

Installation Manual

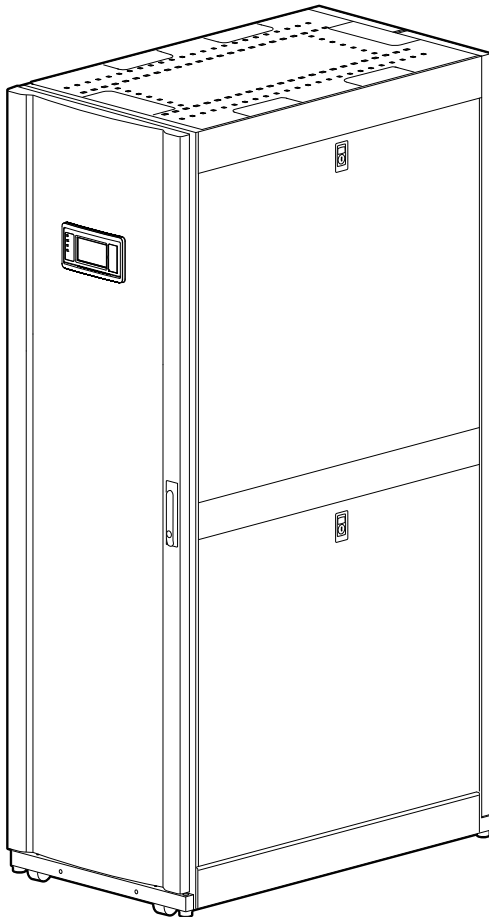
InRow[®] Direct Expansion Air Conditioners

InRow RD DX

**ACRD600, ACRD601, ACRD602,
ACRD600P, ACRD601P, ACRD602P**

990-5711D-001

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Safety

Important Safety Information

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service, or maintain it. The following special 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 label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



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

DANGER

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

WARNING

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

CAUTION

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

NOTICE

NOTICE addresses practices not related to physical injury including certain environmental hazards, potential damage or loss of data.

Safety Considerations While Installing This Equipment

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced by qualified personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- 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 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

HAZARD TO EQUIPMENT OR PERSONNEL

All work must be performed by Schneider Electric qualified personnel.

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.

General Information

Overview

Save these instructions

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

Symbols used in this manual



Indicates that more information is available in another location.

Equipment Disposal

Waste Electrical and Electronic Equipment (WEEE) disposal



Schneider Electric products comply with international directives on the Restriction of Hazardous Substances (RoHS) in electronic and electrical equipment and the disposal of Waste Electrical and Electronic Equipment (WEEE). Dispose of any waste electronic or electrical equipment with the appropriate recycling center. Contact Schneider Electric for assistance.

Inspecting the Equipment

Your 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 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.

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

Storing the Equipment Before Installation

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

<i>NOTICE</i>
HAZARD TO EQUIPMENT 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.

Moving the Equipment

The recommended tools for moving the equipment while it is still on the pallet include the following:



Pallet Jack



Forklift

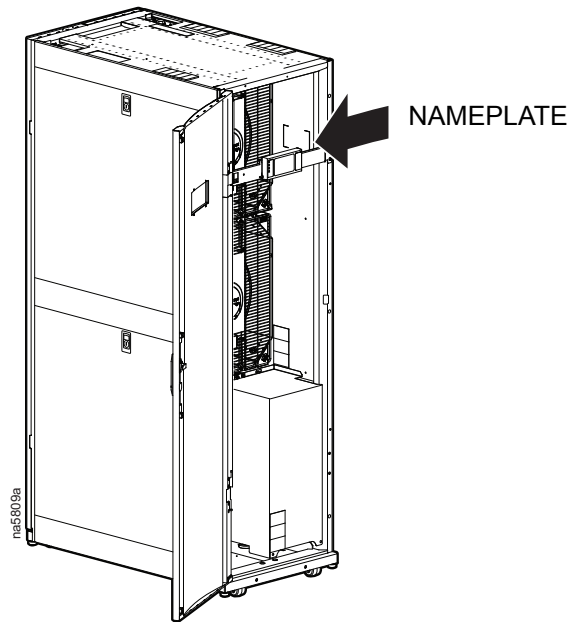
NOTE: The equipment can be rolled to its final location using its casters if the floor is smooth and clean.

Model Identification

Standard unit

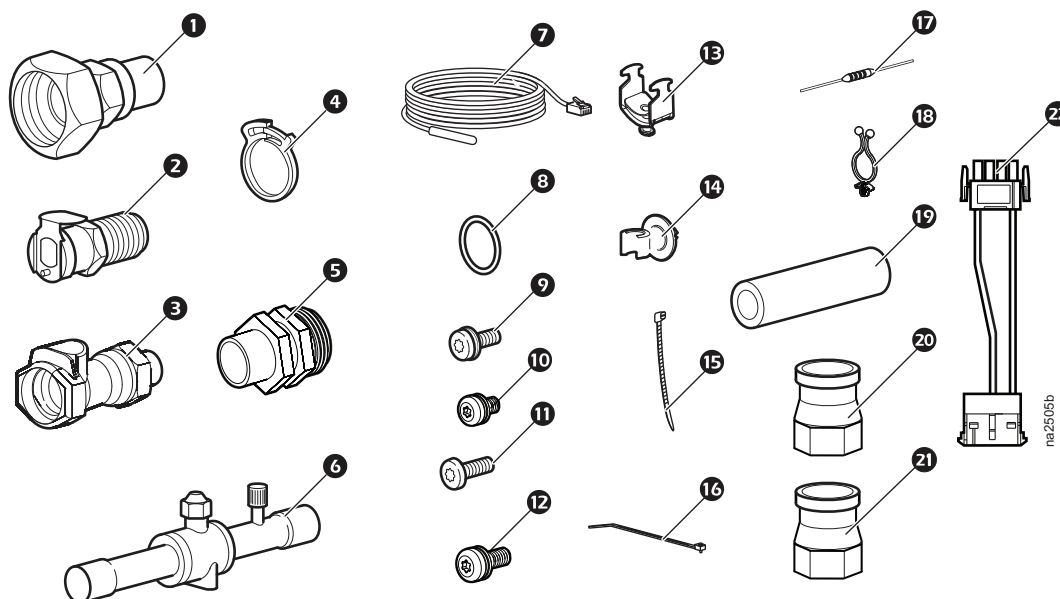
The model number can be found on the outside of the shipping crate and on the nameplate located inside the equipment as shown. Use the table below to verify that the equipment is the correct size and voltage.

Model	Configuration	Voltage	Frequency	Reheat	Humidifier	Air Pattern
ACRD600	Air-cooled	200-240	50-60 Hz	N/A	N/A	Back to front
ACRD601	Air-cooled	460-480	60 Hz	N/A	N/A	Back to front
ACRD602	Air-cooled	380-415	50-60 Hz	N/A	N/A	Back to front
ACRD600P	Air-cooled	200-240	50-60 Hz	Electric	Steam canister (replaceable)	Back to front
ACRD601P	Air-cooled	460-480	60 Hz	Electric	Steam canister (replaceable)	Back to front
ACRD602P	Air-cooled	380-415	50-60 Hz	Electric	Steam canister (replaceable)	Back to front



Component Identification

Install kit inventory



Item	Description	Quantity	Item	Description	Quantity
1	Threaded ring seal straight fitting, female, 1 1/4-in. to 3/4-in.* I.D.	4	12	M6 x 16-mm TORX screw with washer	5
2	Humidifier inlet water connection, shutoff		13	Strain relief, metal (ACRD602 and 602P only)	2
	• 1/4-in. NPT*** and 1/4-in. BSPT** (ACRD600P)	1 each			
	• 1/4-in. NPT*** (ACRD601P)	1	14	Wire clip	9
	• 1/4-in. BSPT** (ACRD602P)	1	15	Tie wrap, 200 mm (8 in.)	10
3	Condensate drain outlet, shutoff, 3/8-in. BSPT**	1	16	Tie wrap, 390 mm (15.3 in.)	3
4	Condensate overflow hose adapter clamp, double snap	2	17	Resistor, 150 Ohm	1
5	Threaded ring seal male straight - 3/4-in.* I.D.	2	18	Cable tie	10
6	Gas shutoff valve, 3/4-in. I.D.	2	19	Condensate overflow hose adapter	1
7	Temperature sensor	3	20	Reducer, 3/8-in. to 1/2-in. BSPT**	1
8	Rotalock gasket, 1 1/4-in.	4	21	Reducer, 3/8-in. to 1/2-in. NPT***	1
9	M5 x 10-mm TORX® screw with washer (spare parts)	5	22	Voltage jumper	****
10	M6 x 12-mm TORX screw with washer (spare parts)	5			
11	M6 x 10-mm self-tapping TORX screw (spare parts)	5			

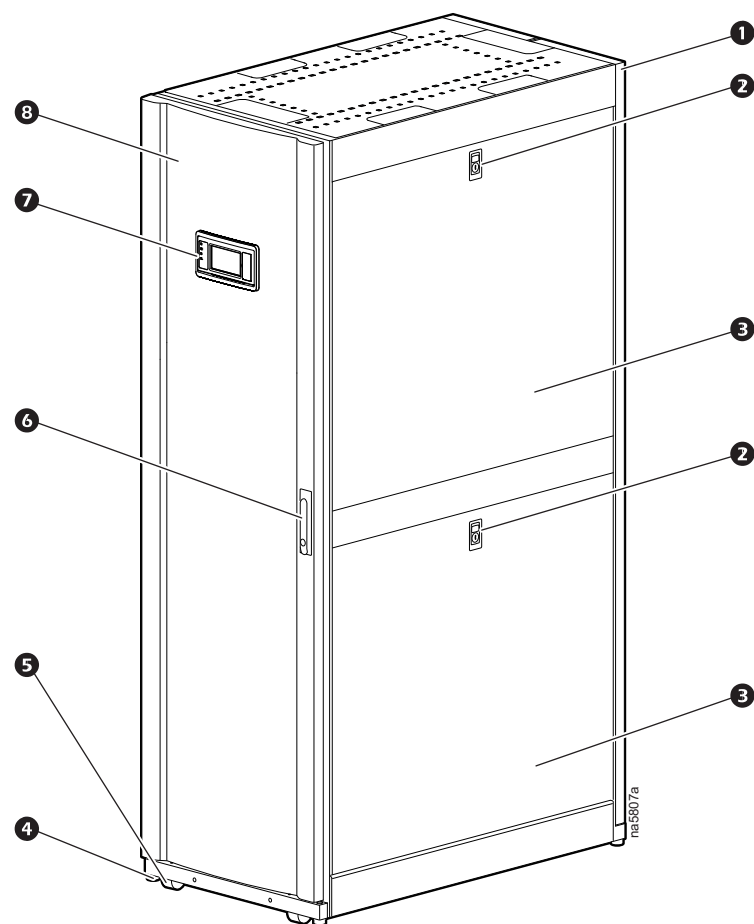
*Standard wall thickness

**British Standard Pipe Thread

***National Pipe Thread

****Quantity and wire connections vary depending on model number. See "Voltage selections—ACRD60x units" on page 53.

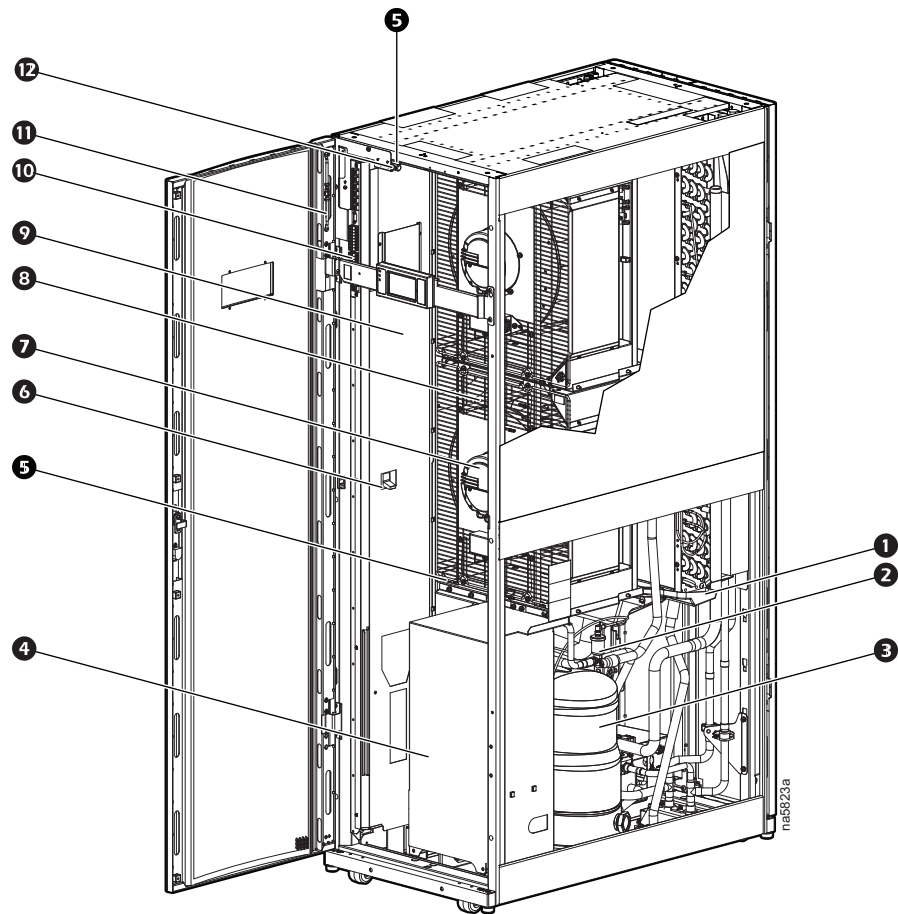
Exterior components



Item	Description	Item	Description
1	Removable rear doors	5	Caster
2	Side panel lock	6	Door handle and lock
3	Removable side panel	7	Display interface
4	Adjustable leveling foot	8	Removable front door

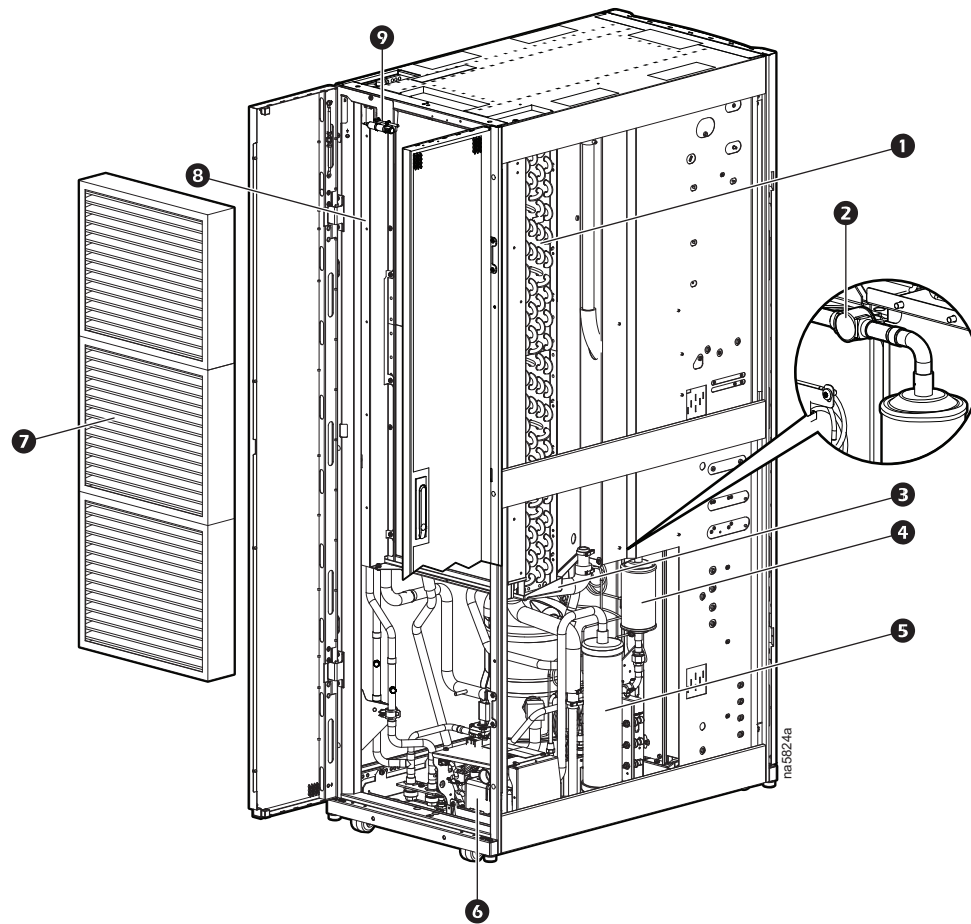
Interior components (ACRD60x)

Front



Item	Description	Item	Description
①	Condensate drain pan	⑦	Fan (2)
②	Electronic expansion valve	⑧	Fan guard (2)
③	Compressor	⑨	Electrical panel
④	Variable frequency drive (for compressor)	⑩	Communication and external device connectors
⑤	Supply air temperature sensor	⑪	Ground lug
⑥	Main circuit breaker	⑫	Humidity sensor

Rear

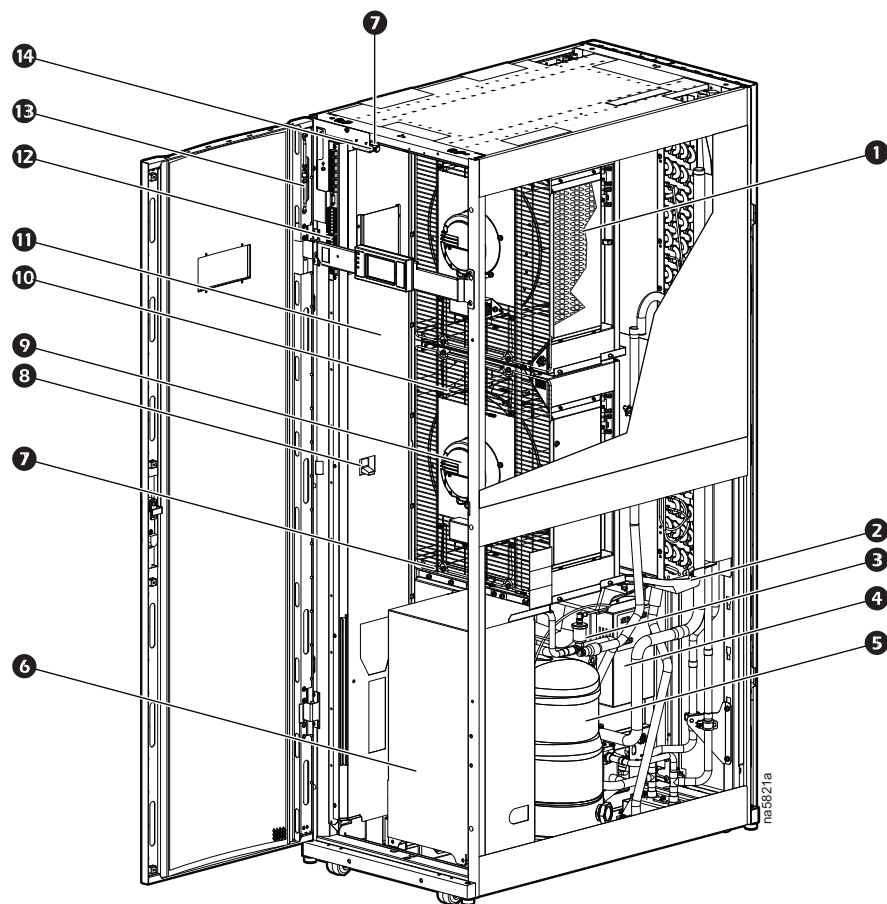


Item	Description
1	Evaporator coil
2	Sight glass
3	Condensate drain pan
4	Filter drier
5	Oil separator

