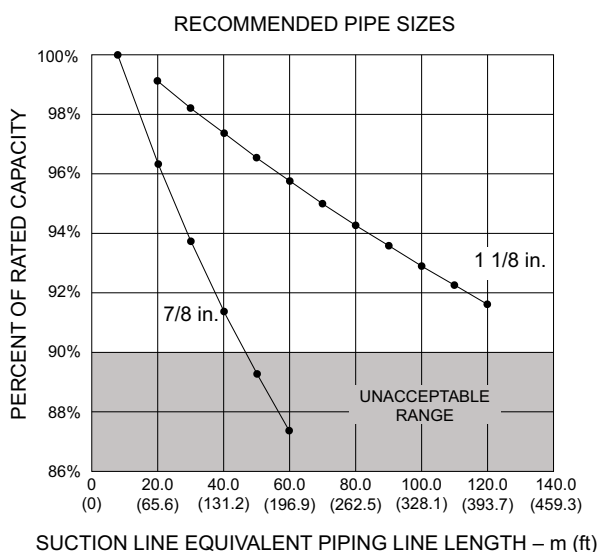
NOTE: Field-installed gas lines must be insulated.

NOTE: Install all piping in accordance with applicable industry guidelines as well as local and national codes and regulations.

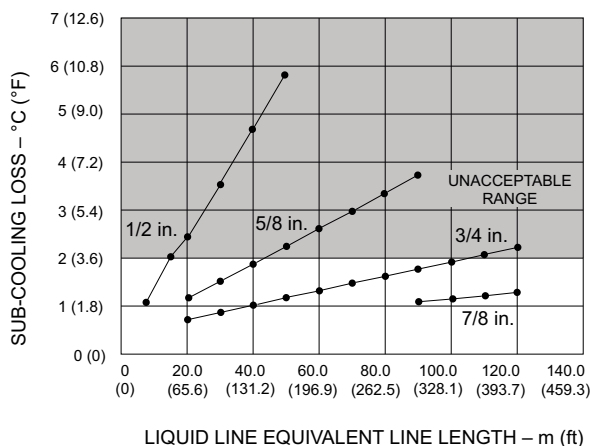
The following table provides ASHRAE standards for equivalent piping lengths of fittings and valves.

Type of Fitting or Valve—Equivalent Length of Pipe in m (ft)								
ACR Tubing Size	Gate Valve	Angle Valve	Globe Valve	Standard 90° Elbow	Long Radius 90° Elbow	Reducer 1/2	Tee Branch	Tee Straight
1/2 in.	0.18 (0.6)	1.83 (6.0)	5.18 (17.0)	0.43 (1.4)	0.27 (0.9)	0.43 (1.4)	0.82 (2.7)	0.27 (0.9)
5/8 in.	0.21 (0.7)	2.13 (7.0)	5.49 (18.0)	0.49 (1.6)	0.3 (1.0)	0.49 (1.6)	0.91 (3.0)	0.3 (1.0)
7/8 in.	0.27 (0.9)	2.74 (9.0)	6.71 (22.0)	0.61 (2.0)	0.43 (1.4)	0.61 (2.0)	1.22 (4.0)	0.43 (1.4)
1 1/8 in.	0.30 (1.0)	3.66 (12.0)	8.84 (29.0)	0.79 (2.6)	0.52 (1.7)	0.79 (2.6)	1.52 (5.0)	0.52 (1.7)

Size the suction line piping based on the equivalent length to provide a capacity greater than 90% of the rated capacity.

