



Liebert® CRV CRC30 and CRC60

User Manual (Original Instructions)

30 kW and 60 kW, 50/60 Hz, Chilled Water Cooling System

The information contained in this document is subject to change without notice and may not be suitable for all applications. While every precaution has been taken to ensure the accuracy and completeness of this document, Vertiv assumes no responsibility and disclaims all liability for damages result from use of this information or for any errors or omissions.

Vertiv recommends installing a monitored fluid detection system that is wired to activate the automatic closure of field-installed coolant fluid supply and return shut off valves, where applicable, to reduce the amount of coolant fluid leakage and consequential equipment and building damage. Refer to local regulations and building codes relating to the application, installation, and operation of this product. The consulting engineer, installer, and/or end user is responsible for compliance with all applicable laws and regulations relation to the application, installation, and operation of this product.

The products covered by this instruction manual are manufactured and/or sold by Vertiv. This document is the property of Vertiv and contains confidential and proprietary information owned by Vertiv. Any copying, use, or disclosure of it without the written permission of Vertiv is strictly prohibited.

Names of companies and products are trademarks or registered trademarks of the respective companies. Any questions regarding usage of trademark names

Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

TABLE OF CONTENTS

1 Important Safety Instructions	1
1.1 Conformity to EU Directives	1
2 Product Overview	3
2.1 Model Nomenclature	3
2.2 Name Plate and Components	4
2.3 Component Location	6
2.4 Accessories	10
2.5 System Data	10
3 Pre-installation Preparation	15
3.1 Tools Required	15
3.2 Dimensions and Weights	16
3.3 Clearance Requirements	17
3.4 Inspecting the Unit	17
3.5 Moving the Packaged Unit	18
3.6 Unpacking the Unit	19
3.7 Removing the Unit from the Pallet	19
3.8 Location of the Main Grounding Point	22
4 Installing in Enclosure Row	23
4.1 Leveling the Unit	23
4.2 Combining the Unit with Adjacent Cabinets	24
4.3 Removing the Feet and Fixing the Unit (Optional)	25
4.4 Installing Top Frame and Front Frame (Optional)	25
4.4.1 Installing the Top Frame without the Front Frame	26
4.4.2 Installing the Top Frame and the Front Frame	28
5 Piping Connections	31
5.1 General Arrangement	31
5.2 Connecting Water Inlet and Outlet Pipes	33
5.2.1 Releasing Pre-charged Nitrogen	33
5.2.2 Top Connection	35
5.2.3 Bottom Connection	36
5.3 Connecting Condensate Drainage Pipes	38
5.3.1 Top Connection	38
5.3.2 Bottom Connection	38
5.4 Connecting Water Supply for Humidifier (Only for CRC30)	39
5.4.1 Top Connection	39
5.4.2 Bottom Connection	40
6 Electrical Connections	41
6.1 Connecting Power Supply Cable	41

- 6.1.1 Connecting Power Supply Cable for CRC30 42
- 6.1.2 Connecting Power Supply Cable for CRC60 42
- 6.2 Connecting Communications Cables 43
 - 6.2.1 General Arrangement 43
 - 6.2.2 Connecting the Unity Card 45
 - 6.2.3 Connecting for Teamwork 45
 - 6.2.4 Connecting the Water Leakage Sensor (Optional) 47
 - 6.2.5 Connecting the Remote On/Off Device (Optional) 48
 - 6.2.6 Connecting Remote Temperature Sensors (Optional) 48
 - 6.2.7 Connecting the Static Pressure Sensor (Customer-Supplied) 48
- 7 Start-up 51**
- 7.1 Commissioning 51
- 7.2 Start-up 52
 - 7.2.1 First Start-up (or After Long Standstill) 52
 - 7.2.2 Automatic Restart 53
- 8 HMI Display 55**
- 8.1 Appearance 55
- 8.2 Main Functions 56
 - 8.2.1 Home Page 56
 - 8.2.2 Control Mode 58
- 8.3 Menu Structure and Parameters 58
- 8.4 Alarm Information 58
- 8.5 Teamwork Control 59
- 9 Maintenance 61**
- 9.1 Maintenance Schedule 61
- 9.2 Facility Fluid and Piping 62
- 9.3 Glycol Solution 63
- 9.4 Spare Parts 63
- 9.5 Air Filters 63
- 9.6 Condensate Drain and Condensate Pump 63
- 9.7 Fan 65
- 9.8 Electric Heater (Only for CRC30) 66
- 9.9 Humidifier (Only for CRC30) 67
- 9.10 Dismantling the unit 69
- 9.11 Troubleshooting 69
- Appendices 71**
- Appendix A: Technical Support and Contacts 71
- Appendix B: Menu Structure 72
- Appendix C: Alarm Table 76
- Appendix D: Hydraulic Schematic 78

1 Important Safety Instructions

NOTE: Prior to moving, installing or servicing this unit, read the Safety Instructions sheet provided as a separate document shipped with the unit.

1.1 Conformity to EU Directives

Fabbricante-Manufacturer-Hersteller-Fabricant-Fabricante

Fabricante- Tillverkare – Fabrikant – Valmistaja – Produsent
Fabrikant – Κατασκευαστής – Producent

Il Fabbricante dichiara che questo prodotto è conforme alle direttive Europea:

The Manufacturer here by declares that this product conforms to the European Union directives:

Der Hersteller erklärt hiermit, dass dieses Produkt den Anforderungen der europäischen Richtlinien gerecht wird:

Le Fabrican déclare que ce produit est conforme aux directives Européennes:

El Fabricante declara que este producto es conforme a las directivas Europeas:

O Fabricante declara que este produto está em conformidade com as directivas Europeias:

Tillverkare försäkrar härmed att denna produkt överensstämmer med Europeiska Uniones direktiv:

De Fabrikant verklaart dat dit product conform de Europese richtlijnen is:

Vaimistaja vakuuttaa täten, että tämä tuote täyttää seuraavien EU-direktiivien vaatimukset:

Produsent erklærer herved at dette produktet er i samsvar med EU-direktiver:

Fabrikant erklærer herved, at dette product opfylder kravene i EU direktiverne:

κατασκευαστής δηλώνει ότι το παρόν προϊόν είναι ΑατασΑευαμγνο αγμ ωνα με τη οδηγβει τηj Ε.Ε.:

2006/42/EC

2014/30/EU

2014/35/EU

2011/65/EU with its amendment (EU) 2015/863

This page intentionally left blank

2 Product Overview

The Vertiv™ Liebert® CRV CRC30 and CRC60 chilled water cooling units are specifically created and designed for small to medium data centers, computer rooms, equipment rooms, and similar high heat density environments.

2.1 Model Nomenclature

Table 2.1 below and **Table 2.2** below tables describe the model number for the Vertiv™ Liebert® CRV CRC30 and CRC60 cooling units.

Table 2.1 CRC30 Model Number Example

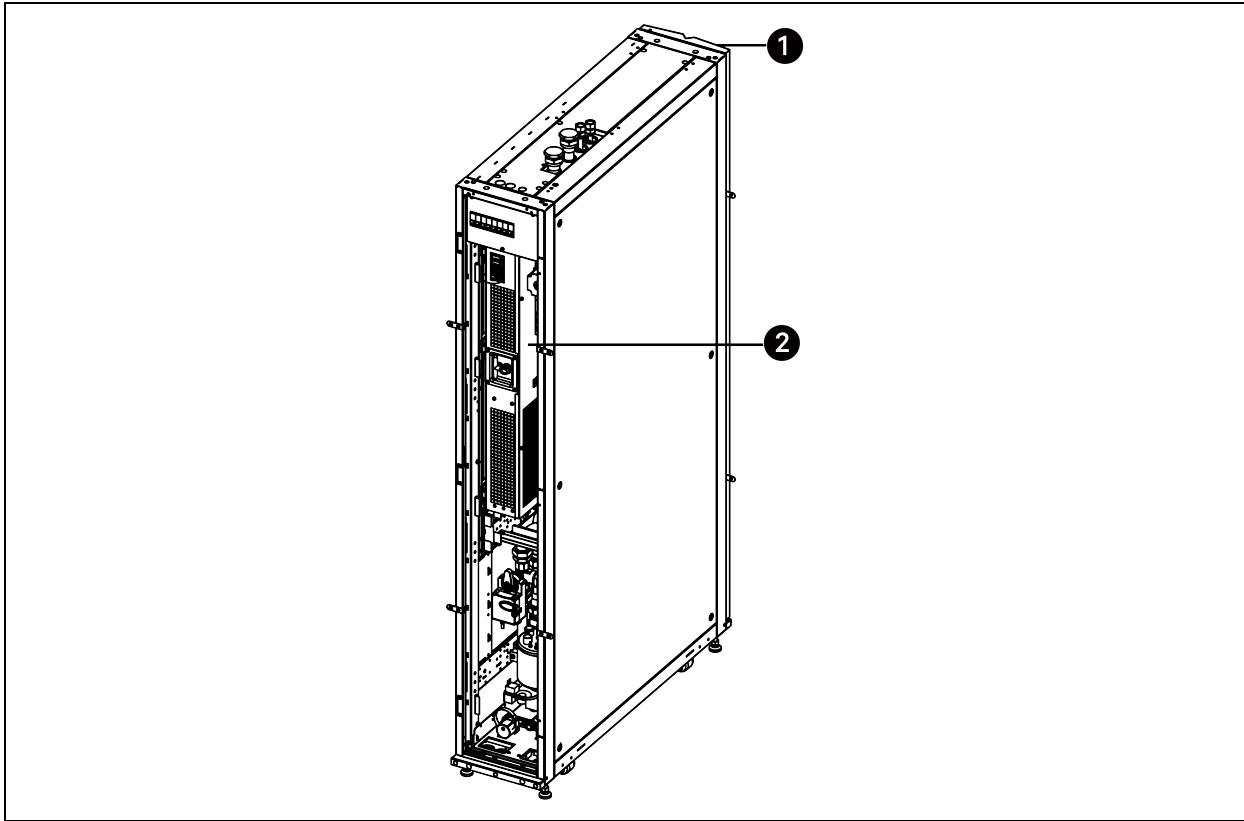
Model Number											
1	2	3	4	5	6	7	8	9	10	11	12
C	R	C	3	0	5	-	P	D	2	0	A