Item	Description
6	Condensate pump
7	Air filters
8	Pipe chase
9	Return air temperature sensor

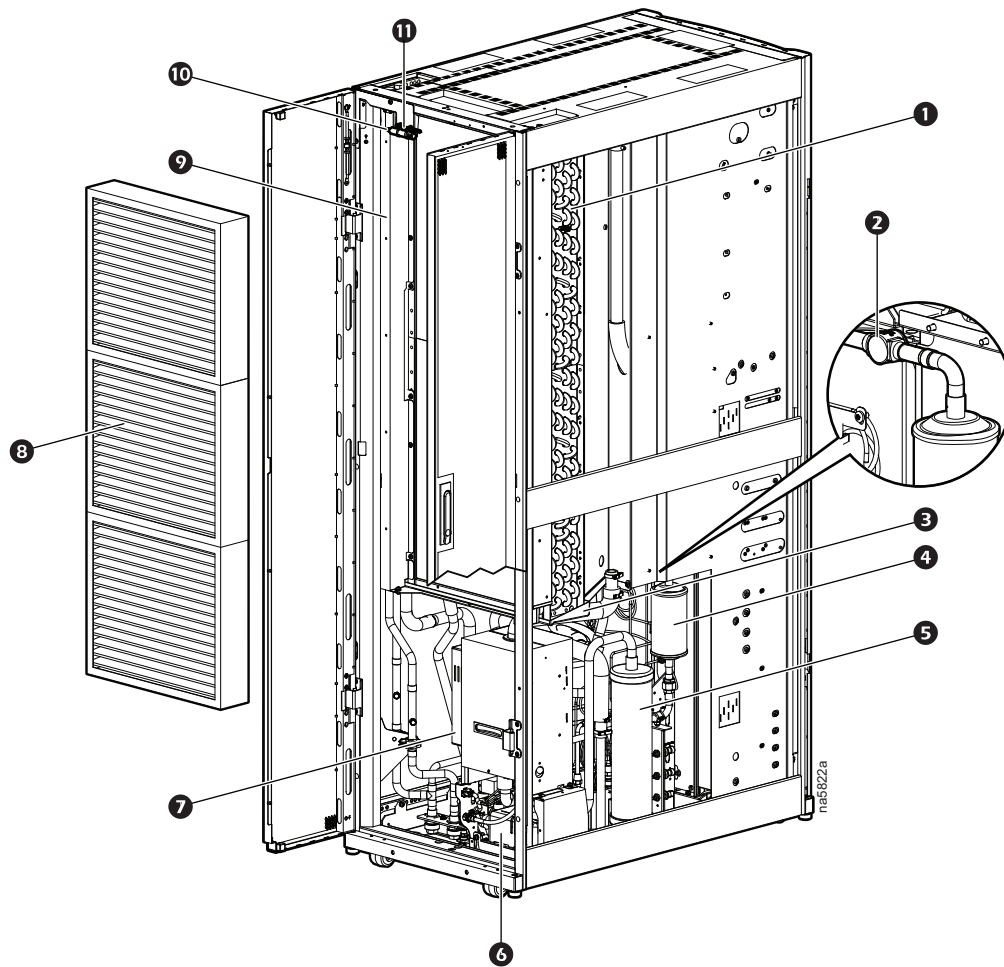
Interior components (ACRD60xP)

Front



Item	Description	Item	Description
1	Electric heater	8	Main circuit breaker
2	Condensate drain pan	9	Fan (2)
3	Electronic expansion valve	10	Fan guard (2)
4	Humidifier	11	Electrical panel
5	Compressor	12	Communication and external device connectors
6	Variable frequency drive (for compressor)	13	Ground lug
7	Supply air temperature sensor	14	Humidity sensor

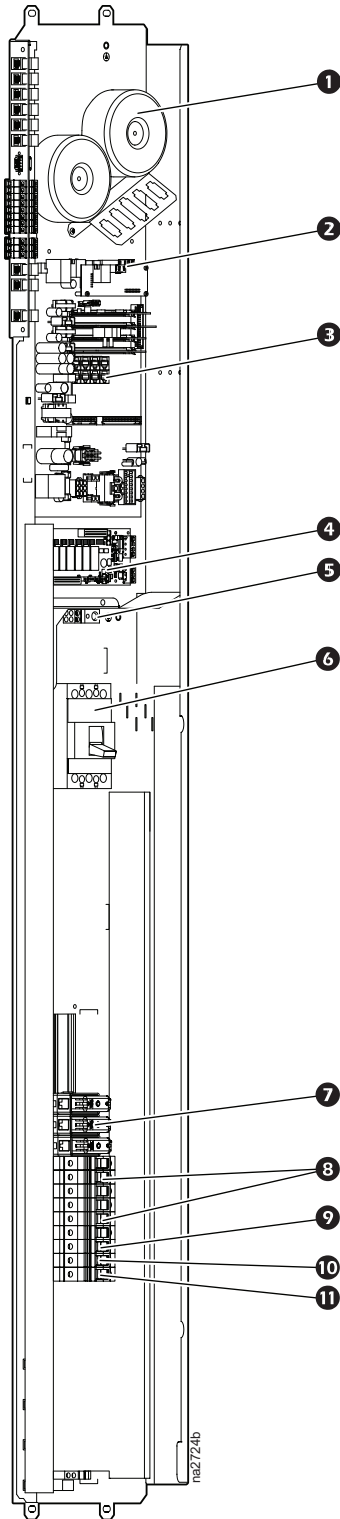
Rear



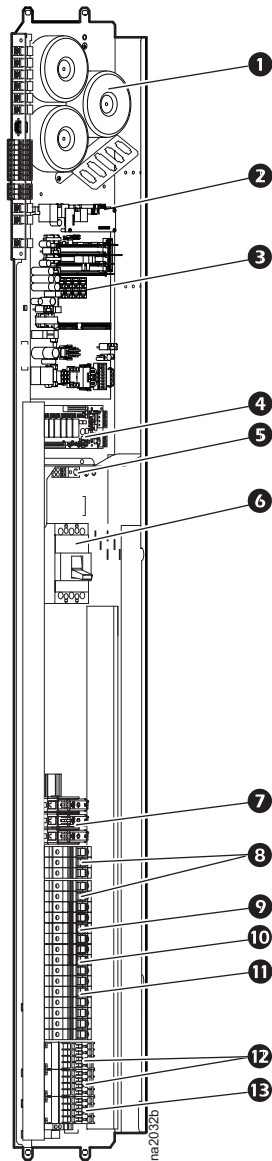
Item	Description
1	Evaporator coil
2	Sight glass
3	Condensate drain pan
4	Filter drier
5	Oil separator
6	Condensate pump
7	Humidifier
8	Air filters
9	Pipe chase
10	Humidity sensor
11	Return air temperature sensor

Electrical panel

ACRD600, ACRD601, ACRD602

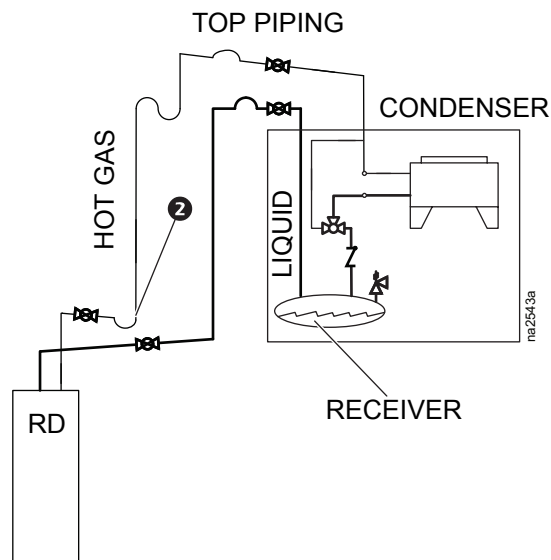
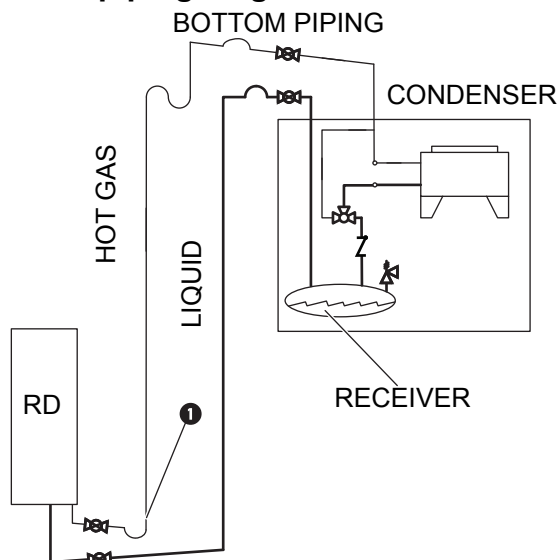


Item	Description
1	Transformers
2	Display interface connectors
3	Main controller board
4	Relay board
5	Ground lug
6	Main circuit breaker
7	Compressor fuse block (ACRD600, ACRD601) Compressor circuit breaker (ACRD602)
8	Fan circuit breakers
9	Fuse not populated
10	Transformer A fuse
11	Transformer C/MB fuse



Item	Description
1	Transformers
2	Display interface connectors
3	Main controller board
4	Relay board
5	Ground lug
6	Main circuit breaker
7	Compressor fuse block (ACRD600P, ACRD601P) Compressor circuit breaker (ACRD602P)
8	Fan circuit breakers
9	Controller fuse
10	Heater circuit breaker
11	Humidifier circuit fuse
12	Heater contactors
13	Humidifier contactor

Refrigeration piping diagram



Item	Description
1	Pitch in direction of refrigerant flow

2	Reduction of piping diameter for vertical piping run (if necessary)
---	---

	Shutoff valves
---	----------------

	Head pressure control valve
---	-----------------------------

	Check valve
---	-------------

Item	Description
	Pressure relief valve

	P-trap
---	--------

	S-trap
--	--------

	Inverted P-trap
---	-----------------

NOTE: All lines are Type L ACR hard-drawn copper pipes.

NOTE: Shutoff valves shown nearest to the condenser are provided in receiver kit.

NOTE: Pitch all lines in the direction of refrigerant flow: 4 mm per m (1/2 in. per 10 ft).

NOTE: Route piping through the top or bottom of the InRow RD cooling unit.

NOTE: Trap the vertical discharge line every 6 m (20 ft) to ensure proper oil return.

NOTE: The maximum piping run is 91 m (300 ft) equivalent length. Size the piping pursuant to accepted refrigeration practice.

NOTE: Condenser can be placed up to 4.5 m (15 ft) below the indoor cooling unit for equivalent line lengths of 8 m (25 ft) or less.

For Condensers Mounted Below the Level of the Indoor Unit							
Piping Equivalent Length – m (ft)	91 (300)	76 (250)	61 (200)	46 (150)	30 (100)	15 (50)	8 (25)
Allowable Distance From Bottom of Condenser to Bottom of Indoor Unit* – m (ft)	0.3 (1)	1.5 (5)	2.1 (7)	2.7 (9)	3.3 (11)	3.9 (13)	4.5 (15)

*When condenser is installed below unit level, use 7/8 in. pipe for liquid line.

Note: Condenser can be placed higher than indoor cooling unit but height shall be no more than 27 m (90 ft), regardless of piping length.

Connections overview

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

Power connections

Model	Voltage	Minimum Circuit Ampacity (MCA)	Maximum Overload Protection (MOP)	Full Load Amperes (FLA)	Compressor		Power (kW)
					Locked Rotor Amperes (LRA)	Compressor Rated Load Amperes (RLA)	
ACRD600	200-240 V, 50/60 Hz	52.6	80	-	29.7*	36.6	14.6
ACRD601	460-480 V, 60 Hz	24.4	40	-	28.1*	16.6	14.6
ACRD602	380-415 V, 50/60 Hz	31.1	50	25.2	28.1*	16.6	14.6
ACRD600P	200-240 V, 50/60 Hz	78.6	110	-	29.7*	36.6	23.5
ACRD601P	460-480 V, 60 Hz	36.9	50	-	28.1*	16.6	23.5
ACRD602P	380-415 V, 50/60 Hz	45.8	60	34.2	28.1*	16.6	23.5

*Consult local and national codes for wire size, conduit requirements, and overload protection.

Piping connections

Connection	Type	ACRD600 ACRD600P	ACRD601 ACRD601P	ACRD602 ACRD602P
Refrigerant discharge	1 1/4-in. Rotalock*	3/4-in. ID	3/4-in. ID	3/4-in. ID
Refrigerant liquid	1 1/4-in. Rotalock*	3/4-in. ID	3/4-in. ID	3/4-in. ID
Humidifier water supply (ACRD600P, ACRD601P, ACRD602P only)	Quick coupling	1/4-in. NPT or 1/4-in. BSPT	1/4-in. NPT	1/4-in. BSPT
Condensate drain	Quick coupling	1/2-in. female NPT or 1/2-in. female BSPT	1/2-in. female NPT or 1/2-in. female BSPT	1/2-in. female NPT or 1/2-in. female BSPT

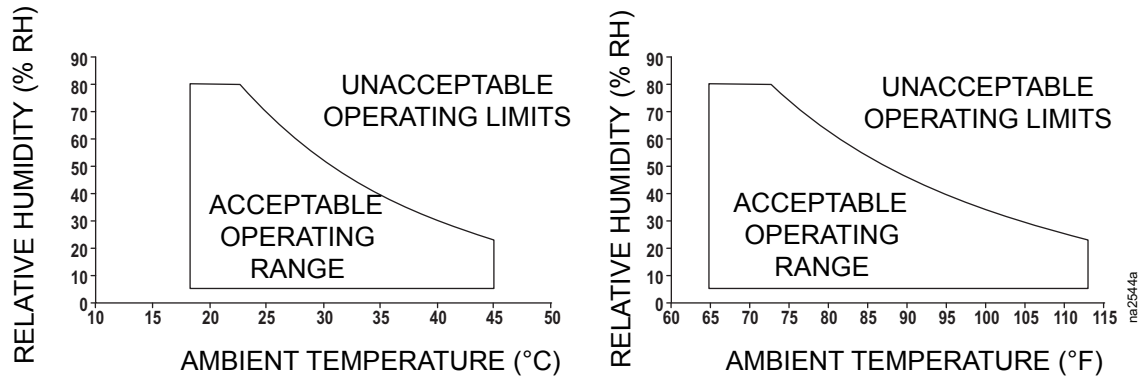
* Use a new Teflon gasket (supplied) to prevent leakage. Tighten Rotalock nut to 90 Nm (66 ft-lb).

Communication connections

Connection	Type	Wire Size		Torque
		Minimum	Maximum	
Rack temperature 1	RJ-45	-	-	-
Rack temperature 2	RJ-45	-	-	-
Rack temperature 3	RJ-45	-	-	-
A-Link IN	RJ-45	-	-	-
A-Link OUT	RJ-45	-	-	-
Network port	RJ-45	-	-	-
Customer output, Normally Closed (NC)	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Customer output, Common (COM)	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Customer output, Normally Open (NO)	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Supply GND	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Supply 12 Vdc	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Supply 24 Vdc	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Customer input +	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Customer input –	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Modbus D1	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Modbus D0	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm
Modbus GND	Screw connector	AWG 24 (0.2 mm ²)	AWG 18 (0.75 mm ²)	0.6 Nm

Room Preparation

During the design of the data center, consider ease of entry for the equipment, floor loading factors, and accessibility to piping and wiring. In addition, the room temperature and humidity combination should conform to the environmental operating envelope as defined in the following graphics.



Seal the room with a vapor barrier to minimize moisture infiltration. Polyethylene film is recommended for ceiling and wall applications. Apply rubber- or plastic-based paints to concrete walls and floors.

Insulate the room to minimize the influence of exterior heat loads. Reduce fresh air to the minimum required by local and national codes and regulations. Fresh air imposes extreme load variation on the cooling equipment from summer to winter and causes increased system operating costs.

Air distribution

The equipment distributes air in a back-to-front discharge pattern, removing hot air from a hot aisle and discharging cooled air into a cold aisle.

NOTE: The equipment is designed for free air discharge or for use with the Rack Air Containment System or EcoAisle Containment System. The equipment is not intended to be connected to a duct system.

Incoming power supply requirement

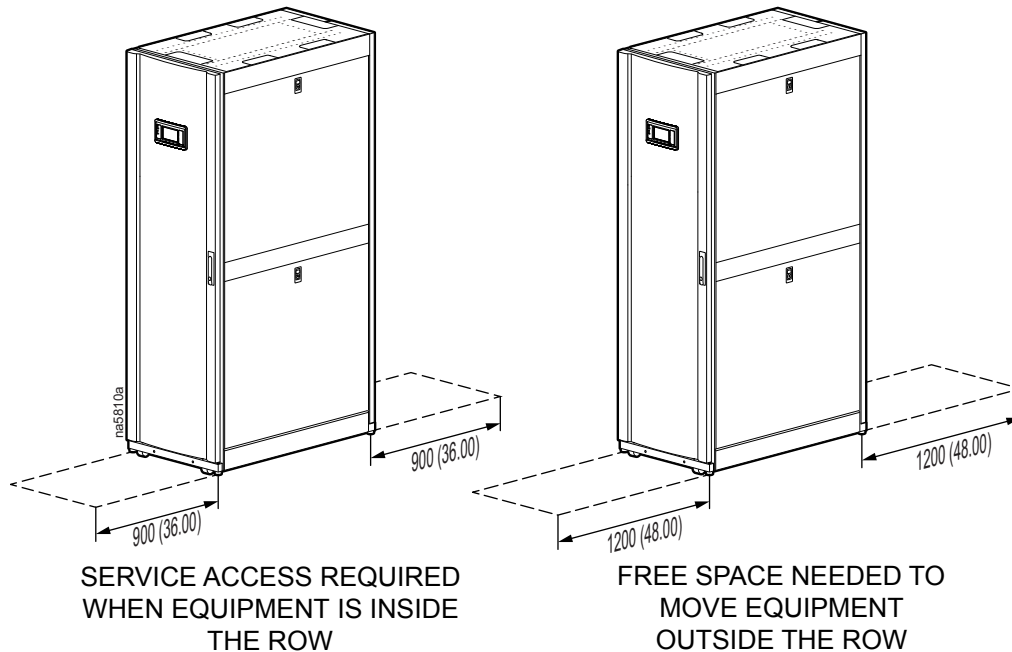
⚠ ⚠ WARNING
ELECTRICAL HAZARD
• Electrical service must conform to local and national electrical codes and regulations. • The equipment must be grounded.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Service access

A minimum of 900 mm (36 in.) of clear floor space in front of and behind the equipment is recommended for service. All required normal maintenance is performed from the front and rear of the equipment.