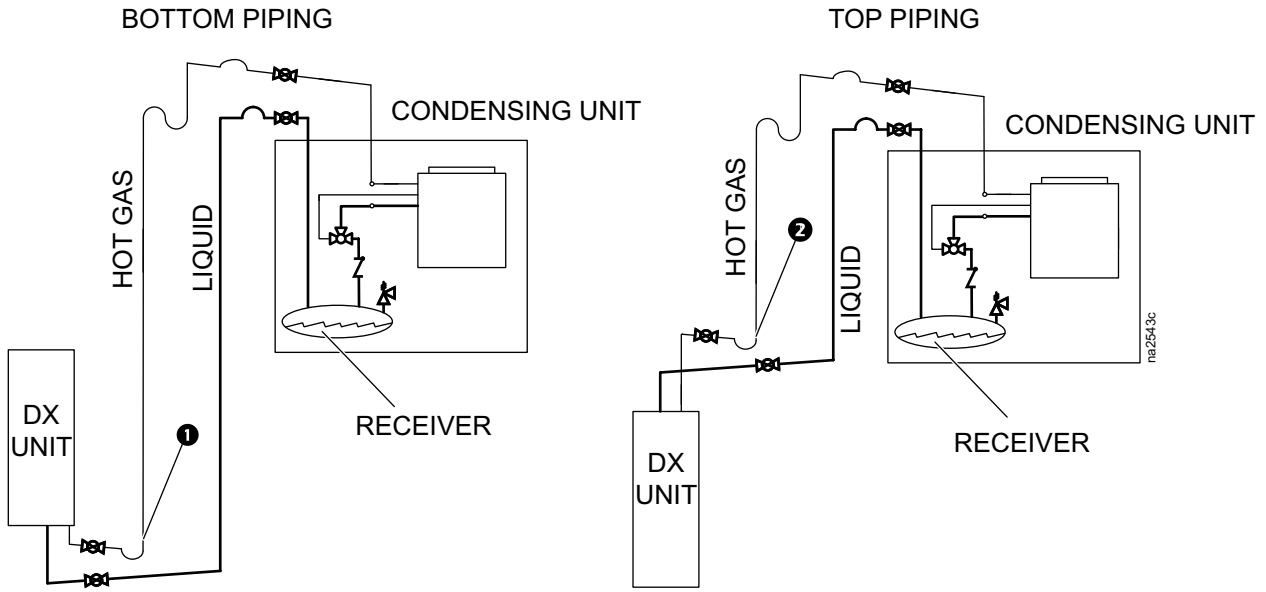





Size the liquid line piping based on the equivalent length to provide a sub-cooling loss of less than 2°C (3.6°F).







NOTE: The maximum vertical height of the condensing unit above the indoor unit is 30 m (98 ft).

Refrigeration Piping Diagram



Item	Description
①	Pitch in direction of refrigerant flow; 4 mm per m (1/2-in. per 10 ft)
②	Reduction of piping diameter for vertical piping run (if necessary)
	Shut-off valve
	Head pressure control valve
	Pressure relief valve

Item	Description
	Check valve
	P-trap
	S-trap
	Inverted P-trap

Electrical Connections

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must be installed and serviced by qualified and trained personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Potentially dangerous and lethal voltages exist within this unit. More than one disconnect switch may be required to energize or de-energize this equipment. Observe all cautions and warnings.

Failure to follow these instructions will result in death or serious injury.

WARNING

ELECTRICAL HAZARD

- Electrical service must conform to local and national electrical codes and regulations.
- The equipment must be grounded.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The following electrical connections are required in the field:

- Power to the outdoor unit (three-phase plus ground)
- Outdoor unit RS-485 connection
- Primary and secondary feeds for ACCU300D, ACCU301D, and ACCU302D
- Power to flooded receiver heater



See the electrical diagram (located on the electrical box) for all electrical connections.



See the equipment name plate for voltage and current requirements.

All low-voltage connections, including data and control connections, must be made with properly insulated wires. Low-voltage wiring must be insulated based on the wiring with which it is routed. The low-voltage connections must have 300-V minimum insulation.

NOTE: A power disconnect switch is required to isolate each unit for maintenance and servicing.

Power Supply Connections

⚠️⚠️ WARNING

ELECTRICAL HAZARD

- Electrical service must conform to local and national electrical codes and regulations.
- The equipment must be grounded.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠️ WARNING

HAZARD TO EQUIPMENT OR PERSONNEL

All work must be performed by Schneider Electric qualified and trained personnel.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