Table 2.2 CRC30 and CRC60 Model Number Digit Definitions

Digit	Variable	Description
1	C	Vertiv™ Liebert® CRV
2	R	
3	C	Chilled water
4	30, 60	Model number
5		
6	2, 5	2: 230 V, 1-phase, 50/60 Hz, CE 5: 400 V, 3-phase, 50/60 Hz, CE
7	-	Separator
8	0, P	0: Cooling only P: Reheat and humidifier
9	D	Dual power supply
10	2	Heat exchanging medium
11	0	Free digit
12	A- Z	Revision

2.2 Name Plate and Components

Figure 2.1 Vertiv™ Liebert® CRV CRC30 and CRC60 Name Plate Location



Item	Description
1	Front door
2	Name plate on the side cover of the slider electrical box (electrical box 2)

Figure 2.2 Vertiv™ Liebert® CRV CRC30 Name Plate Information









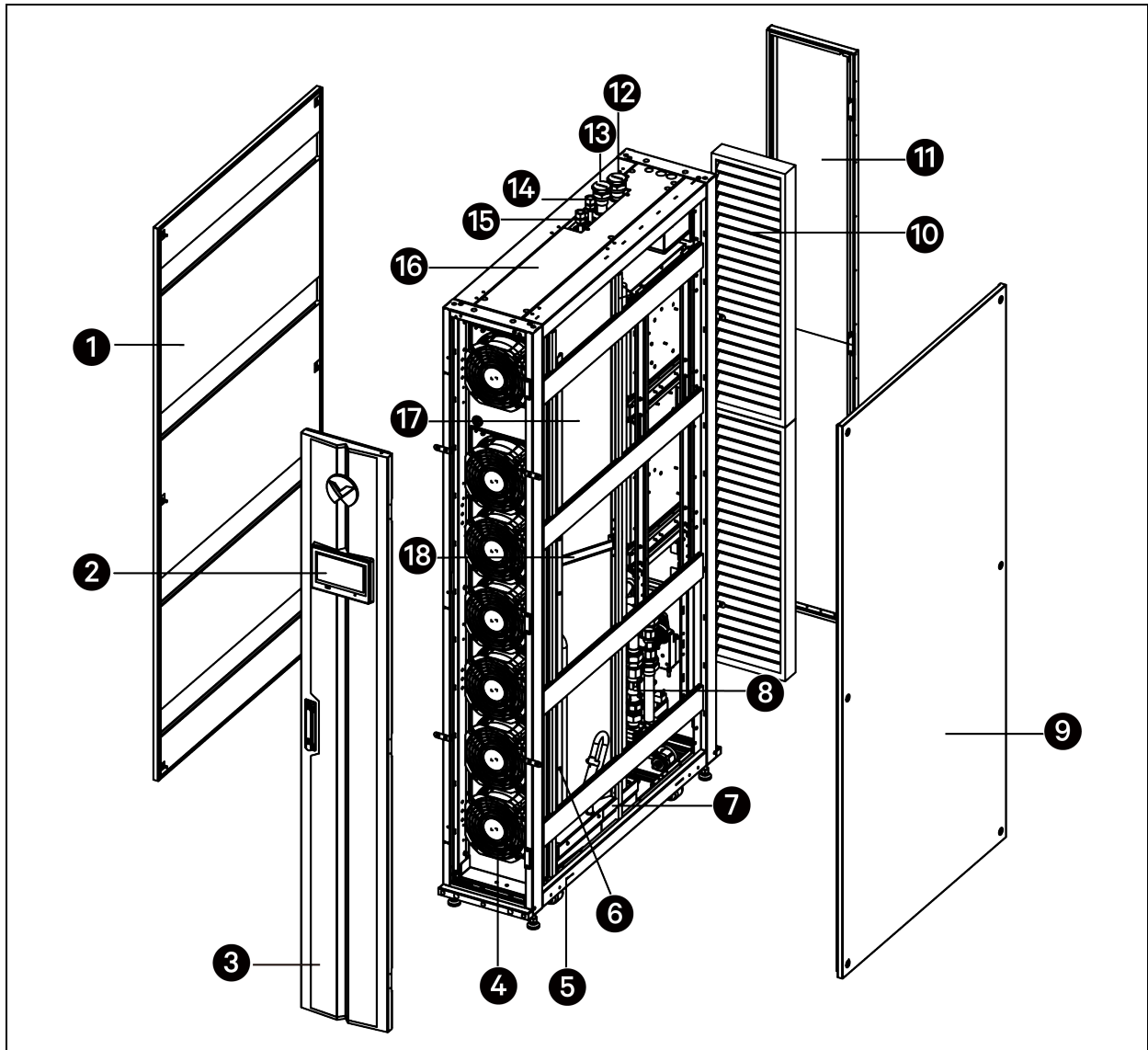
				
UNITARY AIR-CONDITIONERS FOR COMPUTER AND DATA PROCESSING ROOM				
UNIT:	CRC305	MODEL: CRC305-PD20A	WEIGHT NET/GROSS:	242/322 kg
POWER:	AC 400V 3Ph+N+PE 50/60Hz		MAX ALLOWABLE PRESSURE:	1.6MPa
FULL LOAD CURRENT:	14A		CLASS OF EQUIPMENT:	CLASS I
HEATER TYPE AND POWER:	PTC, 3kW		MANUFACTURING DATE:	XXX 20XX
HUMIDIFIER TYPE:	Electrode Humidifier		SERIAL NUMBER:	
SCCR(Short-Circuit Current Rating):	6kA			
Vertiv Tech Co., Ltd.				MADE IN CHINA
1-4/F, 6-10F, Block B2, Nanshan I Park, No.1001 Xueyuan Road, Nanshan District, 518055 Shenzhen, Guangdong, People's Republic of China				

Figure 2.3 Vertiv™ Liebert® CRV CRC60 Name Plate Information

				
UNITARY AIR-CONDITIONERS FOR COMPUTER AND DATA PROCESSING ROOM				
UNIT:	CRC602	MODEL: CRC602-0D20A	WEIGHT NET/GROSS:	235/315 kg
POWER:	AC 230V 1Ph 50/60Hz		MAX ALLOWABLE PRESSURE:	1.6MPa
FULL LOAD CURRENT:	13A		CLASS OF EQUIPMENT:	CLASS I
SCCR(Short-Circuit Current Rating):	6kA		MANUFACTURING DATE:	XXX 20XX
			SERIAL NUMBER:	
Vertiv Tech Co., Ltd.				MADE IN CHINA
1-4/F, 6-10F, Block B2, Nanshan I Park, No.1001 Xueyuan Road, Nanshan District, 518055 Shenzhen, Guangdong, People's Republic of China				

2.3 Component Location

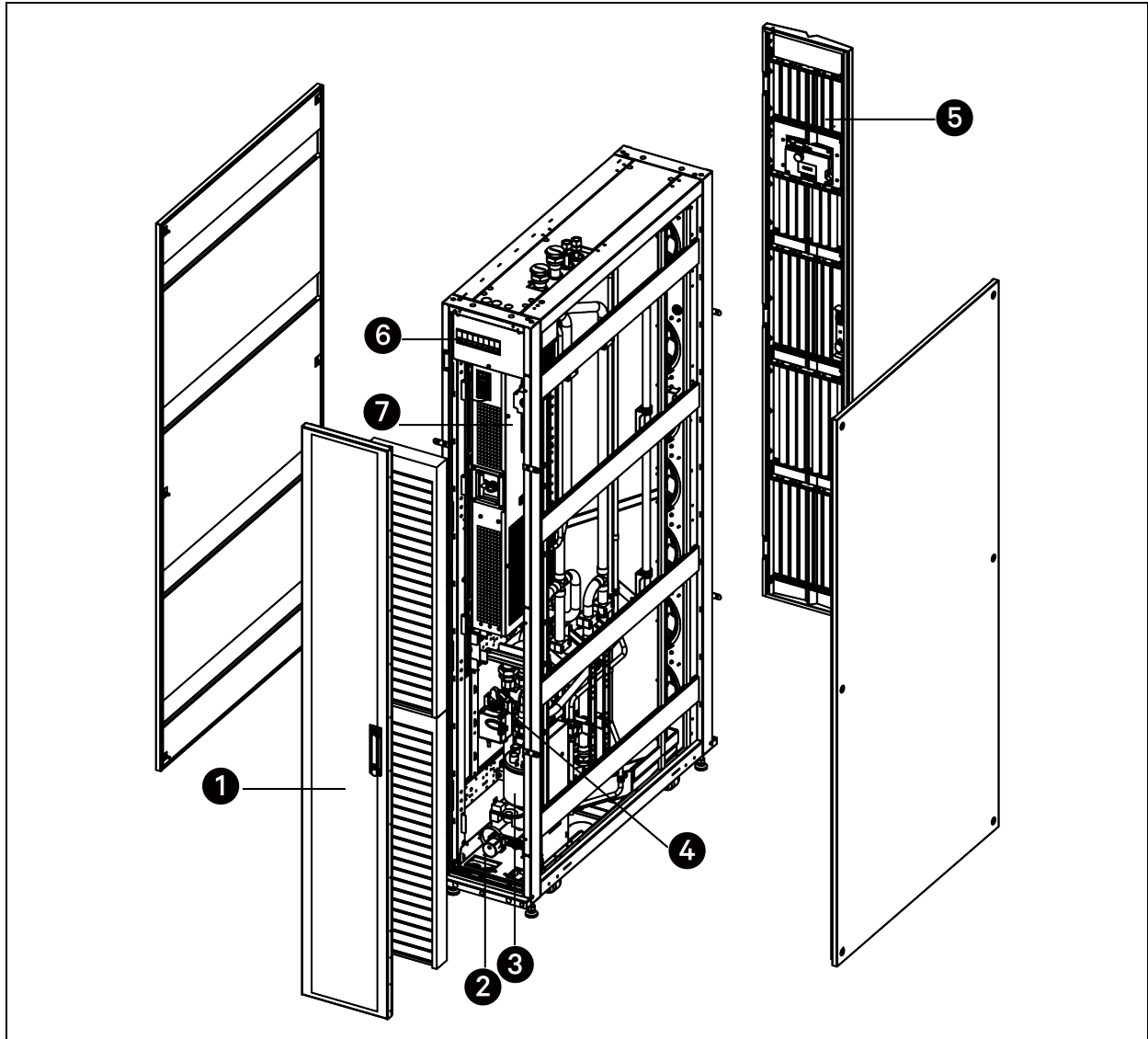
Figure 2.4 Vertiv™ Liebert® CRV CRC30 Component Location (Front View)