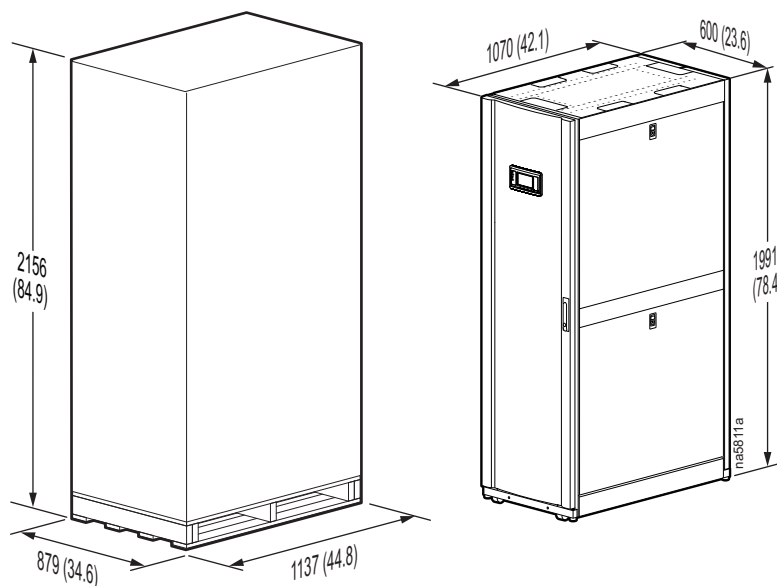
Most of the cooling components in the equipment can be replaced while the unit is installed in row and without the use of heavy lift equipment or a welding torch. However, if it is necessary to remove the unit for repair, use the casters on the equipment to remove it from the row. An area of minimum 1200 mm (48 in.) of clear floor space in front of or behind the equipment is recommended to roll out the equipment.

NOTE: Check local and national codes and regulations for further service access requirements.



Dimensions are shown in mm (in.).

Weights and Dimensions

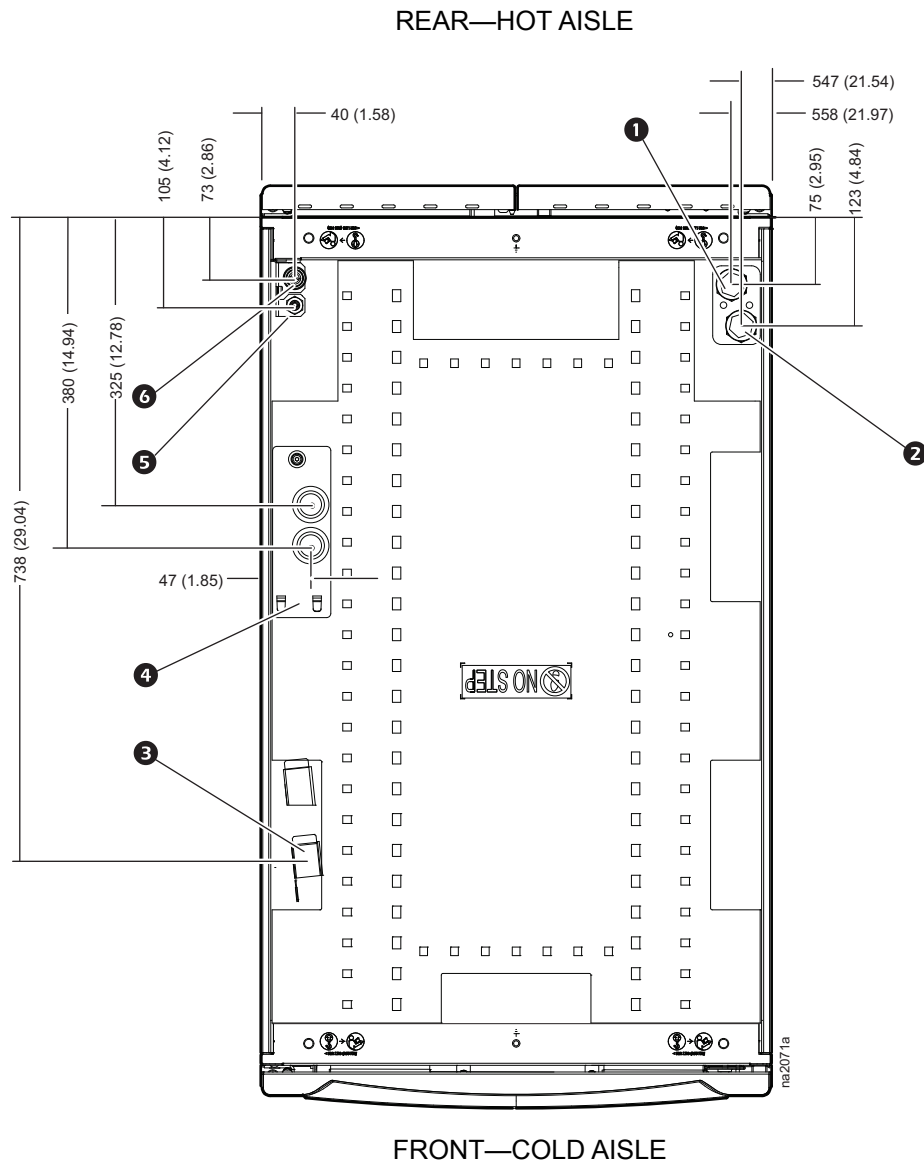


Dimensions are shown in mm (in.).

Model	Net Weight – kg (lb)	Shipping Weight – kg (lb)
ACRD600	402 (886)	447 (986)
ACRD601	391 (862)	436 (961)
ACRD602	391 (862)	436 (961)
ACRD600P	413 (911)	458 (1,010)
ACRD601P	402 (886)	447 (986)
ACRD602P	402 (886)	447 (986)

Access Locations

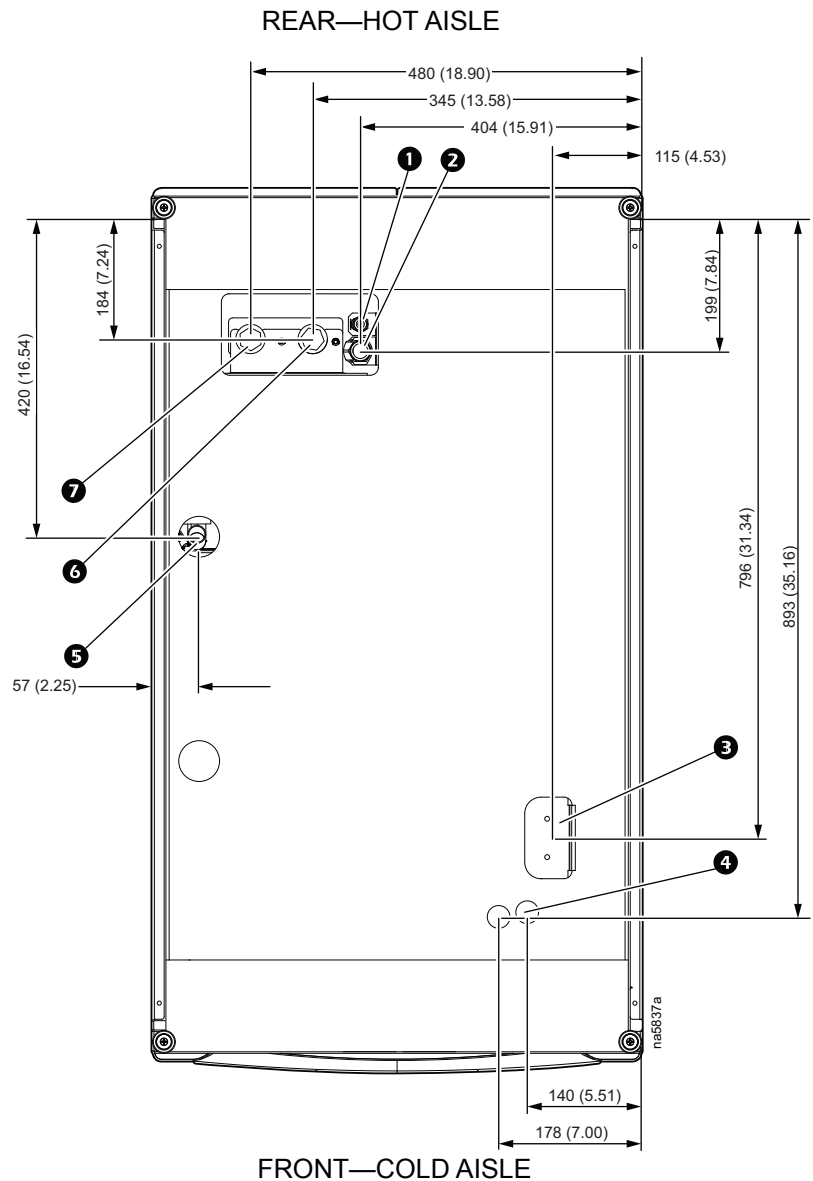
Top piping and power access locations—top view, looking down (ACRD600/P series)



Item	Description
1	Refrigerant discharge line
2	Refrigerant liquid line
3	Trough for communication cables
4	Power connections
5	Humidifier water supply (ACRD600P series only)
6	Condensate drain

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

Bottom piping and power access locations—bottom view, looking up (ACRD600/P series)



Item	Description
1	Humidifier water supply (ACRD600P series only)
2	Condensate drain
3	Power connections
4	Communication connections—27.80 mm (1.09 in.)
5	Condensate overflow—50.00 mm (1.97 in.)
6	Refrigerant discharge line
7	Refrigerant liquid line

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

Equipment Guidelines

Working Conditions and Environmental Limits

InRow DX 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:

- 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			
Models	ACRD600 ACRD600P	ACRD601 ACRD601P	ACRD602 ACRD602P
Power Supply	200–240 V 3-Phase 50/60 Hz	460–480 V 3-Phase 60 Hz	380–415 V 3-Phase 50/60 Hz
Minimum Recommended Load	8 kW (27,296 BTU/hr)		

Installation

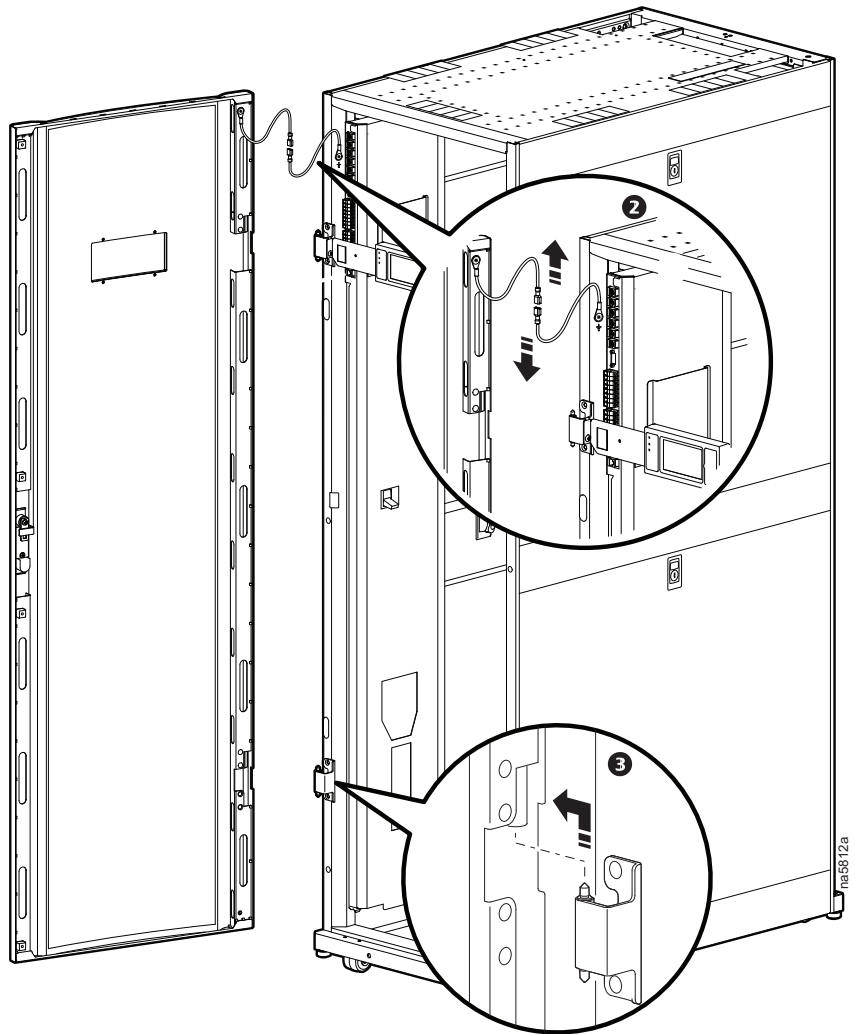
Removing the Doors and Panels

⚠ WARNING
MOVING PARTS HAZARD All doors and side panels must be locked during normal operation. Do not open the side panels while the fans are operating. Failure to follow these instructions can result in death, serious injury, or equipment damage.

<i>NOTICE</i>
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 properly working. Failure to follow these instructions can result in equipment damage.

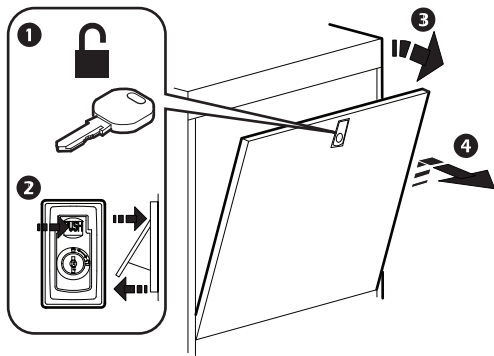
Removing the front and rear doors

1. Unlock and open the door 90 degrees.
2. Unplug the ground wires.
3. Lift the door up and off the hinges.

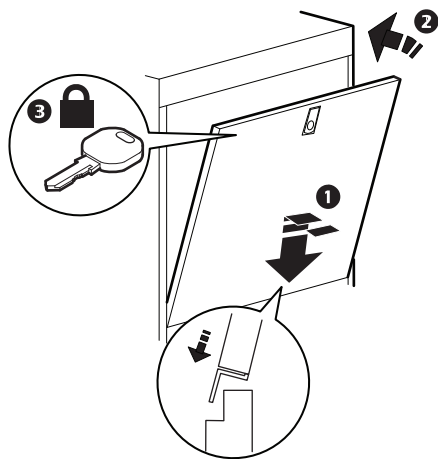


Removing and installing the side panel

REMOVING THE SIDE PANEL



INSTALLING THE SIDE PANEL



na5720b

Removing the electrical panel cover

⚠ WARNING

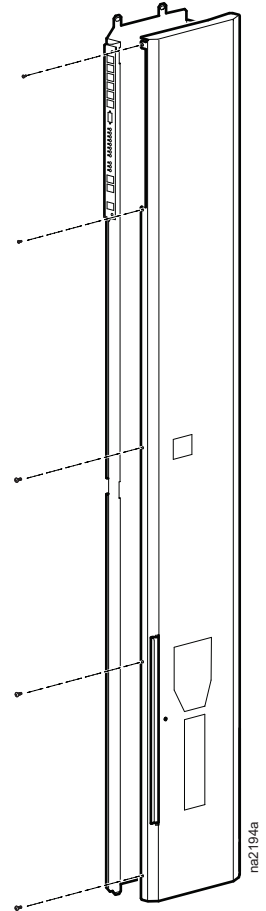
ELECTRICAL HAZARD

Ensure all wiring is not energized before routing cables into this equipment. Only qualified service and maintenance personnel should work on this equipment.

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

Remove the electrical panel cover to install the main power cable.

1. Remove the five M4 screws securing the cover.
2. Remove the cover by opening it and sliding it toward the front of the equipment.

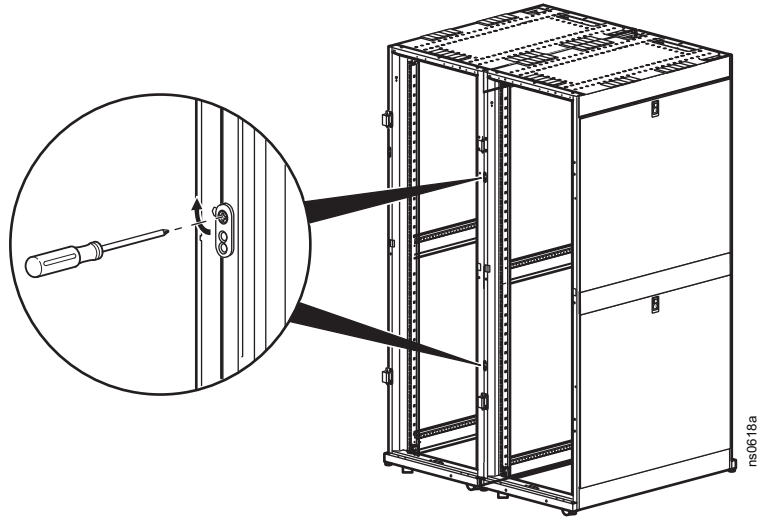


Joining the Equipment to Enclosures

Joining to NetShelter™ SX enclosures

The equipment comes with four joining brackets (two for the front and two for the rear).

1. Remove the front and rear doors.
See “Removing the front and rear doors”.
2. Locate the four joining brackets.
Rotate each bracket ninety degrees toward the adjoining enclosure so the bracket is parallel to the floor and install using the screws provided with the enclosure.



For more information, see the *Unpacking, Installation, and Customization* manual for the NetShelter SX Enclosure.

Joining to NetShelter VX and VS enclosures



For information on joining the equipment to NetShelter VX and VS enclosures, see the installation sheet *NetShelter™ SX to VX or VS External Joining Kit—AR7601, AR7602*.

Leveling the Equipment

NOTICE

WIRING HAZARD

After re-installing the front door, reconnect all wires previously disconnected.

Failure to follow these instructions can result in equipment damage.

NOTE: The leveling feet at the corners of the equipment provide a stable base if the floor is uneven, but they cannot compensate for a badly sloped surface.

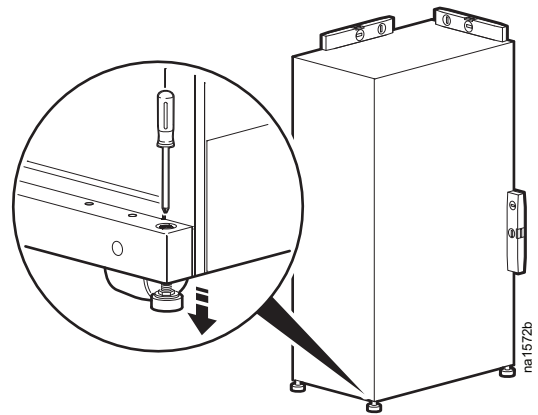
1. Remove the front and rear doors.