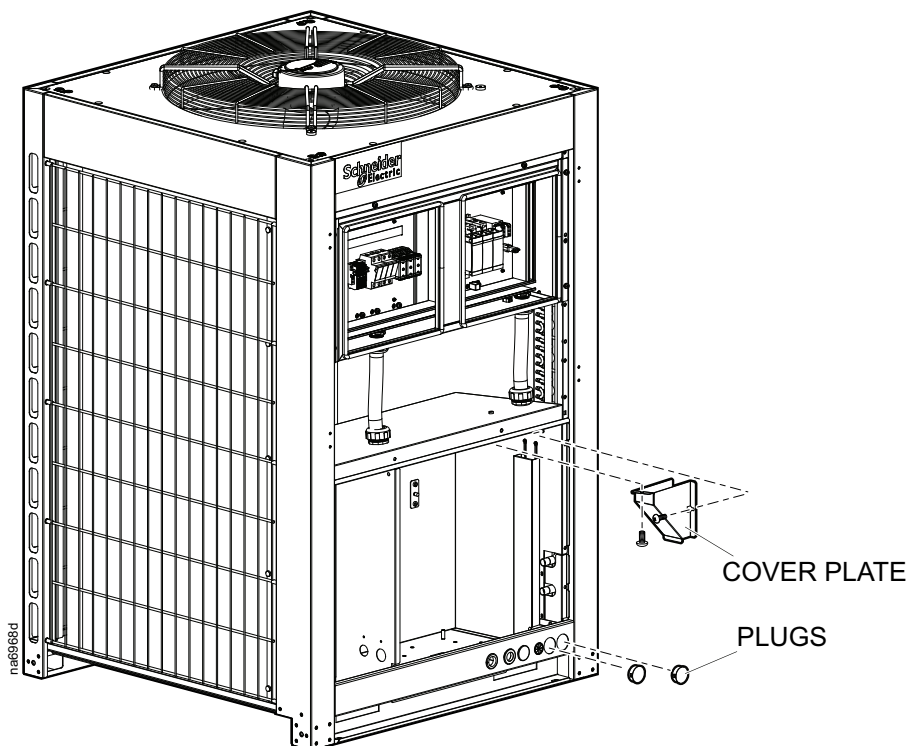
Outdoor Unit

1. Remove the service and internal protection panels, and open the electrical panel.



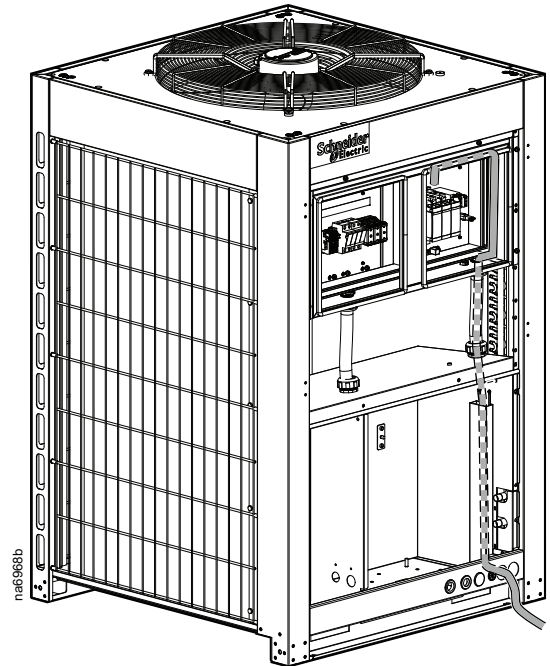
See Removing Doors and Panels, page 32.

2. Remove the cover plate and plugs from the power supply inlets.

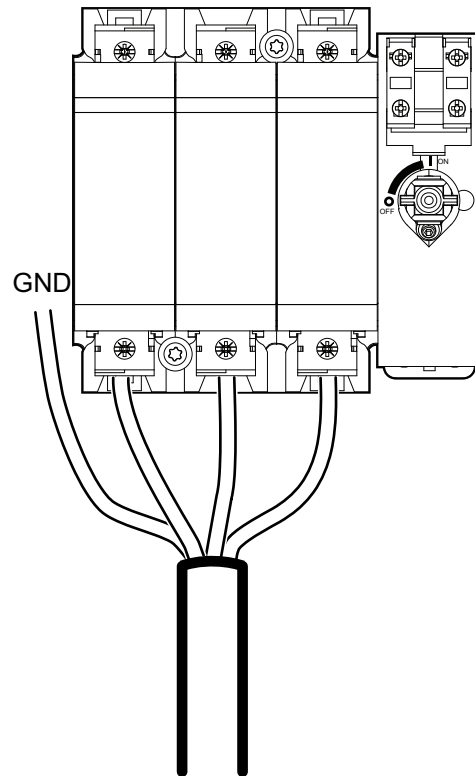


3. Route the cable or cables through the unit to the electrical panel.

NOTE: Use a conduit at least 25 mm (1 in.) ID to protect the exposed portion of the power cable between the unit and the building. The conduit must conform to any applicable local and national codes.



4. Connect the power cables to each power supply.



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5. Re-install the panels and close the doors.

ATS Function Settings

IMPORTANT: Supply A/B line monitor, supply A/B contactor timer, and supply line selector A/B are adjustable on the front panel. The default factory settings are on the provided wiring diagram.