Item	Description	Item	Description
1	Left side panel	10	Filter
2	HMI display	11	Rear door
3	Front door	12	Chilled water inlet connection
4	Fan	13	Chilled water outlet connection
5	Bottom panel	14	Humidifier water supply inlet connection
6	Electric heater	15	Condensate drain pump outlet connection

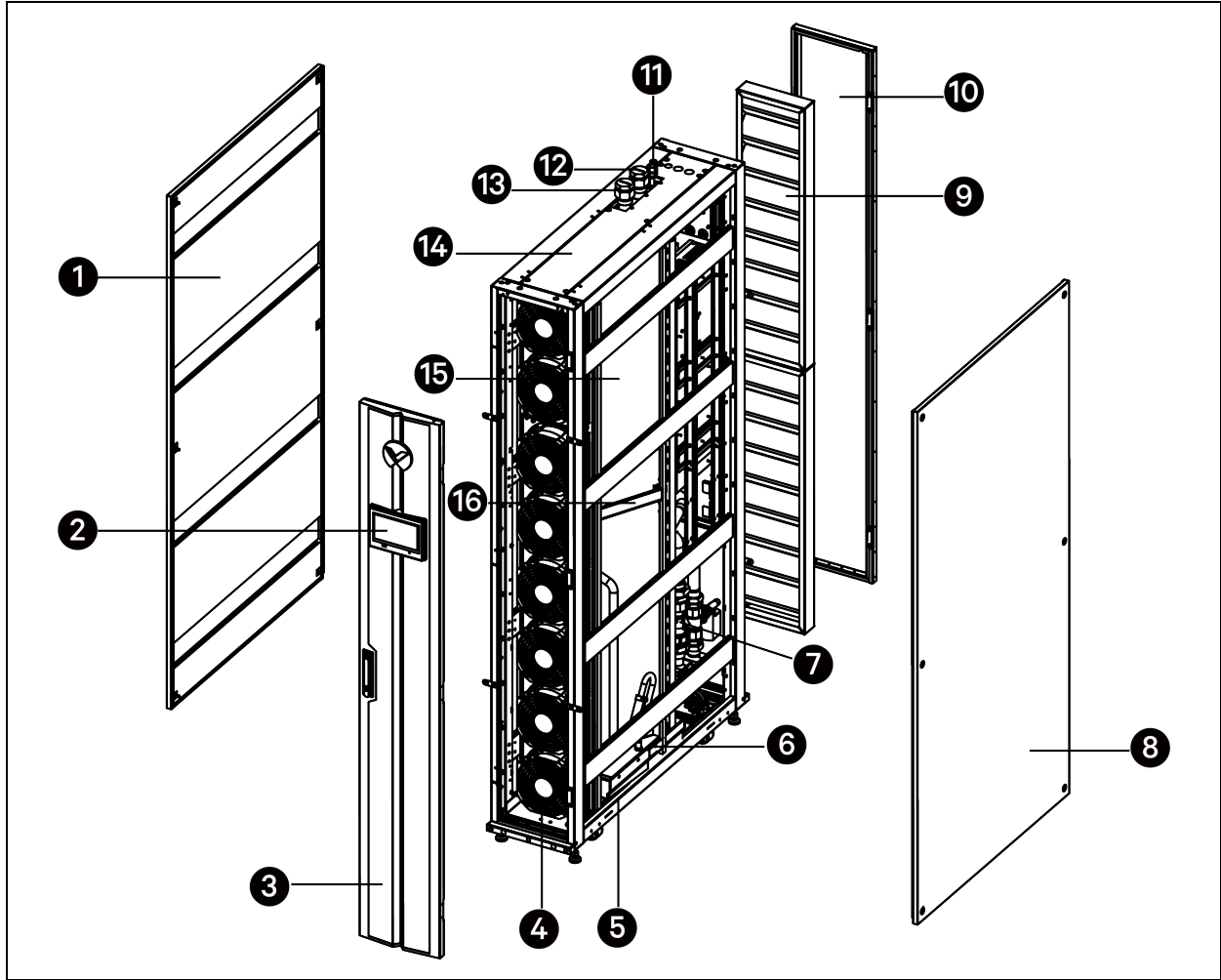
Item	Description	Item	Description
7	Lower condensate drain pan	16	Top panel
8	Flow meter	17	Heat exchanger
9	Right side panel	18	Upper condensate drain pan

Figure 2.5 Vertiv™ Liebert® CRV CRC30 Component Location (Rear View)



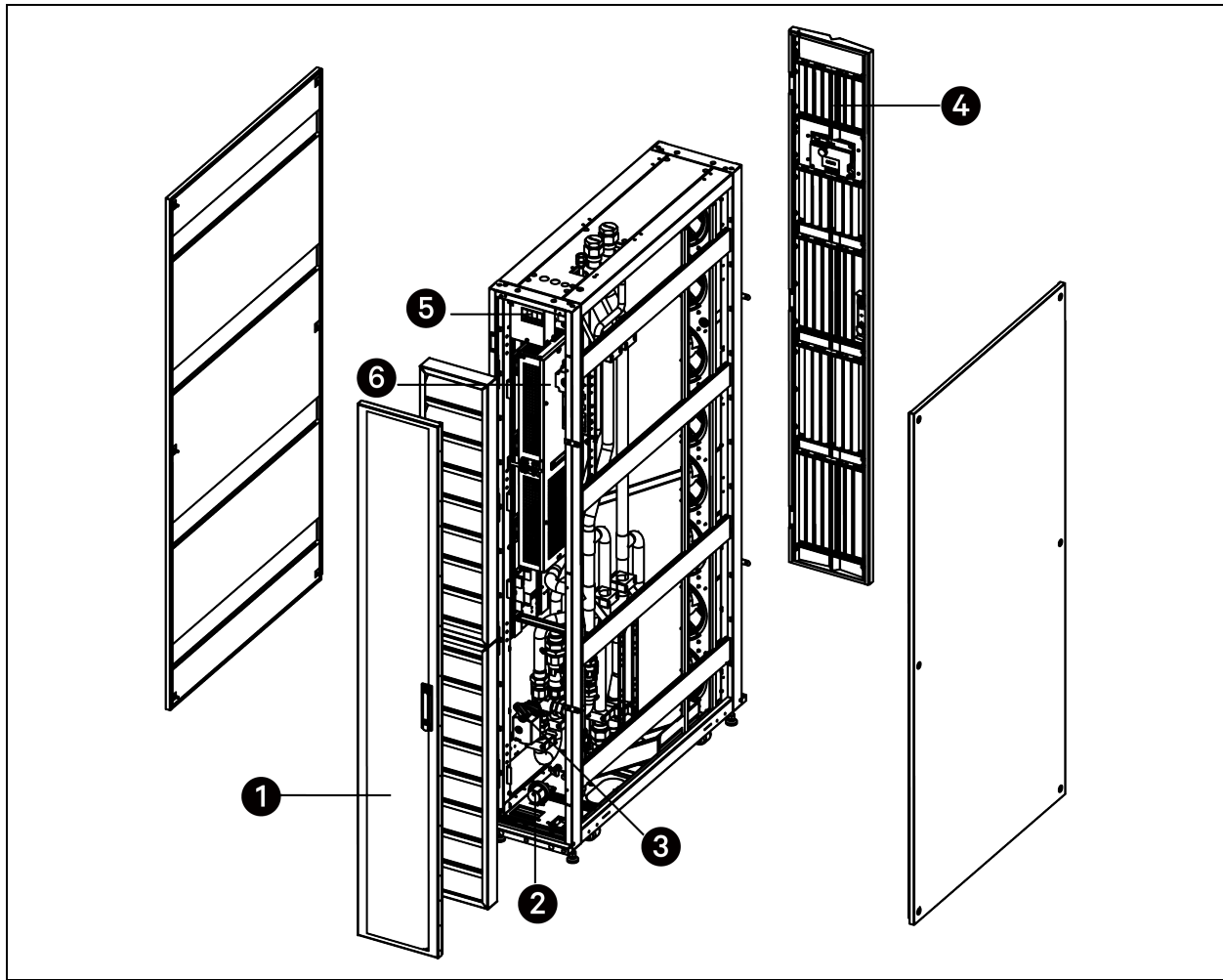
Item	Description	Item	Description
1	Rear door	5	Front door
2	Condensate pump	6	Electrical box 1 (main circuit breaker)
3	Humidifier	7	Electrical box 2 (slider electrical box)
4	Three-way valve		