NOTE: Before removing the front door, unplug the ground wires and any other wire connections that may interfere with the removal of the doors.

2. For each leveling foot, insert a Phillips PH2 or standard screwdriver into the screw above the leveling foot. Turn the screw to the right to extend the leveling foot until it makes firm contact with the floor.

NOTE: Use a 13-mm open-ended wrench to level the equipment without removing the doors.

3. Re-install the front and rear doors.



Mechanical Connections

Refrigeration piping

The equipment must be connected to a condenser—either a remote outdoor condenser or an indoor centrifugal condenser. Systems with remote outdoor or indoor centrifugal condensers must have discharge and liquid lines from the equipment to the condenser. 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.

NOTE: Change the size of the pipe after the P-trap. See “Refrigeration piping diagram” on page 20.

Make all refrigerant lines as short and direct as possible. Horizontal discharge 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. Trap vertical discharge lines approximately every 6 m (20 ft) to ensure proper oil return. Traps are normally not necessary at the base of discharge lines; however, the line should be looped toward the floor before running it vertically to prevent the drainage of oil back to the compressor during shutdown periods.

Isolate piping from structural surfaces using vibration clamps.

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)								
Nominal Pipe Size	ACR Tubing Size	Gate Valve	Angle Valve	Globe Valve	Standard Elbow 90°	Contraction 1/2	Tee Branch	Tee Straight
3/4 in.	7/8 in.	0.27 (0.9)	2.74 (9)	6.71 (22)	0.61 (2.0)	0.30 (1.0)	1.22 (4)	0.43 (1.4)
1 in.	1 1/8 in.	0.30 (1.0)	3.66 (12)	8.84 (29)	0.79 (2.6)	0.37 (1.2)	1.52 (5)	0.52 (1.7)
1 1/4 in.	1 3/8 in.	0.46 (1.5)	4.57 (15)	11.58 (38)	1.01 (3.3)	0.55 (1.8)	2.13 (7)	0.70 (2.3)

Recommended Line Sizes			
Equivalent Length [L _e] m (ft)	Line Type	Length Details	Pipe Size
0 (0) to 18 (60)	Discharge line (Horizontal/Vertical)	All lengths	7/8 in.
	Liquid line	All lengths	5/8 in.*
18 (60) to 46 (150)	Discharge line (Horizontal)	All lengths	1 1/8 in.
	Discharge line (Vertical)	Less than 9 m (30 ft)	7/8 in.
		More than 9 m (30 ft)	1 1/8 in.
	Liquid line	All lengths	7/8 in.
46 (150) to 61 (200)	Discharge line (Horizontal)	All lengths	1 1/8 in.
	Discharge line (Vertical)	Less than 3 m (10 ft)	7/8 in.
		More than 3 m (10 ft)	1 1/8 in.
	Liquid line	All lengths	7/8 in.
61 (200) to 91 (300)	Discharge line (Horizontal)	All lengths	1 1/8 in.
	Discharge line (Vertical)	All lengths	1 1/8 in.
	Liquid line	All lengths	7/8 in.

* When a condenser is installed below unit level, use 7/8 in. pipe for liquid line.

NOTE: Actual vertical height of the condenser cannot exceed 90 ft.

Connect refrigerant lines

Be sure to use only clean, air conditioning/refrigeration (ACR) pipe and follow standard procedures for pipe size selection for air-cooled equipment. All refrigerant piping must be Type L ACR hard-drawn copper pipes (soft/annealed copper is unacceptable) and must be 700 psig UL rated or equivalent. The maximum allowable equivalent length between the evaporator and condenser is 90 equivalent m (300 equivalent ft). Vertical runs (hot gas) require a trap every 6 m (20 ft) of rise.

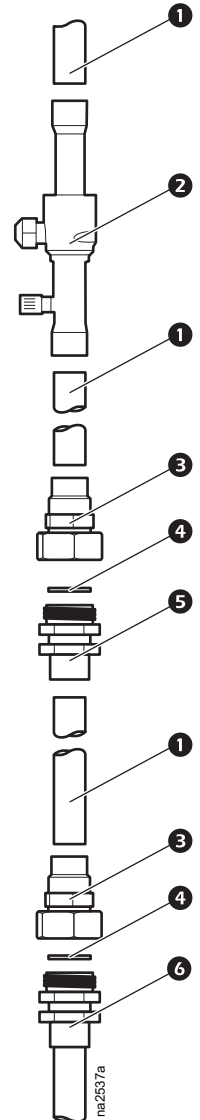
NOTE: When brazing field-installed copper refrigeration lines, use a nitrogen purge to minimize contamination of the refrigeration system during the brazing process.

The air-cooled equipment has been dehydrated at the factory and is shipped with a holding charge of nitrogen. Test refrigerant connections for leaks before replacing the holding charge.

NOTE: Remove the nitrogen holding charge tag from the lines after nitrogen removal and product startup.

Connect both refrigerant lines to the equipment, using all fittings as shown. See “Install kit inventory” on page 12.

Item	Description
❶	3/4-in. copper tubing (field supplied and installed)
❷	Ball valve (supplied)
❸	3/4-in. female Rotalock connector (supplied)
❹	Gasket (supplied)
❺	3/4-in. male connector (supplied)
❻	3/4-in. male connector (factory installed inside the equipment)



Condenser

Install and pipe the condenser in accordance with the provided instructions.

NOTE: If no receiver kit is being installed, a field-supplied pressure relief valve must be installed.

Flooded receiver

Install the flooded receiver in accordance with the instructions included with the kit.

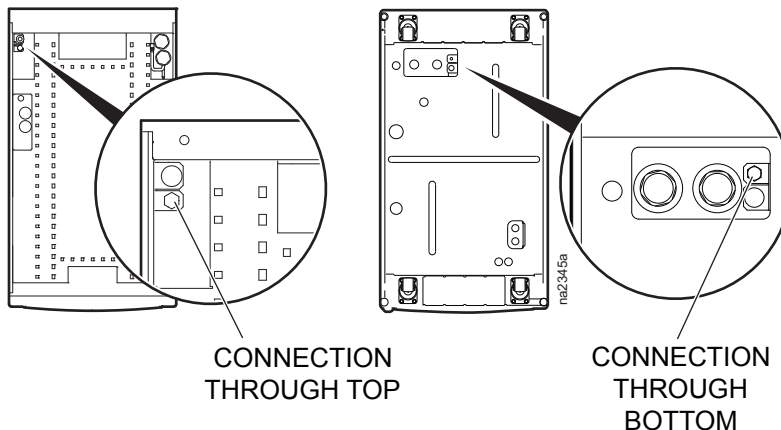
Humidifier (ACRD60xP only)

The humidifier water supply line is routed to the unit in flexible tubing (or alternative tubing approved by local building codes) that will allow the humidifier water supply line connector to be moved approximately 25 mm (1 in.) away from the equipment. This facilitates removing the equipment from a row.

A factory-installed quick-connector for connecting the tubing to the equipment is supplied. The quick connector has a male 1/4-in. NPT or male 1/4-in. BSPT to connect to a compression fitting. The quick-connector has a shut-off function, so no separate shut-off valve is necessary.

The humidifier water supply line can be connected through either the top or the bottom of the equipment as shown. Male quick-connectors are positioned in both the top and the bottom of the equipment.

Water pressure should be between 100 and 800 kPa (15 and 115 psi) for proper humidifier operation. Dirty water must be filtered before it is supplied to the humidifier. Water temperature must be between 1°C and 40°C (34°F and 104°F). Do not use softened, de-mineralized, or de-ionized water.



See the manual included with the humidifier for more information about water quality, mineral content, hardness, and minimum/maximum levels for conductivity.

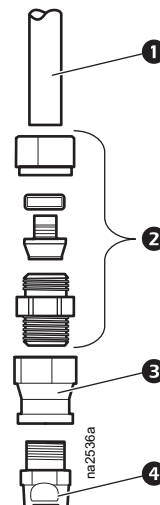
NOTE: Before making any connections, clear any debris that may have accumulated during assembly from the humidifier water supply line.

NOTE: It is recommended that a solenoid water valve be installed in the humidifier supply line, connected to a leak detector.

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

Connect the fittings to the humidifier water supply line as shown, then connect the water supply line quick-connector to the top or bottom humidifier input.

Item	Description
①	Flexible tubing (field supplied and installed)
②	Compression fitting (field supplied and installed)
③	Straight reduction (supplied)
④	Quick connector (supplied)



Condensate pump

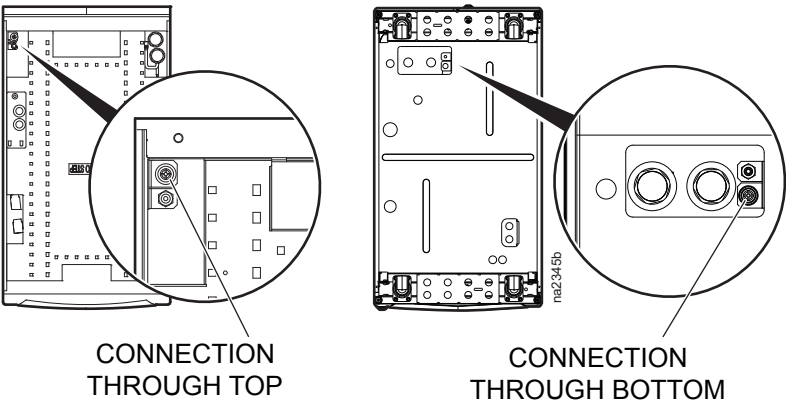
NOTICE

HAZARD TO EQUIPMENT

- Failure to properly route the condensate pump drain line before operation could result in water damage.
- Do not route drain or supply lines above computer equipment, Uninterruptible Power Supply (UPS) units, Power Distribution Units (PDUs), or light fixtures.

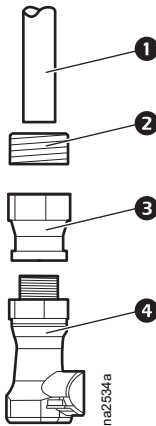
Failure to follow these instructions can result in equipment damage.

The pump is factory-wired and piped internally to the condensate drain pan. The pump can move liquid a maximum of 18 m (60 ft), which may include a maximum lift of 3.5 m (11.5 ft) at a flow rate of 32 l/hr (8.45 gph). For example, if your lift is 3 m (10 ft), you will have 15 m (50 ft) of usable run remaining. The pump uses an on-board condensate high level float switch wired into the equipment for alarm capabilities.



The condensate drain line can be connected through either the top or the bottom of the equipment using factory-installed male quick connectors and tubing approved by local building codes that will allow the drain line connector to be moved approximately 25 mm (1 in.) away from the equipment. This facilitates removing the equipment from a row. Female quick connectors and reduction fittings are supplied with the equipment. Connect the fittings as shown, then connect the drain line quick connector to the top or bottom condensate pump output line.

Item	Description
1	Tubing (field supplied and installed)
2	1/2-in. male NPT or 1/2-in. male BSPT fitting (field supplied and installed)
3	Straight reduction (supplied)
4	Quick connector (supplied)

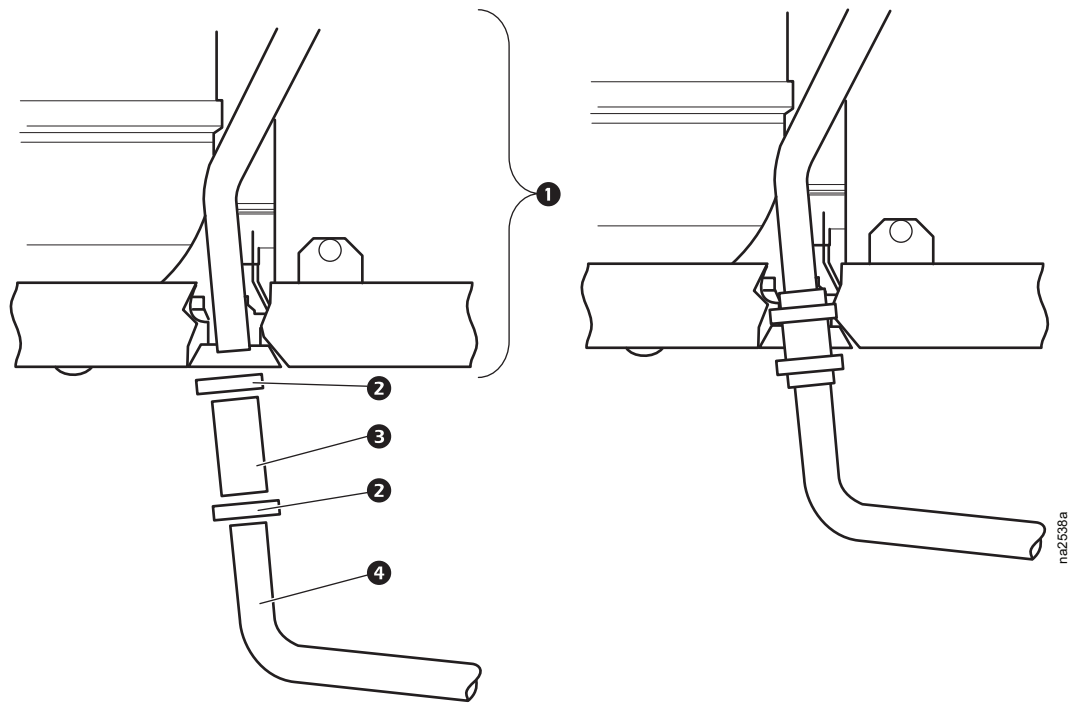


NOTE: Perform all piping in accordance with applicable industry guidelines as well as local and national codes and regulations.

Condensate overflow

NOTICE WATER DAMAGE Failing to perform the following procedure may result in condensate pan overflow and possible damage to the data center. Failure to follow these instructions can result in equipment damage.
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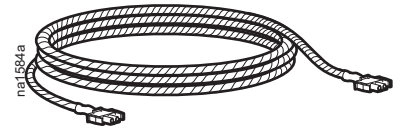
Connect the equipment condensate overflow line to an external drain using the fittings, as shown.



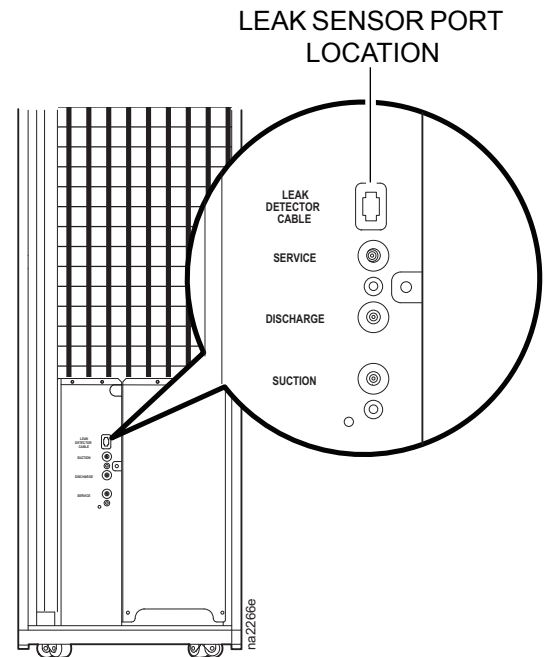
Item	Description
1	InRow RD
2	Hose adapter clamp (supplied)
3	Hose adapter (supplied)
4	7/8-in. copper tubing (field supplied and installed)

Leak sensor (optional)

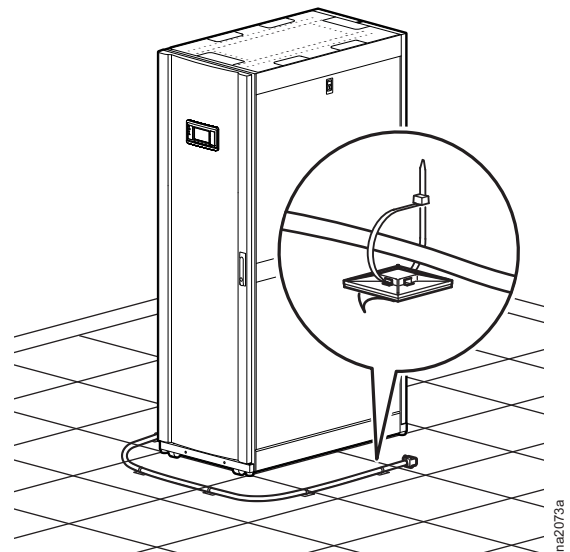
Install up to four leak sensors (AP9326) in series, as needed.



1. Connect the leak sensor to the equipment using the plug located on the service bracket, as shown.



2. Position the leak sensor inside or outside the equipment.
NOTE: Install leak sensors on a clean surface, and do not allow them to touch metal that is in an air stream.
3. Route the leak sensor to the outside of the equipment through the hole provided in the base.
4. Secure the leak sensor wire to surfaces using cable ties and cable tie holders (provided with the leak detector).



Adding a holding charge

NOTICE

DAMAGE TO THE BALL VALVE

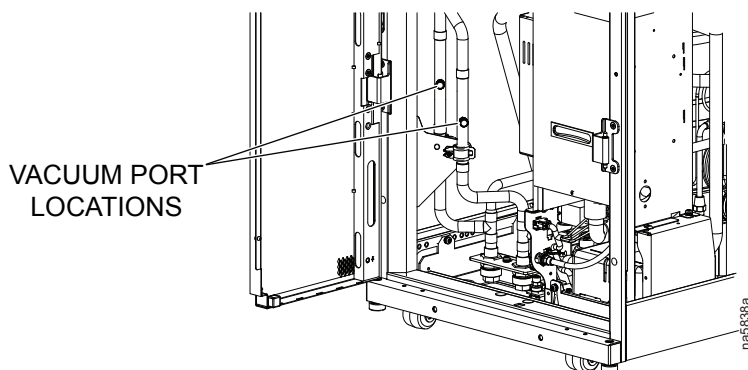
Install a ball valve before the micron gauge to prevent damage to the micron gauge during charging.

Failure to follow these instructions can result in equipment damage.

R-410A is a mixed refrigerant. When charging this equipment with mixed refrigerant, only liquid refrigerant must be charged.

NOTE: The equipment must be charged only with R-410A. The installing contractor is responsible for providing sufficient refrigerant for a complete system charge during start-up.