Supply A/B Line Monitor

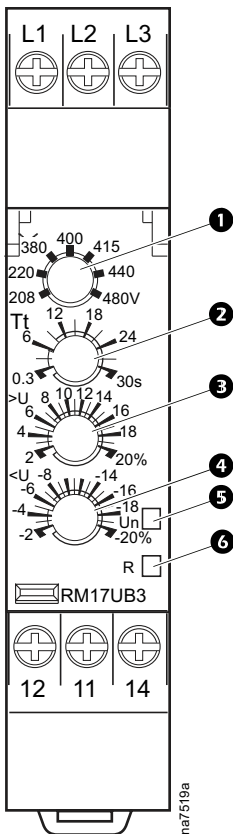
The supply line monitor determines at what point when sensing the voltage that you would transfer to the other power supply. This is based on the following parameters:

1. The relay monitors the following:
 - The undervoltage
 - The overvoltage
 - Phase loss (U measured < 150 V)
2. An adjustable time delay from 0.3 to 30 seconds allows inhibition of the output relay if a transient fault occurs.
3. If a voltage fault is detected, the relay opens at the end of the time delay set by the user.
4. Upon energization of the device with a detected measured fault, the relay stays open.
5. If phase loss is detected, the relay opens instantly

NOTE: Tt is the overvoltage and undervoltage threshold delay (adjustable on the front panel).



See for the location of components in the electrical panel.



Item	Description
1	Voltage range selector switch
2	Time delay control potentiometer (Tt)
3	Potentiometer for overvoltage adjustment (>U)
4	Potentiometer for undervoltage adjustment (>U)
5	Power supply status (green) LED (Un)
6	Relay output status (yellow) LED (R)

Supply A/B Contactor Timer

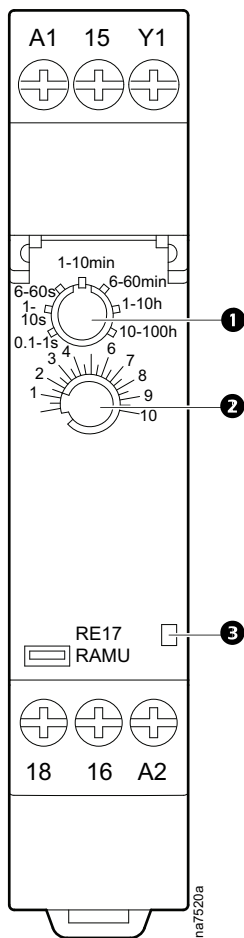
The contactor timer defines conditions that will prevent the ATS from transferring from source A to source B

1. The timing period 'T' begins on power-on.
2. At the end of this timing period, the output relay closes to energized supply A or B contactors.

NOTE: T is the timing period (adjustable on front panel).



See for the location of components in the electrical panel.



Item	Description
1	T time delay range
2	T time delay setting
3	LED indicator

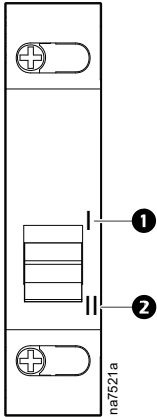
Supply Line A/B Selector

The supply line selector defines the primary source and the secondary source.

- I = Power supply A is the primary source
- II = Power supply B is the primary source



See for the location of components in the electrical panel.