Figure 2.6 Vertiv™ Liebert® CRV CRC60 Component Location (Front View)



Item	Description	Item	Description
1	Left side panel	9	Filter
2	HMI display	10	Rear door
3	Front door	11	Condensate drain pump outlet connection
4	Fan	12	Chilled water inlet connection
5	Bottom panel	13	Chilled water outlet connection
6	Lower condensate drain pan	14	Top panel
7	Flow meter	15	Heat exchanger
8	Right side panel	16	Upper condensate drain pan

Figure 2.7 Vertiv™ Liebert® CRV CRC60 Component Location (Rear View)



Item	Description	Item	Description
1	Rear door	4	Front door
2	Condensate pump	5	Electrical box 1 (main circuit breaker)
3	Three-way valve	6	Electrical box 2 (slider electrical box)

2.4 Accessories

The accessories provided with the unit are listed in **Table 2.3** below .

Table 2.3 Accessories

Component	Quantity		Remark
	CRC30	CRC60	
Remote temperature sensor (IRMS01T)	1	1	
CAN bus cable	10 m x 2	10 m x 2	1 x CAN bus cable for remote temperature sensor. 1 x CAN bus cable for unit-to-unit (teamwork) communication
Water underfloor sensor (board) (CM20AR)	1	1	
Bracket for water underfloor sensor	1	1	
Cable for water underfloor sensor	4 m	4 m	For connecting the water underfloor sensor (board).
Bottom drainpipe assembly	0.8 m x 1	0.8 m x 1	With Rc1/2 in. brass drainage connector
Rc1/2 in. brass humidifier pipe connector	1	-	
Tie wrap	10	10	
Plastic cap	4	4	For covering the unused holes on the plate.
M12 x 30 hexagon bolt	8	8	For fixing the cabinet.
M5 x 12 cross grooved countersunk head screw	5	5	
L-shaped baying bracket	8	8	
Cabinet guide rail (Ramp)	2	2	For removing the cabinet from the pallet.
User manual	1	1	
Unit circuit diagram	1	1	
EU declaration of conformity	1	1	
UKCA declaration of conformity	1	1	
Safety statement	1	1	

2.5 System Data

Table 2.4 Technical Specifications

Parameter	CRC30	CRC60
Width mm (in.)	300 (11.8)	300 (11.8)
Input power	400 V, 3-phase, 50/60 Hz	230 V, 1-phase, 50/60 Hz
Total airflow m ³ /h (CFM)	Rated value : 5100 (3001.7) Maximum value : 5900 (3473)	Rated value: 7700 (4532) Maximum value: 7700 (4532)

Table 2.4 Technical Specifications (continued)

Parameter	CRC30	CRC60
Input power consumption without heater and humidifier kW	Rated value : 1.06 Maximum value : 1.68	Rated value : 1.9 Maximum value : 1.9
Number of fans	7	8
Heating capacity kW	3	-
Humidification capacity kg/h (lb/h)	2 (4.4)	-
Condensate pump capacity L/min @ 5 m	3.5	3.5
Air filtration efficiency	G4	G4

Table 2.5 Performance Data

Parameter	CRC30	CRC60
Return-air condition	35 °C (95 °F) DB, 24% RH, 10 °C (50 °F) EWT, 5.5 °C (10 °F) Water Rise	38 °C (100 °F) DB, 24% RH, 15 °C (59 °F) EWT, 5.5 °C (10 °F) Water Rise
Net total capacity kW	Rated value : 27.3 Maximum value : 30.2	Rated value : 39.5 Maximum value : 39.5
Net sensible capacity kW	Rated value : 27.3 Maximum value : 30.2	Rated value : 39.5 Maximum value : 39.5
Minimum cooling capacity kW	0	0
Pressure drop kPa (psig)	Rated value: 70 (10) Maximum value: 90 (13)	Rated value : 78 (11.3) Maximum value : 78 (11.3)
Water flow volume L/s (GPM)	Rated value : 1.26 (19.97) Maximum value : 1.41 (22.35)	Rated value : 1.83 (29) Maximum value : 1.83 (29)
Rated airflow m ³ /h (CFM)	Rated value : 5100 (3001.7) Maximum value : 5900 (3473)	Rated value : 7700(4532) Maximum value : 7700(4532)
Internal water volume L	11.4	13.6

Table 2.6 Operating Limits

Parameter		Design Condition (Min.)	Design Condition (Max.)
Unit entering air	Temperature °C (°F)	18 (64.4)	45 (113)
	Relative humidity	15%	60%
Storage conditions	Temperature °C (°F)	-40 (-40)	70 (158)
Power supply tolerances		Voltage ± 10% Frequency ± 2 Hz	

NOTE: The operating limits refer to new units and those that have been correctly installed and serviced.

Table 2.7 Sound Level (50 Hz to 250 Hz)

Model	Fan Speed	Average Sound Pressure Level dB (A)	Location	1/3 Octave Band Center Freq	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
				Sound Pressure Level dB (A)	dB	dB	dB	dB	dB	dB	dB	dB
CRC60	100%	80.6	Front	83.3	28.8	32.7	36.5	41.1	46	50.3	54.2	57.2
			Right	78	25.9	32.1	37.9	42.5	50.5	51.3	53.2	55.5
			Left	78.3	26.8	29.7	38	47.6	50	49.2	53.8	53.5
CRC30	100%	76.5	Front	78.9	23.4	25.4	32.7	37.8	40.3	45.4	50.2	55.6
			Right	74.5	22.3	25.8	38.1	37.8	42.8	46.9	48.9	52
			Left	74.4	22.6	24	39.2	42	43.2	47.1	50.6	53.7
CRC30	89%	73.2	Front	75.6	22.5	23.4	31.1	35.6	38.3	42.1	48.5	54.5
			Right	71.1	22.2	24.4	32.2	34.3	40.7	43.9	46.9	50.8
			Left	71.5	26.8	23.6	33.1	39.2	41	44.7	48.2	52.9

Table 2.8 Sound Level (315 Hz to 1.6 kHz)

Model	Fan Speed	Average Sound Pressure Level dB (A)	Location	1/3 Octave Band Center Freq	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz
				Sound Pressure Level dB (A)	dB	dB	dB	dB	dB	dB	dB	dB
CRC60	100%	80.6	Front	83.3	62.2	71.3	83	69.8	67.7	73.9	72.7	75.1
			Right	78	59.4	66.3	75.9	66.6	66.1	71.4	69	71.8
			Left	78.3	59.9	67.4	76	69.2	66.1	70.4	69	72
CRC30	100%	76.5	Front	78.9	61.9	70.2	67.9	65.6	68.8	69.5	72.6	73.9
			Right	74.5	57.4	69.3	66.6	63.9	66.3	65.2	67.5	69.4
			Left	74.4	58.4	68	66.1	63.1	65.8	65	67.6	68.7
CRC30	89%	73.2	Front	75.6	61.2	68.3	62.9	63.2	67.6	66.4	68.8	68.8
			Right	71.1	56.5	64.7	60.2	61.6	66	62	64.9	64.3
			Left	71.5	58	66.9	61.4	61	65.6	61.9	64.7	64

Table 2.9 Sound Level (2 kHz to 10 kHz)

Model	Fan Speed	Average Sound Pressure Level dB (A)	Location	1/3 Octave Band Center Freq	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
				Sound Pressure Level dB (A)	dB	dB	dB	dB	dB	dB	dB	dB
CRC60	100%	80.6	Front	83.3	75	75.9	73.9	71.9	69.6	67.3	63.6	58.7
			Right	78	70.3	71.1	68.1	65.3	63.5	59.7	55.7	50
			Left	78.3	70.7	71.7	68.8	65.9	63.6	60.1	55.3	49.5
CRC30	100%	76.5	Front	78.9	71.9	73.8	71.3	69.5	66.3	64.4	60.6	56.3
			Right	74.5	66.7	68.1	65.1	62	59.7	56.2	51.9	46.8
			Left	74.4	67.3	69.1	65.8	62.4	62	56.1	51.3	45.5
CRC30	89%	73.2	Front	75.6	69.3	71.2	67.9	65.8	62.4	60.4	56.4	52.2
			Right	71.1	63.9	64.8	61.9	58.3	55.9	52.4	48.1	42.8
			Left	71.5	64.2	65.4	62.5	58.7	55.9	52.3	47.3	41.5

NOTE: The sound level is measured in free field at three locations, each of which is 1 m (3.3 ft) high and 2 m (6.6 ft) away from the air conditioner, with fans in operation.

This page intentionally left blank

3 Pre-installation Preparation



WARNING! Risk of top-heavy unit falling over when improperly lifted or moved. Improper handling can cause equipment damage, injury or death. Read all of the following instructions and verify that all lifting and moving equipment is rated for the weight of the unit before attempting to move, lift, remove packaging from or prepare the unit for installation.