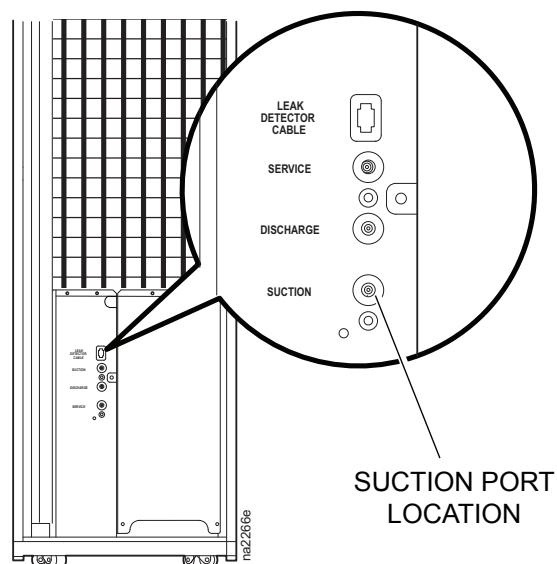
1. Pressurize the system to 17.2 bar (250 psi) with nitrogen (use the service and discharge ports). Leave the system pressurized for 24 hours, and check the gauges for a drop in pressure.
2. Use a deep vacuum pump and pull the first vacuum down to 750 microns (use the two vacuum ports on the connection 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 R-410A through service port and needle valve on condenser until the pressure equalizes with the refrigerant canister.
6. Open the ball valves and then start the system and charge the refrigerant slowly through the suction port.

Adding compressor oil

Unit shall be field charged with 0.44 l (15 oz.) POE oil during startup to make sure oil separator functions normally.



Electrical Connections

  DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
• Potentially dangerous and lethal voltages exist within this equipment. More than one disconnect switch may be required to energize or de-energize this equipment. Observe all cautions and warnings. Failure to do so could result in serious injury or death. Only qualified service and maintenance personnel may work on this equipment. • Three-phase electrical service is required. Electrical service must conform to local and national electrical codes and regulations. The equipment must be grounded. Check the equipment nameplate for correct ratings. • Use a voltmeter to ensure that power is turned off before making any electrical connections.
Failure to follow these instructions will result in death or serious injury.

The following electrical connections are required in the field:

- Controls (customer interface, Network Management Card)
- Communication (A-Link, Building Management System)
- Power to the InRow RD cooling unit (3-phase plus ground)
- Power to flooded receiver heater

All electrical connections must be in accordance with applicable industry guidelines as well as local and national codes and regulations.

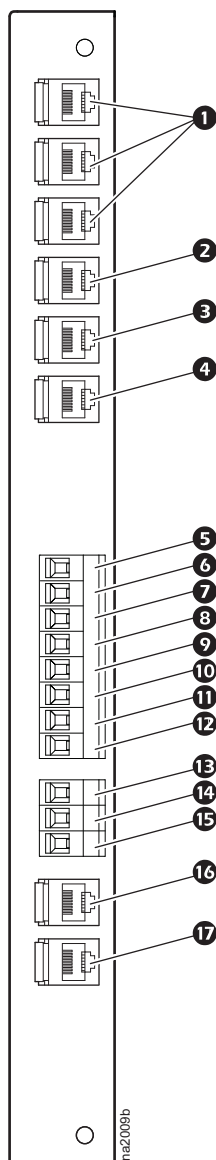
See the equipment nameplate for voltage and current requirements.

Make all low-voltage connections, including data and control connections, with properly insulated wires. Insulation of low-voltage wiring must be rated for at least the voltage of any adjacent wiring.

Customer interface connections

NOTE: Wire all input and output connections as Class 2 circuits.

Depending on the configuration, additional customer interface connections may be required for the A-Link remote communications through the Network Management Card support or traditional equipment-monitoring software.



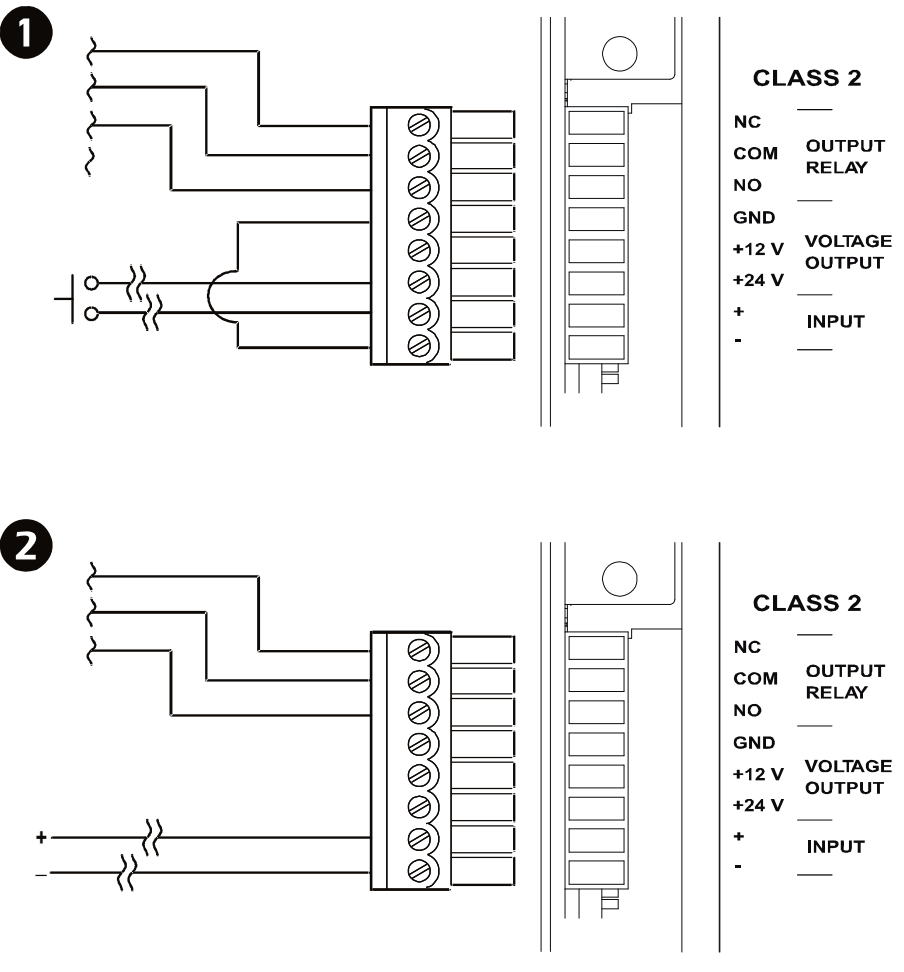
Item	Description
1	Rack inlet temperature sensors 1, 2, 3
2	A-Link IN
3	A-Link OUT
4	Network port
5	Customer output, NC (normally closed)
6	Customer output, COM (common)
7	Customer output, NO (normally open)
8	Supply GND (Ground)
9	Supply 12 Vdc (current limit: 20 mA)
10	Supply 24 Vdc (current limit: 20 mA)
11	Customer input + (12–30 Vac/Vdc, 24 Vdc @ 11 mA)
12	Supply COM
13	Modbus D1
14	Modbus D0
15	Modbus GND
16	Supply air temperature sensor (front)
17	Supply air humidity sensor (front)

NOTE: For a top installation, route control wiring through the wire channel located at the top left hand corner just above the customer interface connectors.

For a bottom installation, route the control wiring to the customer access hole in the bottom of the equipment through wire clamps from the customer interface connectors. Then, route the wiring down along the electrical panel and secure with wire clamps.

Item	Description	
❶	Rack temperature sensors 1, 2, 3	Three temperature sensors which must be installed on the cold aisle side of the server racks. See “Rack temperature sensors” on page 46.
❷	A-Link IN	In and out connections for A-Link. The terminators supplied with the equipment must be plugged into the first A-link port and the final A-Link port for the group.
❸	A-Link OUT	
❹	Network port	10/100 Base-T Network port. Connects the equipment to the network; Status and Link LEDs indicate network traffic. • Status LED—blinks orange and green at startup; indicates the status of the network connection (solid green—IP address established; blinking green—attempting to obtain an IP address). • Link LED—blinks to indicate network traffic (green—operating at 10 mbps; orange—operating at 100 mbps).
❺	Customer output, Normally Closed (NC)	Customer-configurable output relay which can be activated for all types of alarms or critical alarms. The relay can be connected to external equipment using 30 Vac/dc, 2 A.
❻	Customer output, Common (COM)	
❼	Customer output, Normally Open (NO)	
❽	Supply GND	Can be used for customer input and output interface.
❾	Supply 12 Vdc	Can be used for customer input and output interface. Current limit is 20 mA.
❿	Supply 24 Vdc	Can be used for customer input and output interface. Current limit is 20 mA.
⓫	Customer input +	Used for remote shutdown of an InRow RD unit. Voltage is applied from the internal power supply or by using an external power supply.
⓬	Supply COM–	Ground connection point for remote shutdown supply source.
⓭	Modbus D1 (RXTX+)	Connections for Building Management System. Wire a 150-Ohm terminator resistor (supplied) into the final InRow RD, between Modbus D0 and Modbus D1.
⓮	Modbus D0 (RXTX–)	
⓯	Modbus GND	
⓰	Supply air temperature sensor (front)	Temperature sensor installed on the front of the equipment.
⓱	Supply air humidity sensor (front)	Humidity sensor installed on the front of the equipment.

Form C alarm contacts and shutdown input



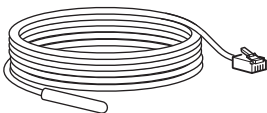
See items 5 through 12 in “Customer interface connections” on page 44. A relay internal to the customer interface is controlled by a user-defined alarm (for example, malfunctioning fans). Before an alarm condition, the signal on the COM (common) terminal is routed to the NC (normally closed) terminal. When the alarm is activated, the relay is energized, causing the signal on the COM terminal to be routed to the NO (normally open) terminal. The NO and NC terminals could be connected to remote indicator lights, a warning buzzer, or another device to alert an operator to the presence of an alarm condition.

The equipment may be remotely disconnected by supplying a voltage to the shutdown inputs as shown above. Option **1** shows a remote switch that uses internal +12 Vdc or +24 Vdc supply to manually stop operation. Option **2** shows how any external source of 12 Vac/dc or 24 Vac/dc may be connected to the shutdown input.

Rack temperature sensors

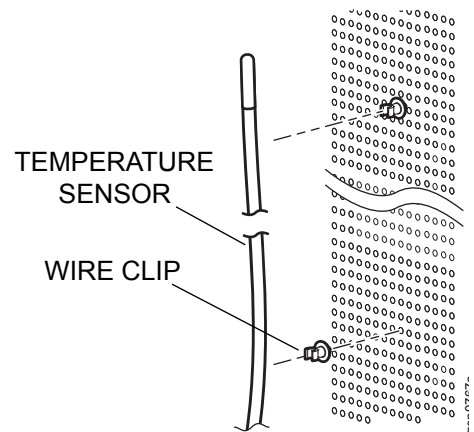
The rack temperature sensors control the equipment airflow and ensure adequate supply of cooling air to the server racks in the data center.

The equipment is supplied with three external rack temperature sensors. See “Install kit inventory” on page 12. These sensors, along with cable ties and wire clips, are included in the installation kit shipped with the equipment.



How to install the rack temperature sensors

1. Insert the rack temperature sensor connector in the temperature sensor port at the customer interface connections. See “Customer interface connections” on page 44.
 - a. For a top installation, push the rack temperature sensor through the wire channel located at the top of the equipment in the left hand side just above the customer interface connectors.
 - b. For a bottom installation, route the sensor through the wire clamps along the electrical panel and then push the sensor through the customer access hole in the bottom of the equipment.



2. Route the sensor through either the top or the bottom of the adjacent server rack.
3. Secure the temperature sensor cable to the front door of the adjacent server rack at multiple locations using the provided wire clips as shown. See “Install kit inventory” on page 12.

NOTE: Remote rack temperature sensors must be installed for proper operation.

The sensors should be located on racks that are adjacent to the cooling unit. The optimum position of the rack temperature sensors will vary from installation to installation, but should be located in close proximity to fan-cooled IT equipment to ensure accurate readings.

Servers most likely to have insufficient or inadequately cooled cooling air due to the recirculation of hot air from the hot aisle include:

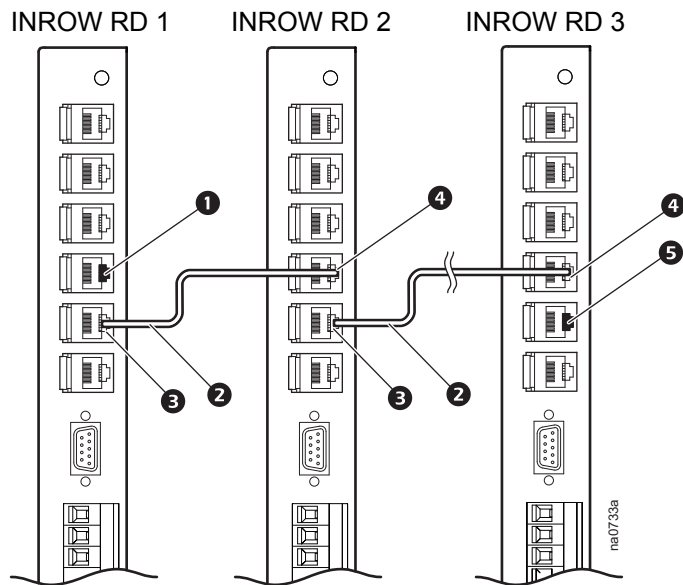
- a. Servers positioned at the top of a rack
- b. Servers positioned at any height in the last rack at an open end of a row
- c. Servers positioned behind flow-impairing obstacles such as building elements
- d. Servers positioned in a bank of high-density racks
- e. Servers positioned next to racks with Air Removal Units (ARU)
- f. Servers positioned very far from the equipment
- g. Servers positioned very close to the equipment

Communication connections

A-Link connections: The A-Link bus connection allows multiple InRow RD units (up to twelve) to communicate with one another. Only one InRow RD unit needs to be defined through the display interface; other InRow RD units are numbered automatically.

To enable the InRow RD units to work as a group, link them using standard (Category 5 or higher) Ethernet cables with RJ-45 connectors. A supplied terminator (150 Ohm, 1/4 W) is factory installed in the A-Link port, and must remain inserted into the A-Link ports of the first and final InRow RD units only.

The maximum wire length for the entire group may not exceed 1000 m (3,280 ft).



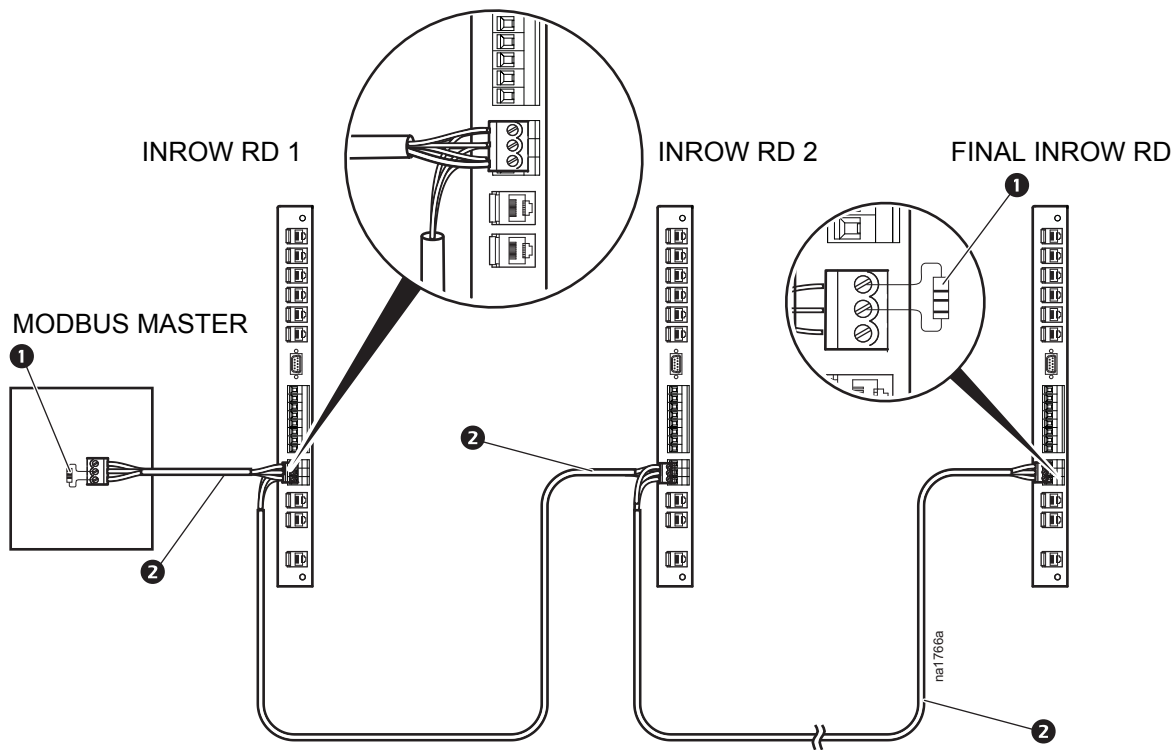
Item	Description	Item	Description
1	A-Link in (with provided RJ-45 terminator)	4	A-Link in
2	A-Link cable (CAT-5 Ethernet cable)	5	A-Link out (with provided RJ-45 terminator)
3	A-Link out		

Building Management System (BMS): The Modbus interface allows each InRow RD cooling unit to communicate with the BMS. Use a three-wire cable to connect each InRow RD cooling unit in turn. Wire a terminator resistor (150 Ohm, 1/4 W) into the Modbus master and the final InRow RD cooling unit between Modbus D0 and Modbus D1. This terminator is included in the installation kit (see “Install kit inventory” on page 12).

Each cooling unit has a three-wire Modbus terminal on the customer interface connections. A connector with screw terminals is used to attach wiring.



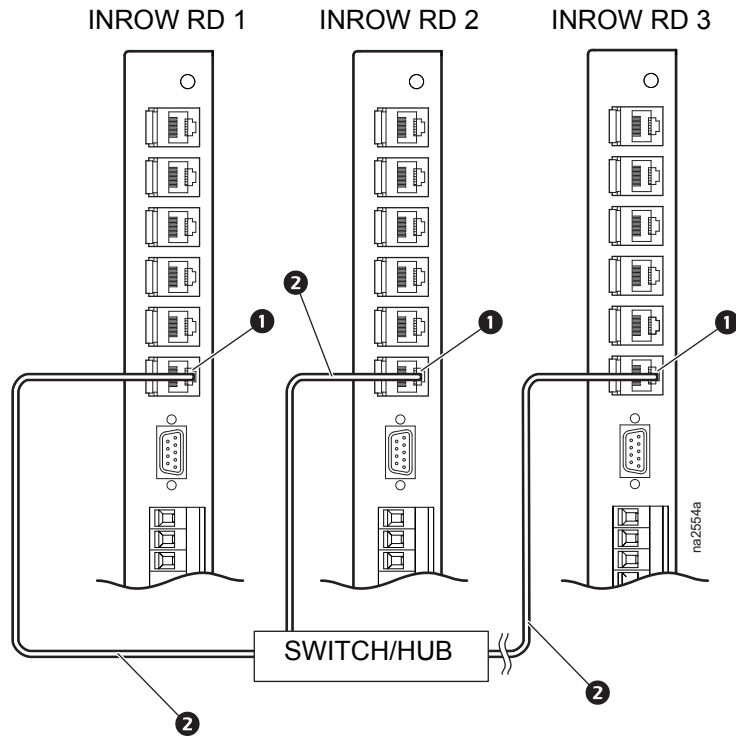
See “Customer interface connections” on page 44 for specific layout of the customer interface connections. For information on setup of Modbus parameters, see the *InRow RD Operation and Maintenance Manual*.