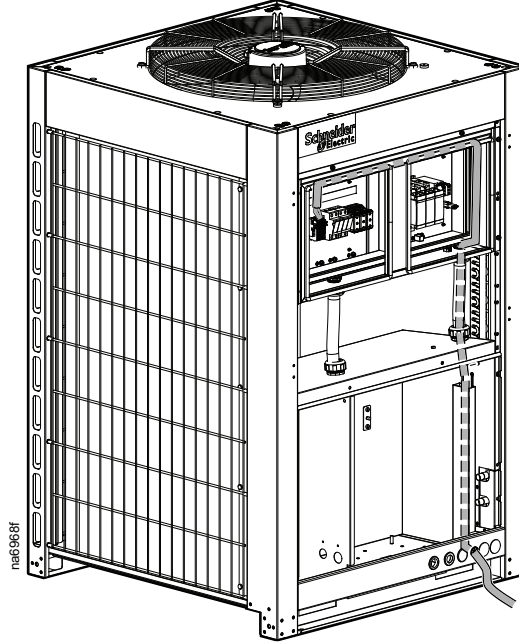
Item	Description
1	Supply A
2	Supply B

Communication Connections

Unit Connections

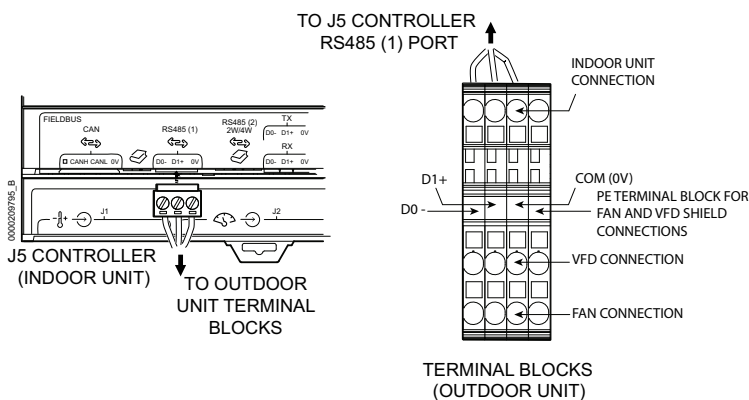
Remove the cover plate and route the signal cable through the unit as shown below:

NOTE: Some components not shown for easier viewing.



NOTE: Routing of the signal cable in the indoor unit is left to the discretion of the installer. The signal cable located outside the building requires a conduit to protect the cable. The cable protection must conform to local regulations.

NOTE: Do not connect shield to GND. This GND connection is for the communication ground.



Indoor Unit J5 Controller	Outdoor Unit Terminal Blocks
0 V to	COM (0V)
D1+ to	D1+
D0- to	D0-

Charging the Refrigeration System

Calculating R410A Refrigerant Charge

Model	Nominal Charge
ACCU300 + ACRD300x	11.3 kg (24.9 lb)
ACCU300 + ACRD300x with Low Temp Kit	29.3 kg (64.6 lb)
ACCU300 + ACRH301x	11.3 kg (24.9 lb)
ACCU300 + ACRH301x with Low Temp Kit	29.3 kg (64.6 lb)

The total system charge has to be adjusted based on the liquid line length as shown in the table below.

ACR Tube Sizing – in.	Wall Thickness – mm	Cross-Section – mm ²	Refrigerant Charge – kg/m (lb/ft)
1/2	0.89	94	0.094 (0.063)
5/8	1.02	150	0.151 (0.101)
3/4	1.07	224	0.226 (0.151)
7/8	1.14	312	0.314 (0.211)

Refrigerant Charging Process

R410A is a mixed refrigerant. When charging this equipment with mixed refrigerant, only liquid refrigerant must be used.

NOTE: The equipment must be charged only with R410A refrigerant. The installing contractor is responsible for providing sufficient refrigerant for a complete system charge during start-up.



See Component Identification, page 17 for the location of service ports.

1. Pressurize the system to 17.2 bar (250 PSI) with nitrogen (use the service and discharge ports). Leave the system pressurized for 24 hours then check the gauges for a drop in pressure.
2. Use a vacuum pump and pull the first vacuum down to 750 microns (use the vacuum ports on the connection piping). The initial pull-down can take up to 24 hours.
3. Once the vacuum level has reached 750 microns, close the manifold gauge valves and turn off the vacuum pump. Wait for one hour (the vacuum should not rise above 1500 microns) and then break the vacuum with nitrogen gas (use the service and discharge ports) until the system pressure equals atmospheric pressure.
4. Pull a final vacuum down to 300 microns for a minimum of two hours.
5. Charge with liquid R410A refrigerant through the service port and needle valve on the condenser until the pressure equalizes with the refrigerant canister.
6. Open the ball valves and start the system. Charge the refrigerant slowly through the suction.

Compressor Oil Charge

Oil Charging Procedure

⚠ WARNING

HAZARD TO EQUIPMENT OR PERSONNEL

All work must be performed by Schneider Electric qualified and trained personnel.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE

DAMAGE TO EQUIPMENT

Do not charge the compressor with too much oil: compressor damage could result. The only way to drain oil from the compressor is to remove the compressor from the equipment. The following system damage could also occur:

- Failure of valves and pistons due to oil slugging.
- Excessive oil carryover.
- Loss of evaporator performance due to oil level build-up in the low-pressure side of the system.

Failure to follow these instructions can result in equipment damage.

The system must be field-charged with 600 ml (20 oz) of PVE oil to make sure the system functions normally.