CAUTION: Risk of contact with sharp edges, splinters, and exposed fasteners. Can cause injury. Only properly trained and qualified personnel wearing appropriate, OSHA-approved PPE should attempt to move, lift, remove packaging from or prepare the unit for installation.

NOTICE

Risk of passageway interference. Can cause unit and/or structure damage. The unit may be too large to fit through a passageway while on or off the skid. Measure the unit and passageway dimensions, and refer to the installation plans prior to moving the unit to verify clearances.

NOTICE

Risk of damage from forklift. Can cause unit damage. Keep tines of the forklift level and at a height suitable to fit below the skid and/or unit to prevent exterior and/or underside damage.

NOTICE

Risk of improper storage. Can cause unit damage. Keep the unit upright, indoors and protected from dampness, freezing temperatures and contact damage.

NOTICE

Risk of a leaking coil due to freezing during improper storage. Can cause equipment and serious building damage.

3.1 Tools Required

The tools required are listed in **Table 3.1** below . These tools are not provided with the unit.

Table 3.1 Tools Required

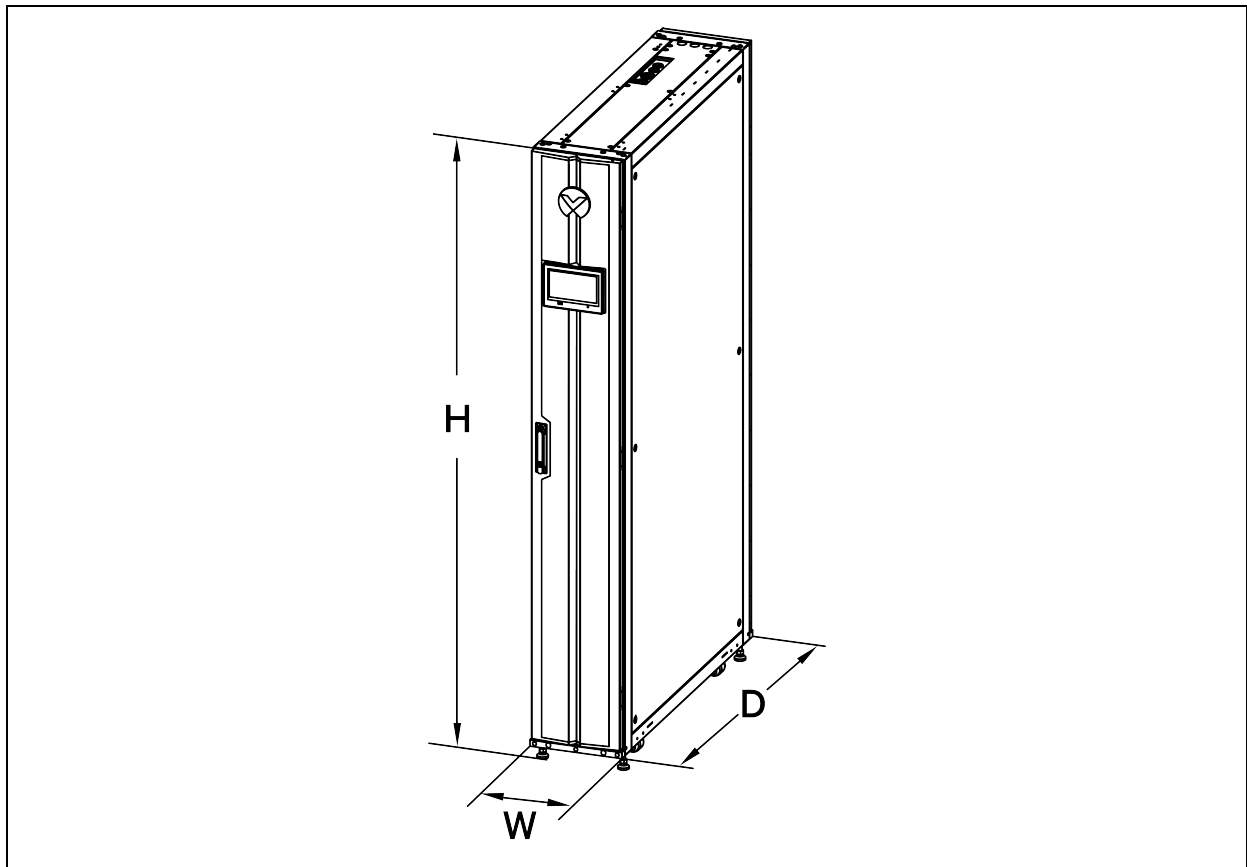
Name of Tools	Name of Tools
Electric hand drill	Adjustable wrench
Slotted screwdriver	Cross head screwdriver
Step ladder	Forklift
Level	Wire cutting pliers
Claw hammer	Diagonal cutting pliers
Insulating shoes	Antistatic gloves
Electrician knife	Cable ties

Table 3.1 Tools Required (continued)

Name of Tools	Name of Tools
Insulating tape	Insulating gloves
Crimping pliers	Heat shrinkable tube
Insulated torque wrench	Torque screwdriver
Multimeter	Clip-on ammeter

3.2 Dimensions and Weights

Figure 3.1 Unit Dimension



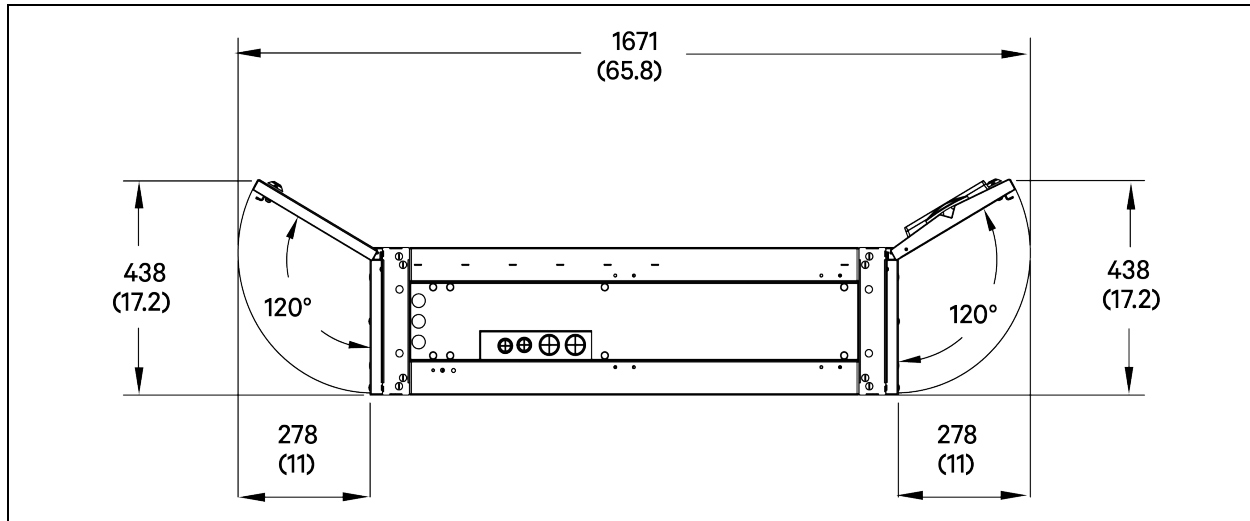
Model	Unit Dimensions (Wide x Depth x Height) mm (in.)	Shipping Dimensions (Wide x Depth x Height) mm (in.)	Net Weight kg (lb)	Shipping Weight kg (lb)
CRC30	300 x 1132 x 2000 (11.8 x 44.6 x 78.7)	776 x 1276 x 2228 (30.6 x 50.2 x 87.1)	242 (533.5)	322 (709.9)
CRC60	300 x 1132 x 2000 (11.8 x 44.6 x 78.7)	776 x 1276 x 2228 (30.6 x 50.2 x 87.1)	235 (518)	315 (694.5)

3.3 Clearance Requirements

Leave enough space for installation, maintenance, and repair. The clearance required for accessing and maintaining the unit is shown in Figure 3.2 below.

NOTE: 915 mm (36 in.) distance should be reserved in front of the front door and the rear door for maintenance and repair purposes.

Figure 3.2 Vertiv™ Liebert® CRV CRC30 and CRC60 Clearance Requirements



NOTE: All dimensions are in mm (in.).

3.4 Inspecting the Unit

Upon arrival of the unit and before unpacking:

- Verify that the labeled equipment matches the bill of lading.
- Inspect that there are no visible or concealed damages on the package.
- Check that the tilt monitor indicator on the package is not red. If it becomes red, tipping has occurred.