Item	Description
1	Termination resistor (provided)
2	Modbus cable (RS-485)

Network port

The network port allows communication from the cooling unit to the network.



Item	Description
------	-------------

- | | |
|---|---------------------------|
| 1 | Network port |
| 2 | LAN cable (10/100 Base-T) |

Power Connections

Wiring configurations

Route incoming power from the PDU or electrical service panel to the electrical panel located in the left side of the equipment. Route power either through the top or the bottom of the equipment.

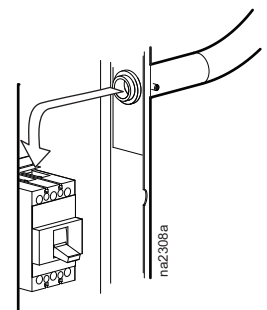
⚠ ⚠ DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
• Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462. • This equipment must be installed and serviced by qualified personnel only. • Turn off all power supplying this equipment before working on or inside the equipment. • Always use a properly rated voltage sensing device to confirm power is off. • 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
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.

NOTE: To ease installation and later removal of the equipment for repairs, use flexible conduit for the power wiring.

Top routing

1. Remove the electrical panel cover. See “Removing the electrical panel cover” on page 32.
2. Locate the power connection plate at the top of the equipment. See “Top piping and power access locations—top view, looking down (ACRD600/P series)” on page 26.
3. Loosen the screw securing the connection plate, and remove the plate.
4. Attach the conduit connector using the pilot hole in the connection plate.
5. Route the cabling to the main breaker as shown.
6. Connect the power wiring to the top of the main circuit breaker using the torque specified on the breaker. Connect the phases as marked next to the terminals.
7. Connect the ground wire to the ground terminal block located above the main circuit breaker.
8. Reinstall the connection plate and the electrical panel cover.



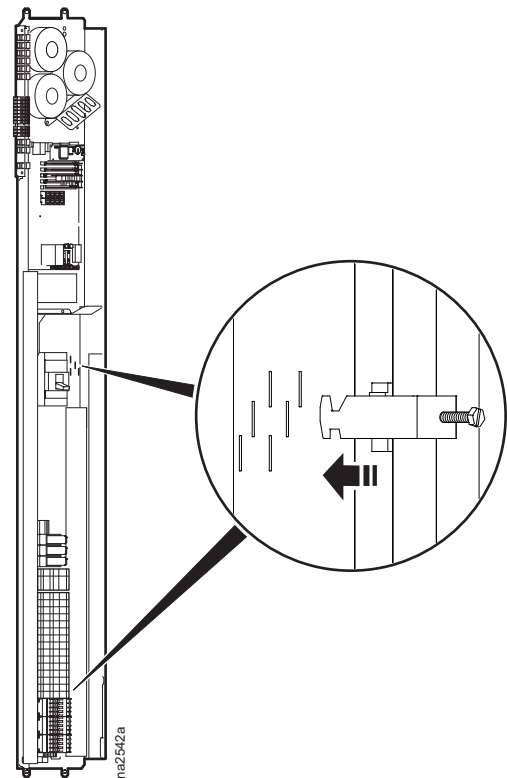
Bottom routing

1. Remove the electrical panel cover. See “Removing the electrical panel cover” on page 32.
2. Locate the power connection plate in the bottom of the equipment. See “Bottom piping and power access locations—bottom view, looking up (ACRD600/P series)” on page 27.
3. Loosen the screw securing the connection plate, and remove the plate.
4. Attach the conduit connector using the pilot hole in the connection plate.
5. For ACRD602 and ACRD602P, perform the steps in “Strain relief (ACRD602/602P only)” on page 52.
6. Route the cabling to the main circuit breaker as shown.
7. Connect the power wiring to the top of the main circuit breaker using the torque specified on the breaker. Connect the phases as marked next to the terminals.
8. Connect the ground wire to the ground terminal block located just above the main circuit breaker.
9. Fasten the cabling inside the equipment with the provided tie wraps. See “Install kit inventory” on page 12.
10. Reinstall the connection plate and the electrical panel cover.

Strain relief (ACRD602/602P only)

Adjustable metal strain relief brackets are provided. See “Install kit inventory” on page 12.

1. Hook one strain relief into a pair of slots in each of the two locations shown.
2. Route the electrical cable up from the bottom of the equipment, passing through the strain reliefs.
3. Tighten the screws on the strain reliefs to capture the electrical cable, taking the weight off of the inner conductors.
4. Continue connecting electrical wiring to the circuit breaker.



Connect flooded receiver heater

⚠ ⚠ WARNING

ELECTRICAL HAZARD

Electrical service must conform to local and national electrical codes and regulations.

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

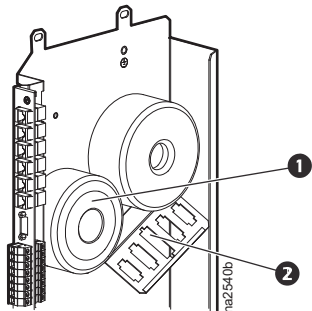
The flooded receiver is equipped with a heater to keep the refrigerant warm during extremely cold weather conditions. If your location is subject to subfreezing temperatures for extended periods of time, you must connect the self-regulating heater to a convenient source of electrical power. If you are not sure your location or application requires the heater, contact Schneider Electric Customer Support.



See the documentation included with the flooded receiver for more information on voltage requirements.

Voltage selections—ACRD60x units

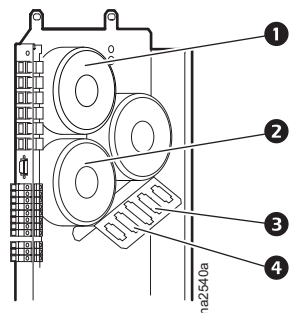
Your equipment can operate at various supply voltages, provided the proper voltage jumpers are connected to the input transformers. Read the part number on the jumpers connected at the factory and compare that number to the table below. If the correct jumpers for your input voltage are not connected, remove them and connect the proper jumper. See “Install kit inventory” on page 12.



Jumper Connections
1 Transformer A connected to J50 **2**

Model	Input Voltage	Use Jumper Part Number
ACRD600	208 (50/60 Hz)	0W2540 (default)
	230 (50/60 Hz)	0W2541
ACRD601	460 (60 Hz)	0W2545
	480 (60 Hz)	0W2546 (default)
ACRD602	380 (50/60 Hz)	0W2542
	400 (50/60 Hz)	0W2543 (default)
	415 (50/60 Hz)	0W2544

Voltage selections—ACRD60xP units



Jumper Connections	
1	Transformer B connected to J51
2	Transformer A connected to J50

Model	Input Voltage	Use Jumper Part Number
ACRD600P	208 (50/60 Hz)	0W2540 (default)
	230 (50/60 Hz)	0W2541
ACRD601P	460 (60 Hz)	0W2545
	480 (60 Hz)	0W2546 (default)
ACRD602P	380 (50/60 Hz)	0W2542
	400 (50/60 Hz)	0W2543 (default)
	415 (50/60 Hz)	0W2544

Charging with Refrigerant

Calculating R410A charge

Use the following table and formula when calculating the total R410A charge.

Condenser Model	Schneider Electric SKU	Selected Ambient Temperature – °C (°F)	Condenser Summer Charge – kg (lb)	Condenser Flooded Charge for Different Minimum Outdoor Ambient Temperatures – kg (lb)				
				4°C (40°F)	–7°C (20°F)	–18°C (0°F)	–29°C (–20°F)	–40°C (–40°F)
LCS5213-099-2C	ACCD75228	35.0–40.6 (95–105)	6.1 (13.3)	9.7 (21.4)	9.7 (21.4)	10.3 (22.8)	10.4 (22.9)	10.8 (23.7)
LCS5213-113-2C	ACCD75229	46 (115)	8.1 (17.9)	13.0 (28.6)	12.9 (28.5)	13.8 (30.4)	13.9 (30.6)	14.3 (31.6)
LCS5213-099-4C	ACCD75230	35.0–40.6 (95–105)	6.1 (13.3)	9.7 (21.4)	9.7 (21.4)	10.3 (22.8)	10.4 (22.9)	10.8 (23.7)
LCS5213-113-4C	ACCD75231	46 (115)	8.1 (17.9)	13.0 (28.6)	12.9 (28.5)	13.8 (30.4)	13.9 (30.6)	14.3 (31.6)
CAP2001P	ACCD75232	35.0–46.0 (95–115)	7.7 (17.0)	12.4 (27.2)	12.4 (27.2)	13.1 (28.9)	13.2 (29.1)	13.7 (30.1)
CAP2001P	ACCD75232-C	35.0–46.0 (95–115)	7.7 (17.0)	12.4 (27.2)	12.4 (27.2)	13.1 (28.9)	13.2 (29.1)	13.7 (30.1)
CAP2001P.0005	ACCD75233-C	35.0–46.0 (95–115)	7.7 (17.0)	12.4 (27.2)	12.4 (27.2)	13.1 (28.9)	13.2 (29.1)	13.7 (30.1)
LCV8211-009-2C	ACCD75234*	35.0–40.6 (95–105)	6.1 (13.3)	9.0 (19.9)	9.3 (20.6)	9.9 (21.7)	10.0 (21.9)	10.4 (23.0)
LCV8211-009-4C	ACCD75235*	35.0–40.6 (95–105)	6.1 (13.3)	9.0 (19.9)	9.3 (20.6)	9.9 (21.7)	10.0 (21.9)	10.4 (23.0)

* Make-to-order.

Total charge = Equipment charge + condenser summer charge + condenser flooded charge (for minimum possible ambient temperature) + liquid R410A in liquid pipe

Equipment charge: 5.5 kg (12.1 lb)

Liquid line charge for 7/8 in. ACR copper tube: 0.28 kg/m (0.186 lb/ft)

Density of liquid R410A at 40.6°C (105°F) and 27.5 bar (400 psig): 0.975 g/cm³ (60.9 lbm/ft³)

Example: Calculate the total R410A charge for an ACCD75232 condenser with 7.6 m (24.9 ft) of 7/8-in. liquid piping. Outdoor temperature is –18°C (0°F).

Total R410A charge:

- Metric: $5.5 + 7.7 + 13.1 + (7.6 * 0.28) = 28.4$ kg
- Imperial: $12.1 + 17.0 + 28.9 + (24.9 * 0.186) = 62.6$ lb

Charging the equipment

⚠ WARNING
HAZARD TO EQUIPMENT OR PERSONNEL
All work must be performed by Schneider Electric authorized personnel.
Failure to follow these instructions can result in injury or equipment damage.

⚠ CAUTION
HAZARD OF HIGH PRESSURE REFRIGERANT OR EQUIPMENT DAMAGE
• Use R410A refrigerant only. • Use hose and manifold set suitable for R410A. • The unit display interface should be used to obtain pressure readings.
Failure to follow these instructions can result in injury or equipment damage.

NOTICE

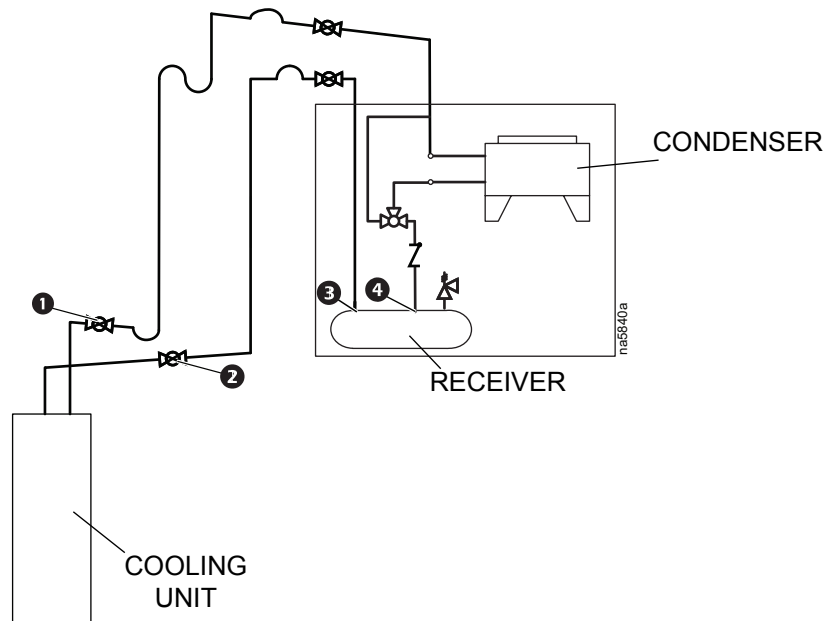
HAZARD TO EQUIPMENT

Introducing a fast charge of liquid refrigerant through the suction port may damage the compressor.

Failure to follow these instructions can result in equipment damage.

Perform the “Add initial refrigerant amount—“fast charge” method:” on page 56 first, and then select one of the following to complete charging the system: “Top off the system refrigerant charge—“fast charge” method:” on page 57 or “Top off the system refrigerant charge—“slow charge” method:” on page 58.

Add initial refrigerant amount—“fast charge” method: Perform the following with the system not in operation.

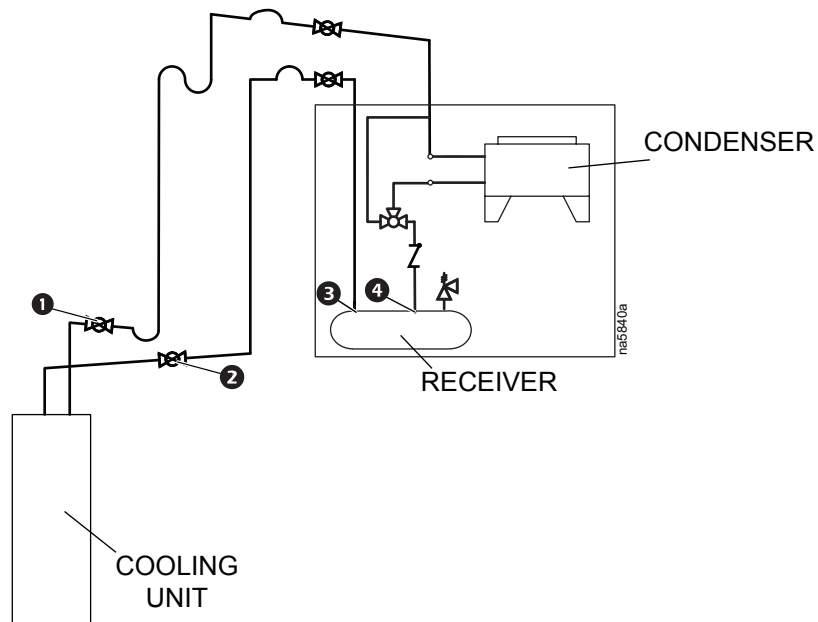


Item	Description
①	Discharge isolation valve
②	Liquid line isolation valve

Item	Description
③	Receiver outlet
④	Receiver inlet

1. Open the discharge isolation valve, the liquid line isolation valve. The receiver outlet valve and receiver inlet valve should be back seated.
2. Attach a refrigerant cylinder and charging hose to the receiver outlet valve and purge the hose if necessary.
3. Open the receiver outlet valve and add the liquid refrigerant until the calculate initial amount is charged into the system.
4. Close the receiver outlet valve, and remove the refrigerant cylinder and charging hose.

Top off the system refrigerant charge—“fast charge” method: Perform the following with the system in operation.



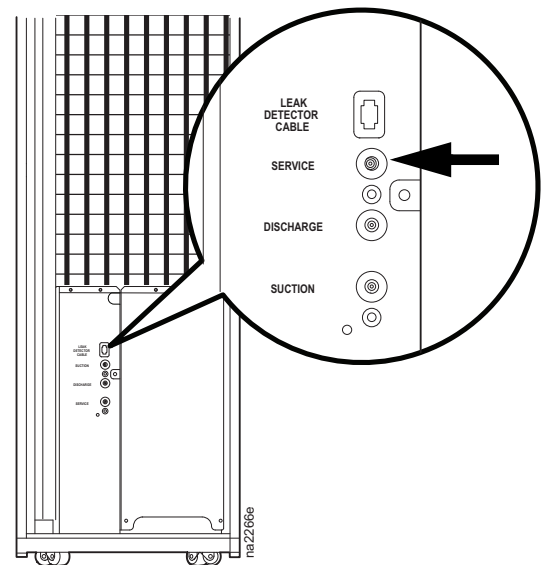
Item	Description
------	-------------

- | | |
|---|-----------------------------|
| ❶ | Discharge isolation valve |
| ❷ | Liquid line isolation valve |

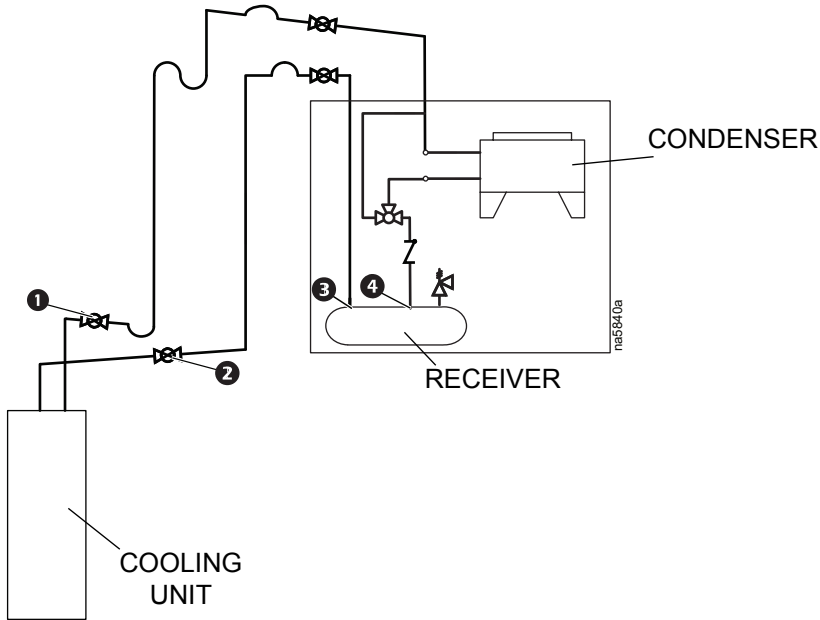
Item	Description
------	-------------

- | | |
|---|-----------------|
| ❸ | Receiver outlet |
| ❹ | Receiver inlet |

1. Attach a refrigerant cylinder and charging hose to the service port on the cooling unit and purge the hose if necessary.
2. Close the liquid line isolation valve and wait for bubbles to appear in the liquid line sight glass.
3. Open the refrigerant cylinder valve and add refrigerant.
4. When charging is complete, close the refrigerant cylinder valve and remove the charging hose from the service port.
5. Slowly open the liquid line isolation valve.