In installations with good oil return and line runs up to 15 m (49 ft), no additional oil above the initial 600 ml (20 oz) of oil is required. If the installation lines exceed 15 m (49 ft), additional oil may be needed. 1% or 2% of the total system refrigerant charge can be used to calculate the required oil. Regardless, the oil charge has to be adjusted based on the oil level in the compressor sight glass: the oil level must be no lower than 1/3 in the sight glass when the compressor is running.

Use the following oil type:

- PVE68 (320 HV)

Use the following calculations to get the total charge amount:

- **Metric**

Total oil charge in ml = 600 ml + (charge in kg) * 0.02 * 1000

◦ Example: Charge = 25 kg

$$600 \text{ ml} + (25 * 0.02 * 1000) = 600 + 500 = \mathbf{1100 \text{ ml}}$$

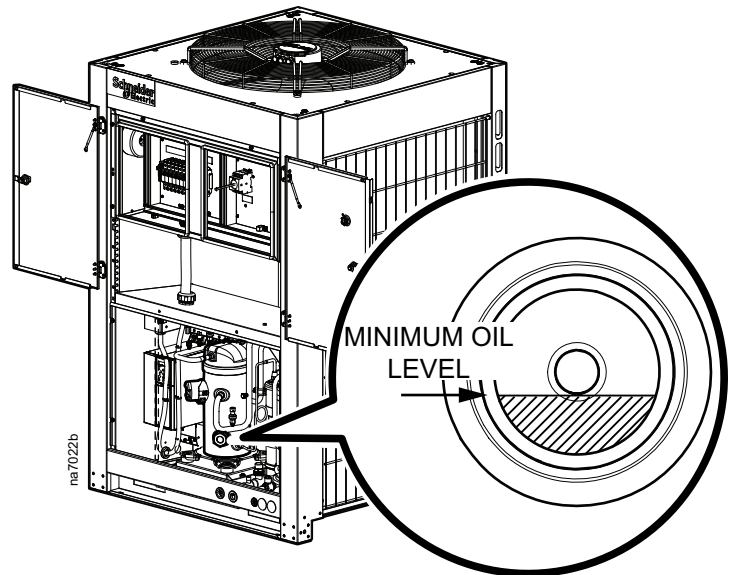
- **US Standard**

Total oil charge in oz = 20 oz + [(charge in lb)/2.2046] * 0.02 * 33.8

◦ Example: Charge = 55.1 lb

$$20 \text{ oz} + (55.1/2.2046) * 0.02 * 33.8 = 20 + (25 * 0.02 * 33.8) = 20 + 16.9 = \mathbf{36.9 \text{ oz}}$$

NOTE: This image is an example only. The unit in use may differ.



1. Prepare to add oil:
 - a. Use a new sealed oil can and a manual oil pump. The pump hose must be sized for 1/4 in. flare fittings and must include a valve depressor at its end, which will open the valve on the suction port of the compressor.
 - b. Use Daphne Hermetic PVE Oil FVC32D. Any other oil must be approved by Schneider Electric before using.
2. Purge the pump and hose
 - a. Ensure that the oil pump is clean. Insert the pump in the oil container and make sure that the container is open to the atmosphere for as short a period of time as possible. When available, use a plug adapter kit to further reduce the exposure of the oil to the atmosphere.
 - b. Bleed all air from the pump and hose with a few strokes of the pump. Purging the pump removes the moisture-saturated oil left inside the hose from previous usage.
 - c. Connect the hose to the suction port of the compressor immediately after purging to avoid moisture contamination.
3. While the equipment is running, charge 600 ml (20 oz) PVE oil through the suction port. Pump the oil very slowly. (This is to ensure the oil separator is functioning properly.)
4. Other than the amount required for the oil separator, no additional oil should be required. Let the compressor run at full capacity for at least one hour and check the oil level in the oil sight glass. The level should be between 1/3 and 2/3 full, or within the limit shown on the oil level sticker. If the oil is not within the acceptable limit, check the oil return line for restrictions. When oil is flowing properly, the oil return line should feel warm to the touch.

NOTE: Dispose of the oil waste appropriately.

Worldwide Customer Support

Customer support for this product is available at no charge in any of the following ways:

- Visit the Schneider Electric Web site to access documents in the Schneider Electric Knowledge Base and to submit customer support requests.
 - www.se.com (Corporate Headquarters)
Connect to localized Schneider Electric websites for specific countries, each of which provides customer support information.
 - www.se.com/support/
Get global support by searching the Schneider Electric Knowledge Base and using esupport.
- Contact the Schneider Electric Customer Support Center by telephone or e-mail.
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