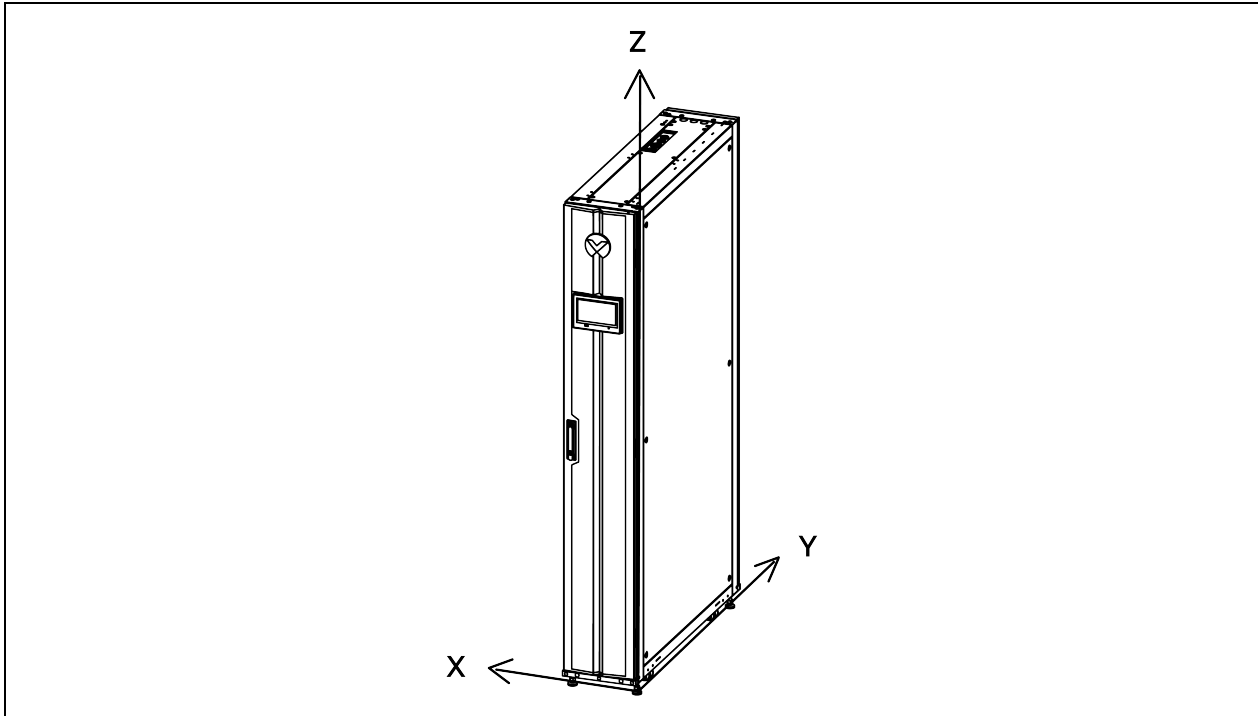
Report damage immediately to the carrier and file a damage claim with a copy sent to Vertiv or to your sales representative.

3.5 Moving the Packaged Unit

Transport the unit with a forklift. When using the forklift:

- Make sure the fork length is suitable for the width of the pallet.
- Do not tilt the unit more than 20 degrees in any direction to prevent the unit from falling over.
- Refer to **Figure 3.3** below for the location of the center of gravity.

Figure 3.3 Center of Gravity



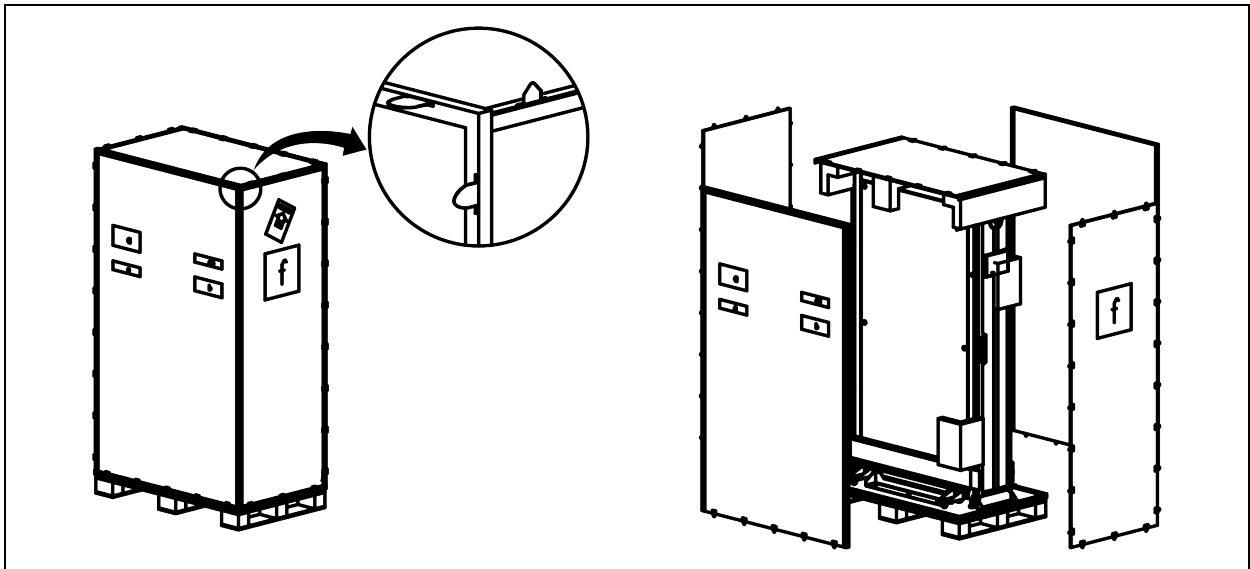
Center of Gravity	X Axis mm (in.)	Y Axis mm (in.)	Z Axis mm (in.)
CRC30 and CRC60	150 ± 50 (5.9 ± 2)	550 ± 50 (21.7 ± 2)	970 ± 100 (38.2 ± 3.9)

3.6 Unpacking the Unit

To unpack the unit:

1. Pull straight the latches on the wooden box using a claw hammer.
2. Remove the side wooden panels. And then remove the top wooden panel and the cushioning from the top of the unit.
3. Remove the starch wrap that attach the ramp to the unit. Remove the ramp and set it aside until needed for moving the unit. Remove the bag around the unit.

Figure 3.4 Unpacking the Unit



3.7 Removing the Unit from the Pallet



WARNING! Risk of unsecured unit rolling off pallet. Can cause serious injury or death. Ensure that the unit and pallet are located on a flat surface before loosening the hardware securing the unit to its shipping pallet.

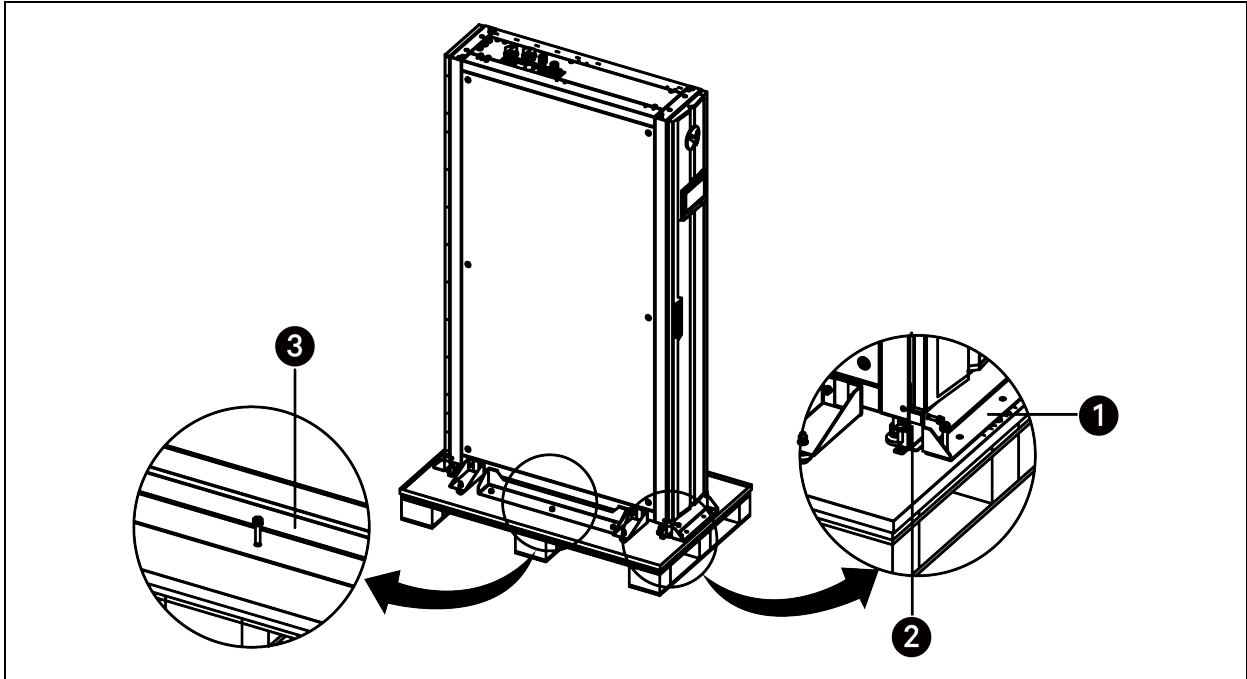


WARNING! Two or more properly trained and qualified personnel are required to move the unit to its installation location.

To remove the unit from the pallet:

1. Remove the front and rear shipping brackets from the pallet by removing two M6 hex screws and two M8 hex screws from each bracket.
2. Remove the front and rear holding brackets from the pallet by removing two M8 hex screws from each bracket. Remove the screws with a socket wrench.
3. Remove the left and right shipping brackets from the pallet by removing three M8 hex screws from each bracket.