Top off the system refrigerant charge—“slow charge” method: Perform the following with the system in operation.



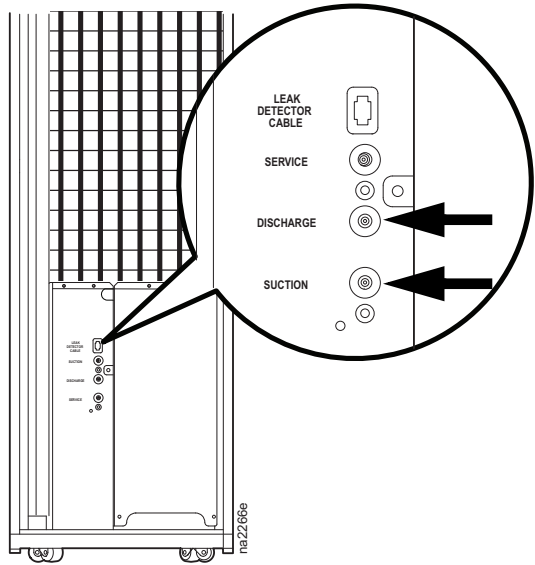
Item	Description
------	-------------

- | | |
|---|-----------------------------|
| ❶ | Discharge isolation valve |
| ❷ | Liquid line isolation valve |

Item	Description
------	-------------

- | | |
|---|-----------------|
| ❸ | Receiver outlet |
| ❹ | Receiver inlet |

1. Attach a refrigerant gauge manifold to the discharge and suction ports on the cooling unit.
2. Attach a manifold charging hose to the refrigerant cylinder and purge the hose if necessary.
3. Add liquid refrigerant very slowly through the suction port at a pressure of about 1 bar (15 psig) above the suction pressure. Do not charge for longer than two-minute intervals; stop charging and wait 3–5 minutes for the system to stabilize.
4. Repeat step 3 as necessary.
5. When charging is complete, close the refrigerant cylinder valve and remove the charging hose from the suction port.
6. Slowly open the liquid line isolation valve.



Compressor Oil Charge

⚠ WARNING
HAZARD TO EQUIPMENT OR PERSONNEL
All work must be performed by Schneider Electric authorized personnel.
Failure to follow these instructions can result in injury or equipment damage.

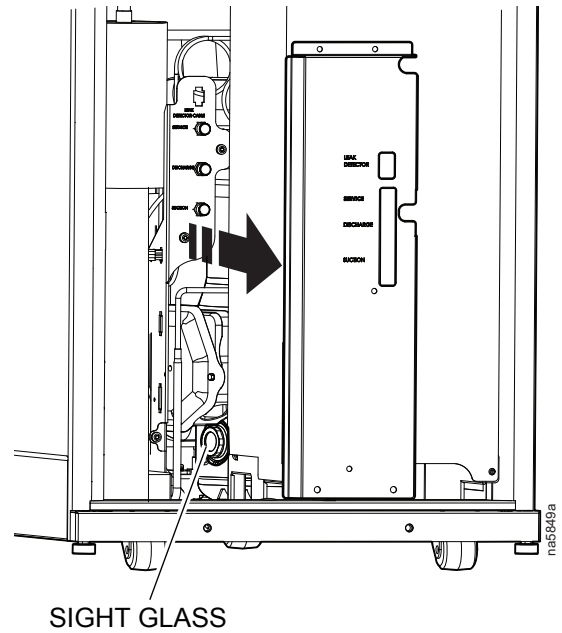
Oil charging procedure

NOTICE
HAZARD TO EQUIPMENT
Do not overcharge the compressor, or compressor damage could result. The only way to drain oil from the compressor is to remove the compressor from the equipment, which cannot be done when the equipment is in the row.
Failure to follow these instructions can result in equipment damage.

NOTICE
DAMAGE TO EQUIPMENT
Be careful not to charge more oil than is necessary. Excessive oil in the system may cause system damage, including the following:
• 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.

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 high quality polyolester (POE) type 160SZ oil or equivalent.
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 0.44 l (15 oz.) POE 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 1/4 and 3/4 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.



Accessories

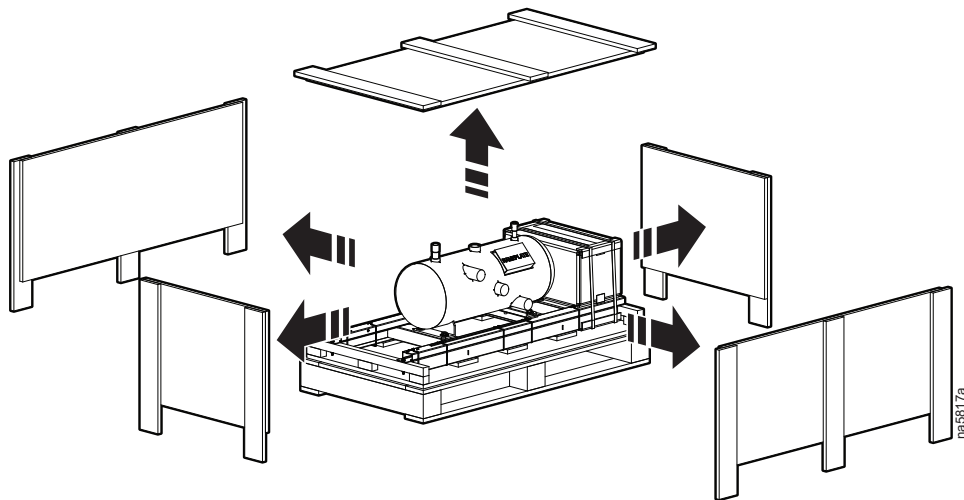
Low Temperature Kit

The low temperature kit provided by Schneider Electric includes a pressure relief valve on the liquid receiver vessel. If the low temperature kit is not installed, then Schneider Electric recommends the installation of a pressure relief valve on the discharge pipe near the condenser. The pressure relief valve selection and installation is the responsibility of the installer and shall comply with local authorities.

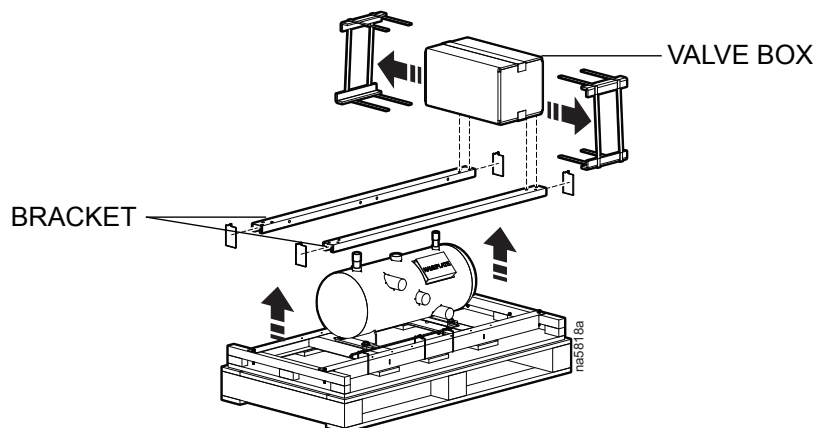
Unpacking

GCN-GB and EMEA-PED versions (ACAC75013 and ACAC75015)

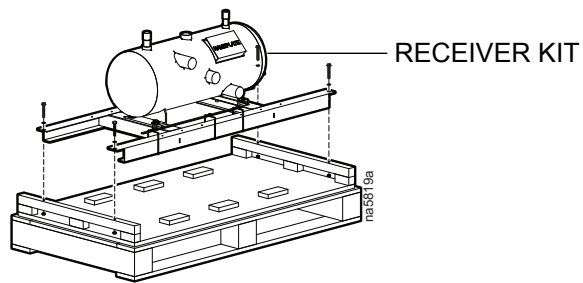
1. Remove plywood top and sides from the pallet.



2. Remove the valve box (contains safety valve, ball valve, head pressure valve, and check valve).
3. Remove brackets.

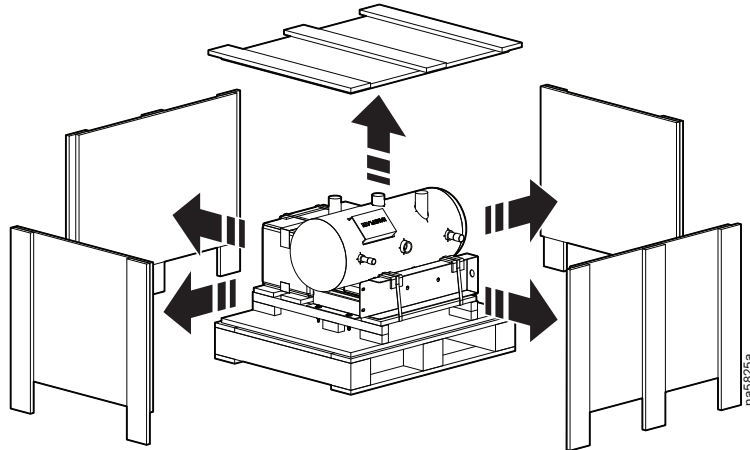


4. Remove receiver kit.

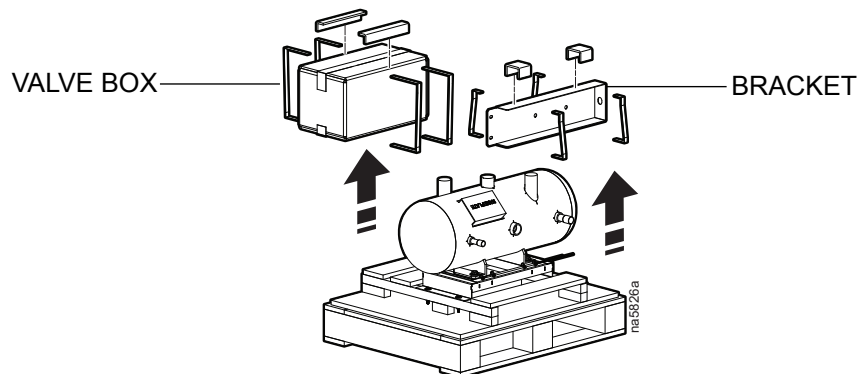


NAM-ASME versions (ACAC75014)

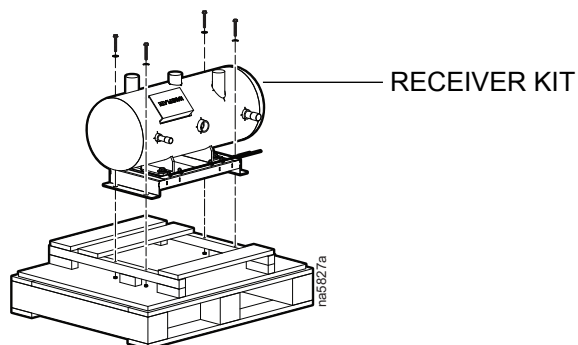
1. Remove plywood top and sides from the pallet.



2. Remove the valve box (contains safety valve, ball valve, head pressure valve, and check valve).
3. Remove brackets.

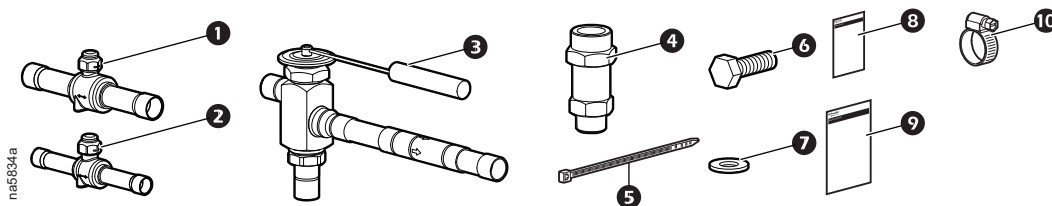


4. Remove receiver kit.



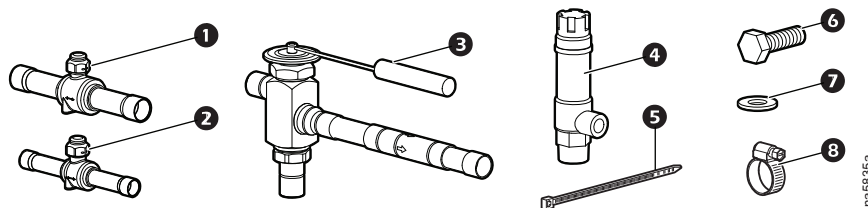
Install kit inventory

GCN-GB versions (ACAC75013)



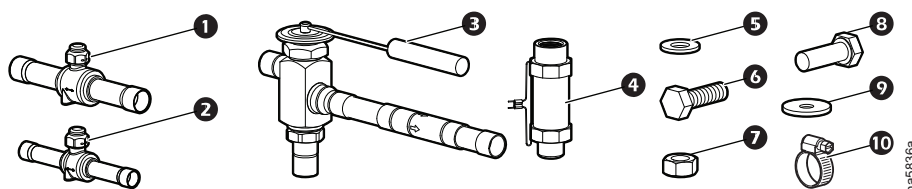
Item	Description	Quantity	Item	Description	Quantity
1	Ball valve, 7/8 in. (inlet)	1	6	Bolt, M6	16
2	Ball valve, 5/8 in. (outlet)	1	7	Washer flat, M6	16
3	Head pressure valve and check valve	1	8	Quality certificate for receiver (GB)	1
4	Safety valve (GB)	1	9	Quality certificate for safety valve (GB)	1
5	Tie wrap, 1 1/4 in.	11	10	Hose clamp	2

EMEA-PED versions (ACAC75015)



Item	Description	Quantity	Item	Description	Quantity
1	Ball valve, 7/8 in. (inlet)	1	5	Tie wrap, 1 1/4 in.	11
2	Ball valve, 5/8 in. (outlet)	1	6	Bolt, M6	16
3	Head pressure valve and check valve	1	7	Washer flat, M6	16
4	Safety valve (PED)	1	8	Hose clamp	2

NAM-ASME versions (ACAC75014)

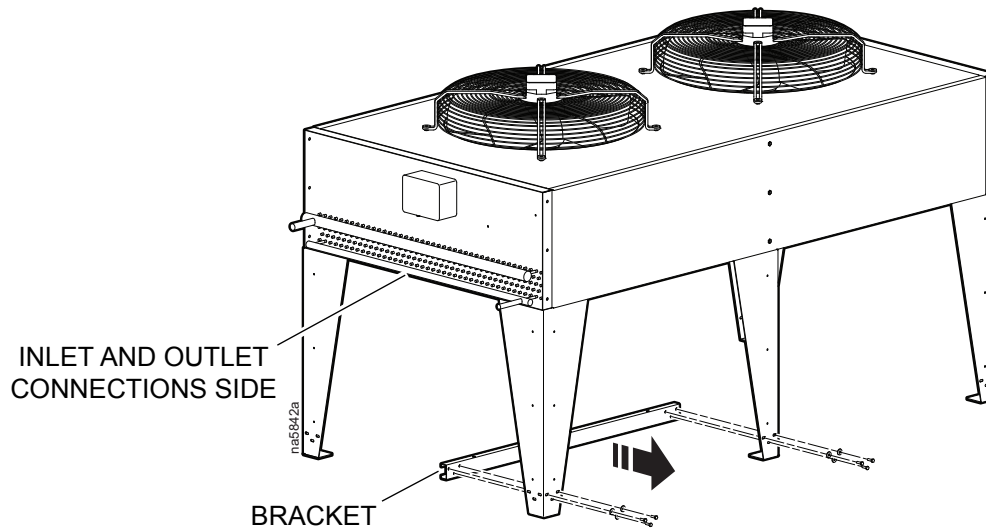


Item	Description	Quantity	Item	Description	Quantity
1	Ball valve, 7/8 in. (inlet)	1	6	Bolt, 1/4 in.	2
2	Ball valve, 5/8 in. (outlet)	1	7	Nut, M10	4
3	Head pressure valve and check valve	1	8	Bolt, M10	4
4	Safety valve (ASME)	1	9	Washer flat, M10	4
5	Washer flat, 1/4 in.	2	10	Hose clamp	2

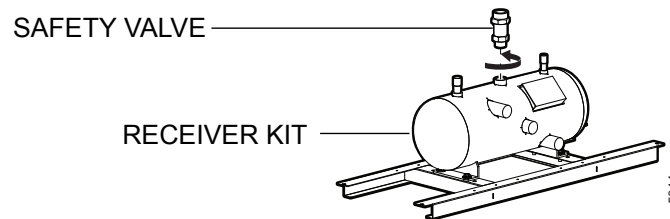
Installation

GCN-GB and EMEA-PED versions (ACAC75013 and ACAC75015)

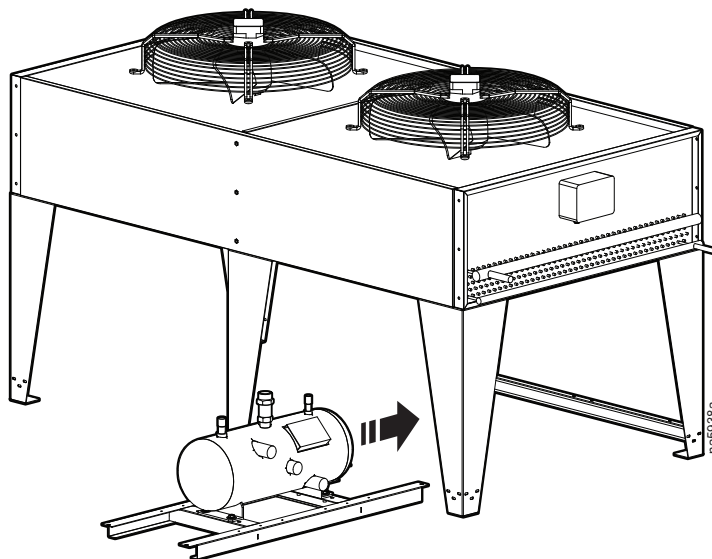
1. Facing the inlet and outlet connections, attach the first bracket to the right-side condenser legs.



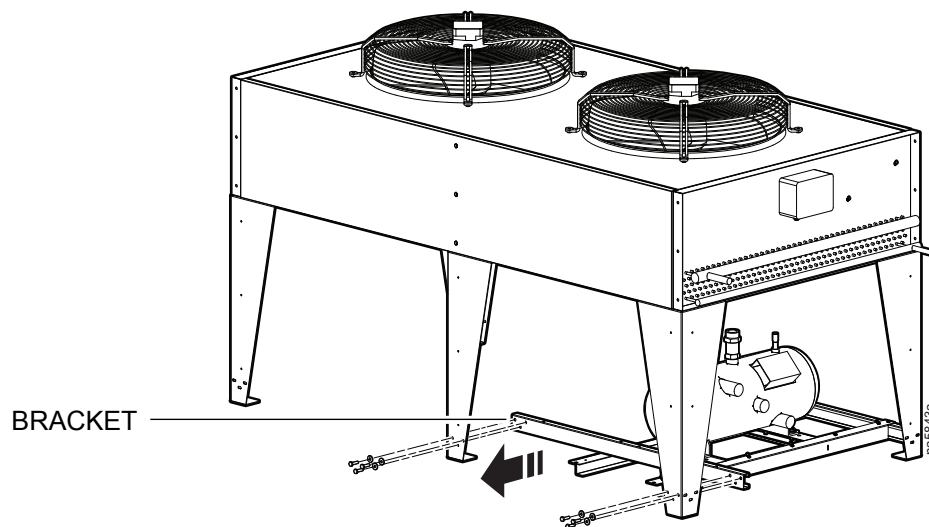
2. Install the safety valve onto the receiver kit. Use thread sealing adhesives or raw adhesive tape as necessary.