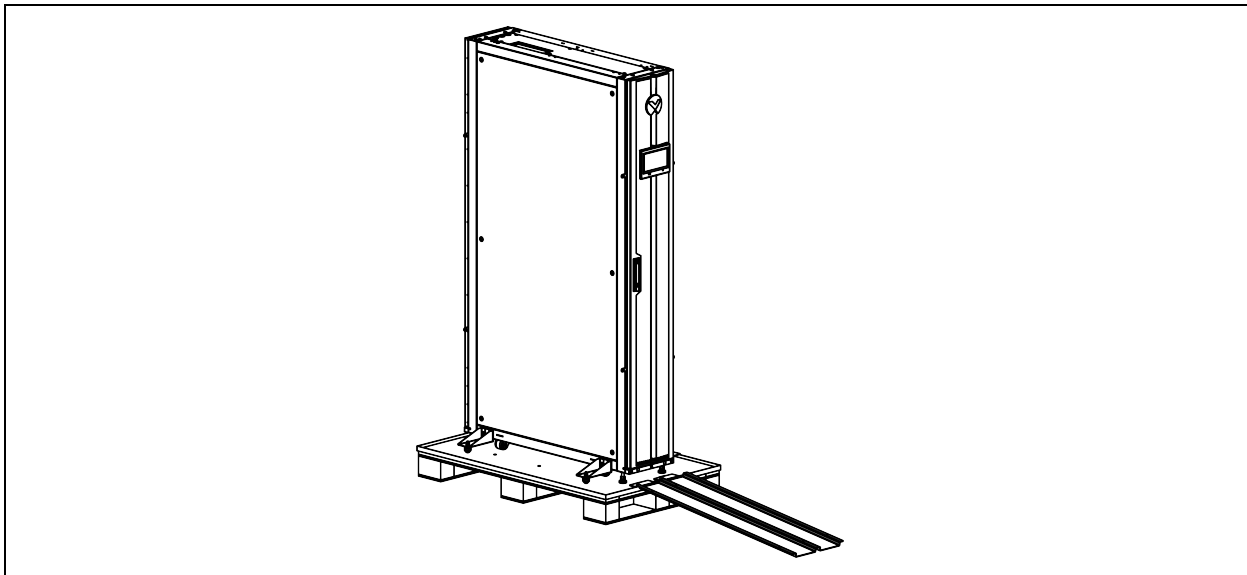
Figure 3.5 Removing Shipping Brackets from Pallet



Item	Description	Item	Description
1	Front shipping bracket	3	Left shipping bracket
2	Front holding bracket		

4. Place two ramps on the pallet by fitting the tabs into the holes on the pallet.

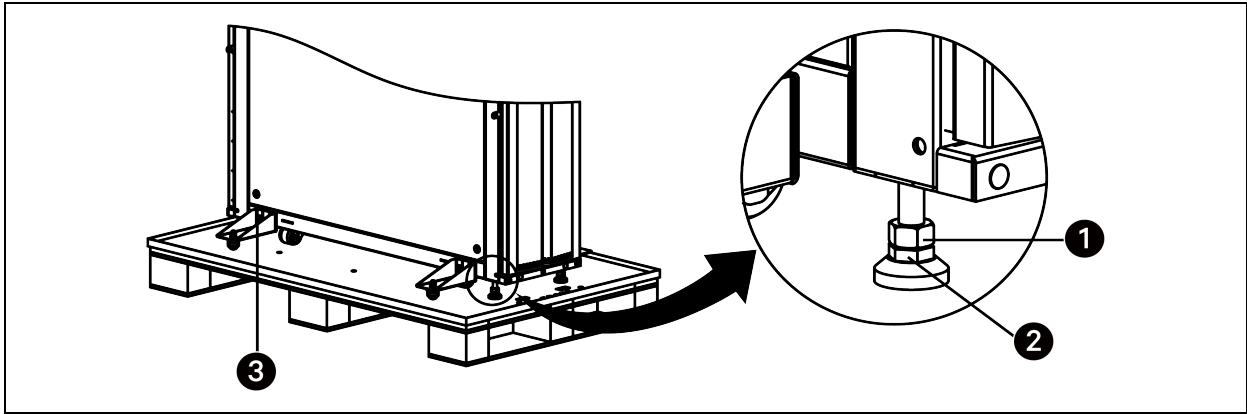
Figure 3.6 Installing Ramps



5. Lift the four leveling feet under the unit. Lift the unit one corner at a time.
 - a. Use an adjustable wrench to loosen the fixing nut on each foot in counterclockwise direction.

- b. Use an adjustable wrench to turn the hex bolt clockwise to adjust feet up.
- c. Tighten the fixing nut.

Figure 3.7 Lifting Leveling Feet



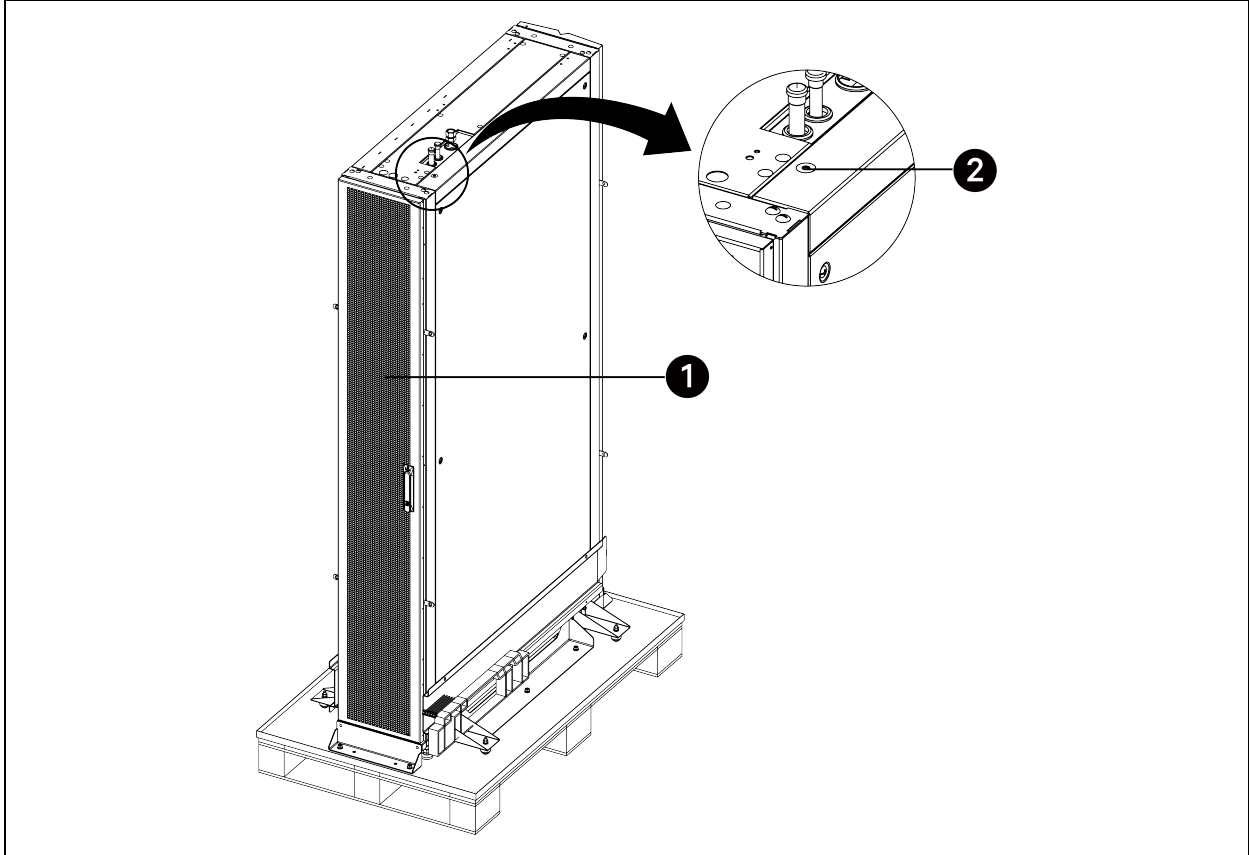
Item	Description	Item	Description
1	Fixing nut	3	Anti-tip bracket
2	Hex bolt		

6. Move the unit to its installation location using the built-in casters.
7. Remove four anti-tip brackets from the unit by removing two hex M6 x 16 screws from each bracket.

3.8 Location of the Main Grounding Point

The main grounding point is located on the top panel as shown in Figure 3.8 below .

Figure 3.8 Location of the Main Grounding Point



Item	Description
1	Rear door
2	Main grounding point

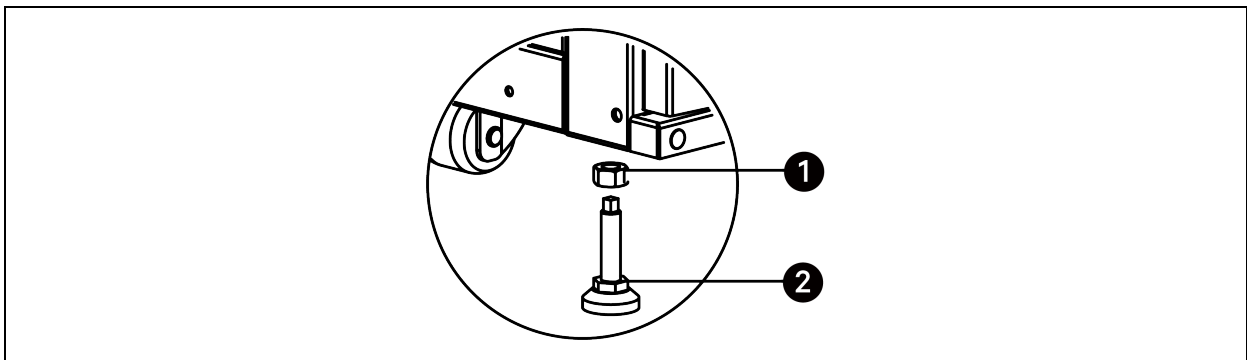
4 Installing in Enclosure Row

4.1 Leveling the Unit

To level the unit:

1. Use an adjustable wrench to loosen the fixing nut on each foot in counterclockwise direction.
2. Rotate the hex bolt on the base of each foot in clockwise or counter-clockwise direction until the foot rises or falls to a suitable position. Use a gradient measuring tool to ensure that the cabinet is level.
3. Tighten the fixing nut on each foot.