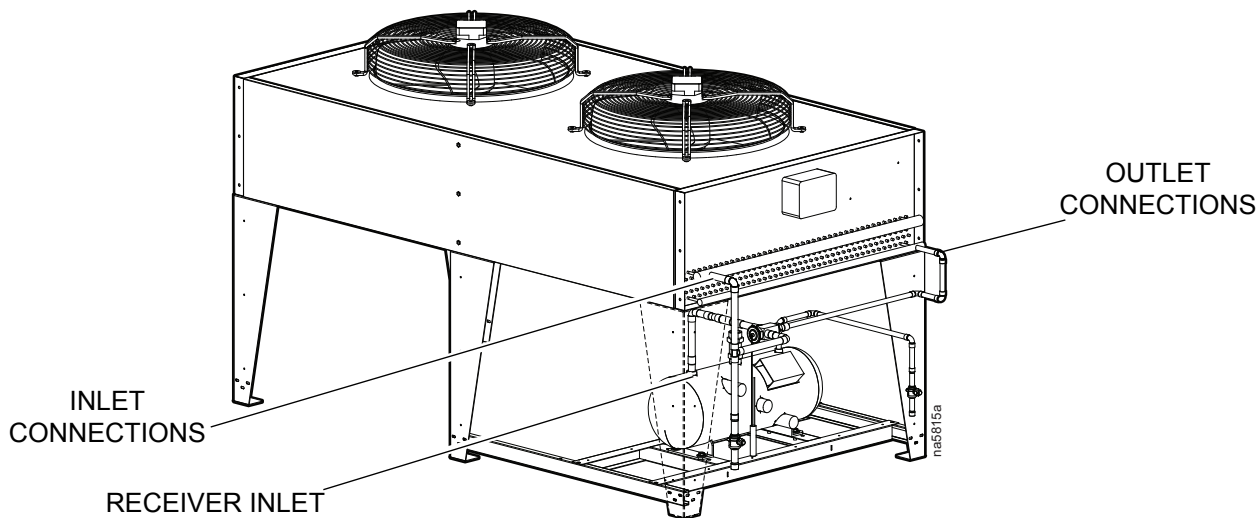
3. Install inlet piping onto the receiver kit.
4. Attach the receiver kit onto the previously installed bracket.



5. Install the second bracket on the opposite side of the first bracket to enclose the receiver kit.

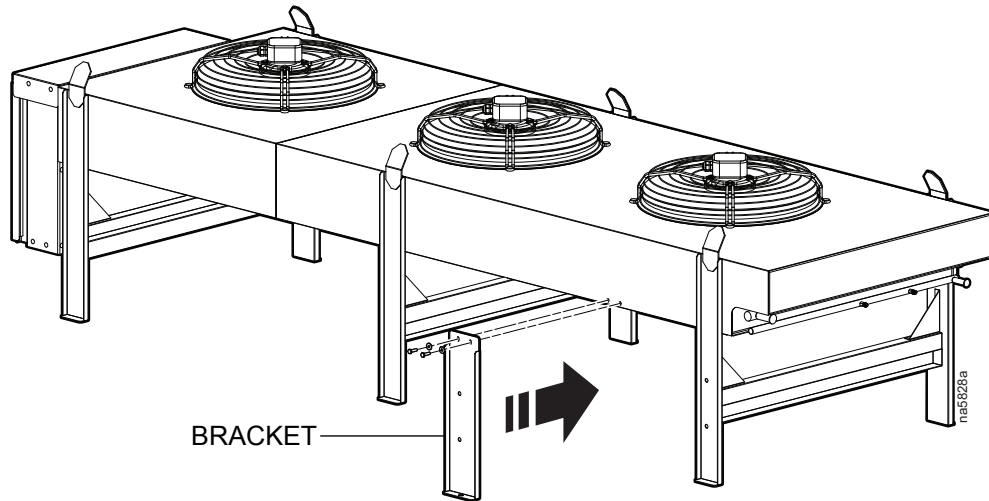


6. Install the included valve and pipes to the inlet and outlet connections on the condenser.



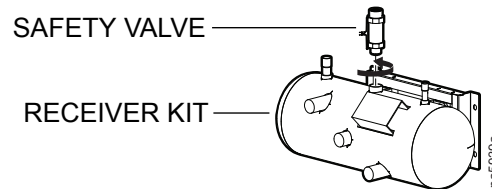
NAM-ASME versions (ACAC75014)

1. Install the bracket using the 1/4-in. washers and 1/4-in. bolts.

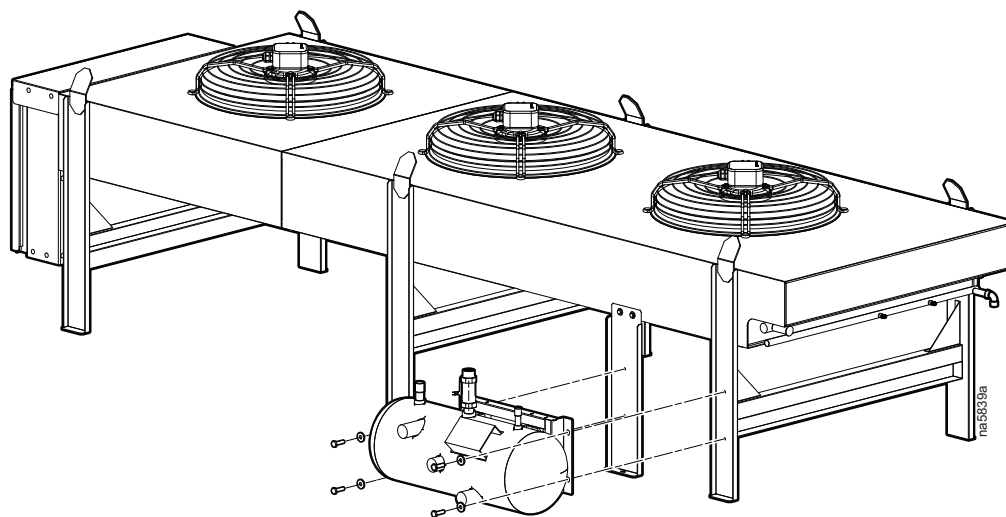


MODEL ACCD75228-231 SHOWN

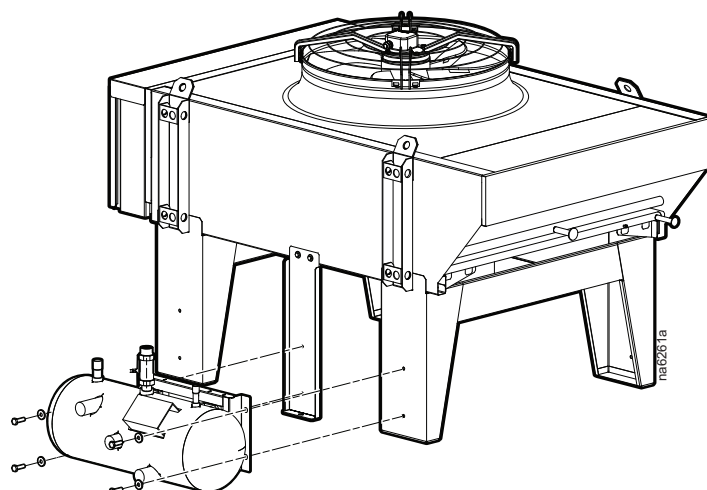
2. Install the safety valve onto the receiver kit. Use thread sealing adhesives or raw adhesive tape as necessary.



3. Install receiver kit using the M10 washers, M10 bolts, and M10 nuts.



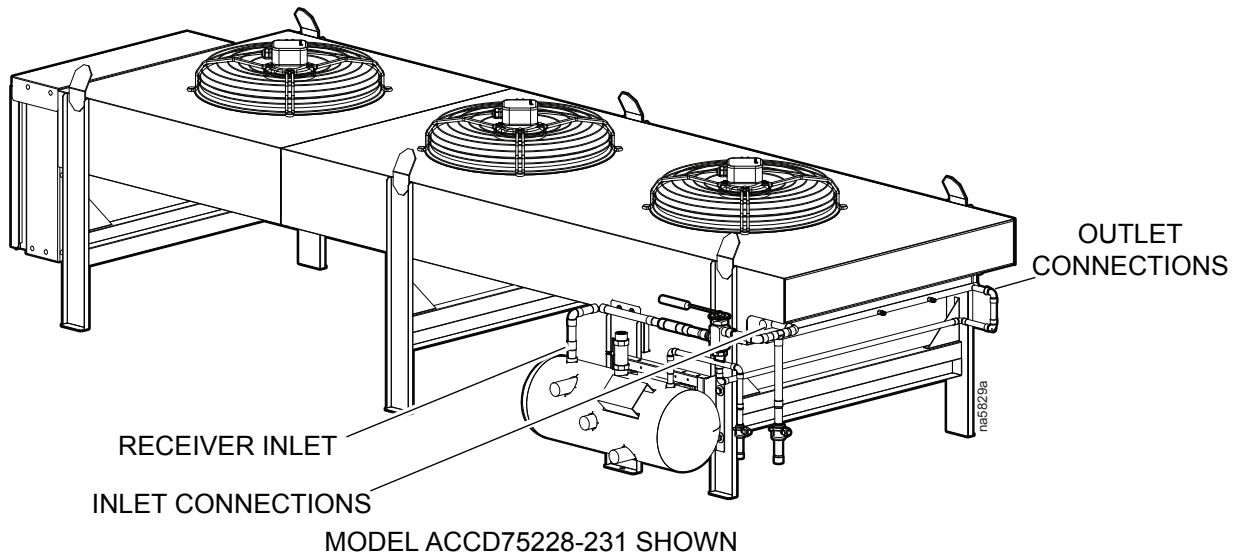
MODEL ACCD75228-231 SHOWN



MODEL ACCD75234/ACCD75235 SHOWN

NOTE: Make-to-order.

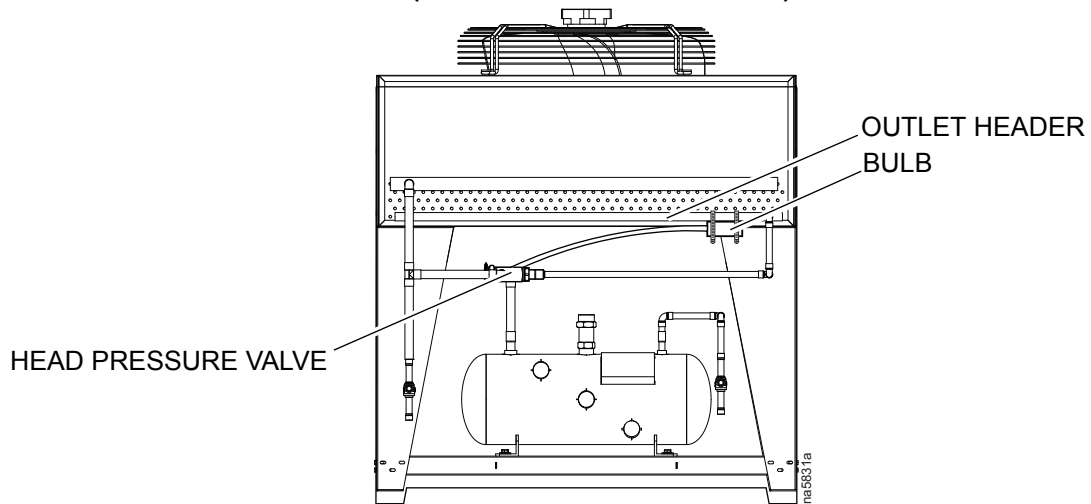
4. Install included valve and pipes to the inlet and outlet connections on the condenser.



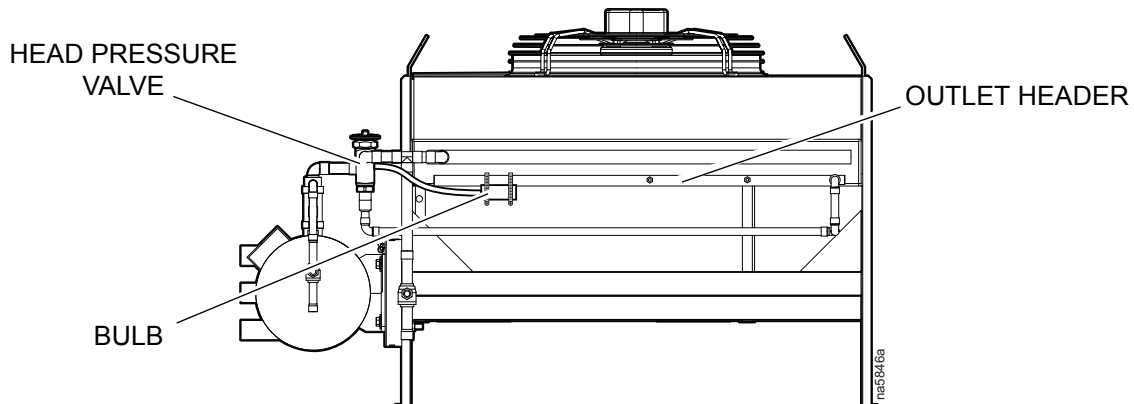
Bulb location

Two clamps are provided to fasten the head pressure valve sensing bulb to the condenser outlet header.

GCN-GB and EMEA-PED versions (ACAC75013 and ACAC75015)



NAM-ASME versions (ACAC75014)



Heater connection location

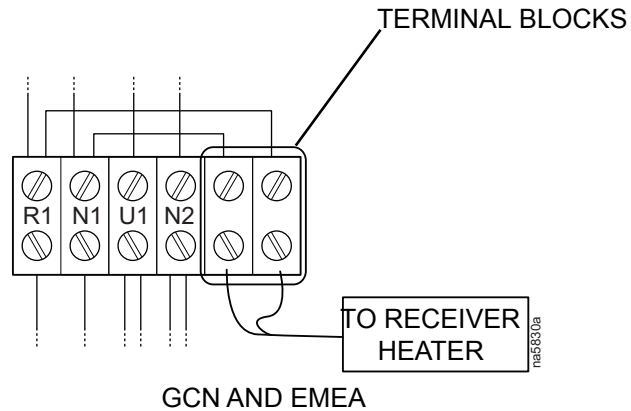
⚠ ⚠ WARNING

ELECTRICAL HAZARD

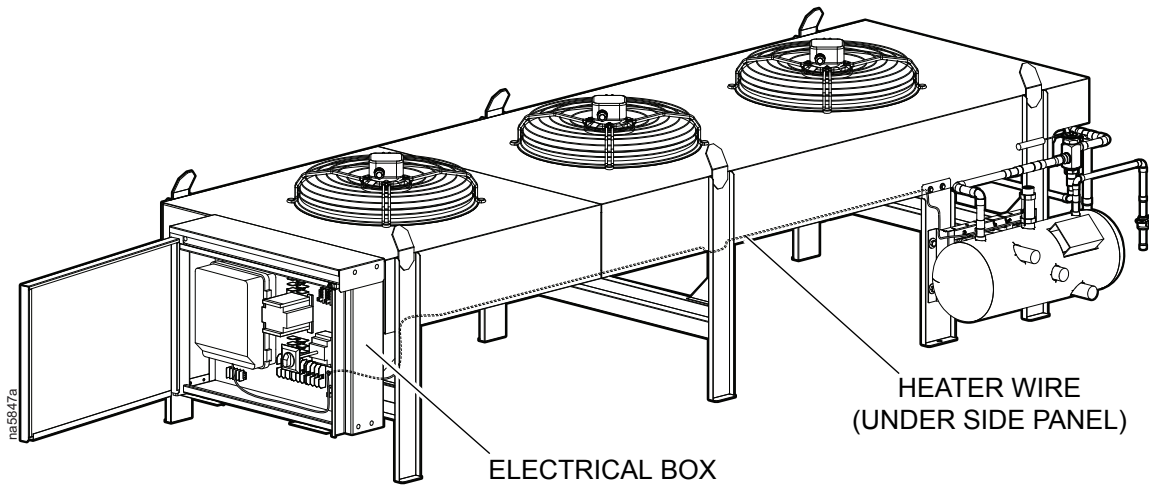
Electrical service must conform to local and national electrical codes and regulations.

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

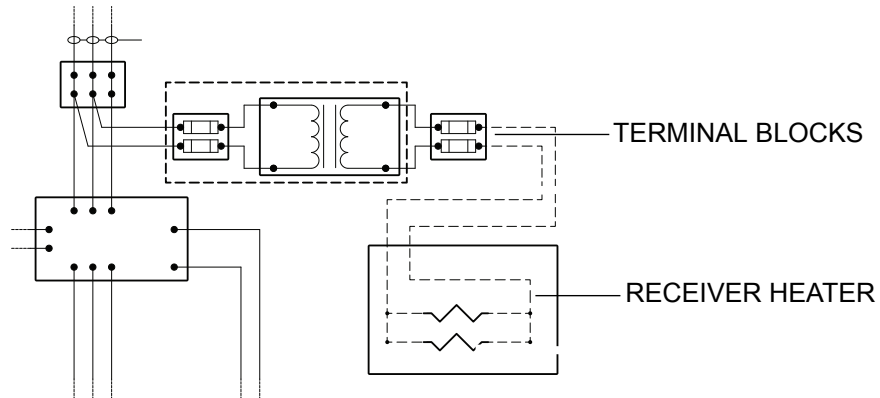
GCN-GB and EMEA-PED versions (ACAC75013 and ACAC75015)



1. Remove the cap over the hole on the electrical box.
2. Install the grommet (supplied with condenser).
3. Connect the heater wire to the terminal blocks on the electrical box.



1. Open the door accessing the electrical box.
2. Connect the heater wire to the terminal blocks on the electrical box.



Worldwide Customer Support

Customer support for this or any other 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.schneider-electric.com** (Corporate Headquarters)
Connect to localized Schneider Electric Web sites for specific countries, each of which provides customer support information.
 - **www.schneider-electric.com/support/**
Global support searching Schneider Electric Knowledge Base and using e-support.
- Contact the Schneider Electric Customer Support Center by telephone or e-mail.
 - Local, country-specific centers: go to **www.schneider-electric.com > Support > Operations around the world** for contact information.

For information on how to obtain local customer support, contact the representative or other distributors from whom you purchased your product.

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