Figure 4.1 Leveling the Unit



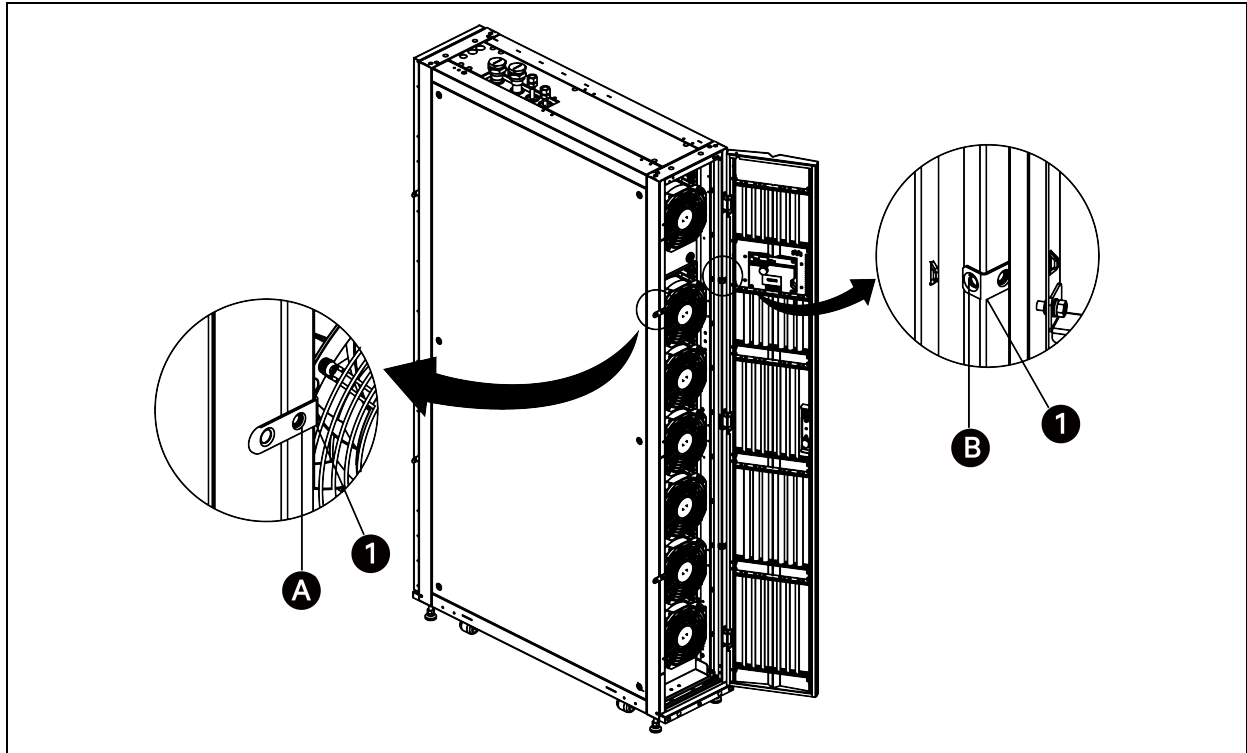
Item	Description
1	Fixing nut
2	Hex bolt

4.2 Combining the Unit with Adjacent Cabinets

Eight baying brackets are provided with the unit. Use four for the front side and four for the rear side.

1. Open the front door. Install two baying brackets with M6 x 10 countersunk screws on the left frame. Fix each screw at position A. Install two baying brackets with M6 x 10 countersunk screws on the right frame. Fix each screw on position B.
2. Open the rear door and install two baying brackets the same way as for the front door.

Figure 4.2 Installing the Baying Brackets



Item	Description	Item	Description
1	Baying bracket (eight pieces)	B	Position to install the screw on the baying bracket for the right frame
A	Position to install the screw on the baying bracket for the left frame		

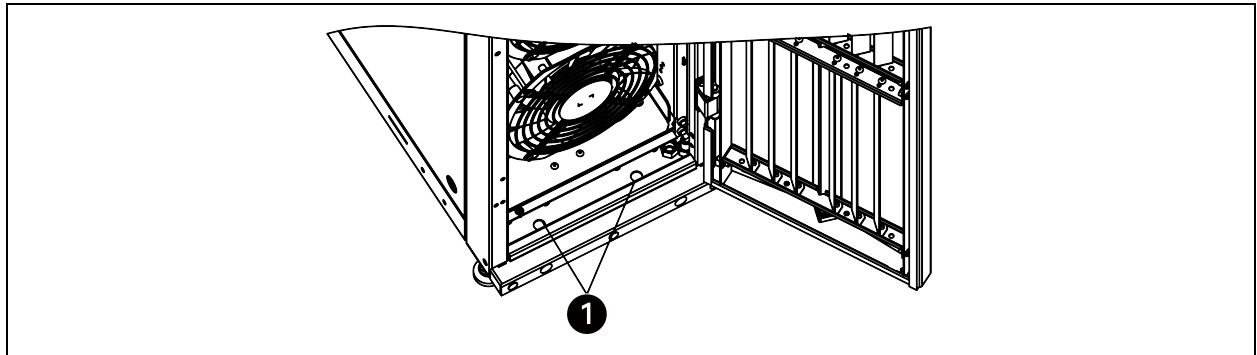
4.3 Removing the Feet and Fixing the Unit (Optional)

NOTE: If the machine room has a mounting bracket and its width does not exceed 30 mm (1.2 in.), you can remove the feet and fix the unit onto the mounting bracket.

To remove the feet and fix the unit:

1. Use an adjustable wrench to loosen the fixing nut on each foot in counter-clockwise direction. Rotate the hex bolt counter-clockwise until each foot drops from the unit.
2. The unit provides four holes (diameter: 13.5 mm (0.5 in.)) on the bottom frames of the unit. Install M12 x 25 screws in the holes to fix the unit onto the floor bracket of the equipment room.

Figure 4.3 Fixing the Unit to the Floor Bracket



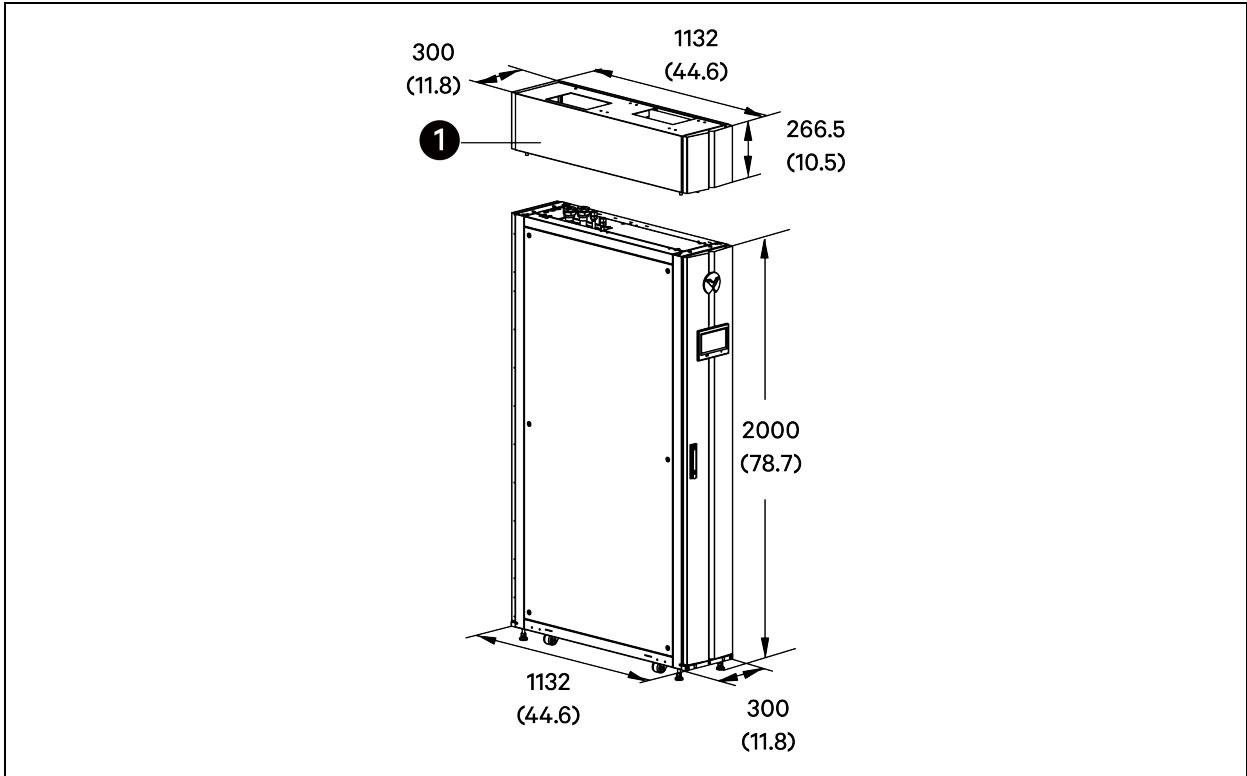
Item	Description
1	Holes for installing M12 x 25 screws

4.4 Installing Top Frame and Front Frame (Optional)

The unit can be installed with only the top frame, or it can be installed with both the top frame and front frame.

4.4.1 Installing the Top Frame without the Front Frame

Figure 4.4 Dimensions of the Top Frame



Item	Description
1	Top frame

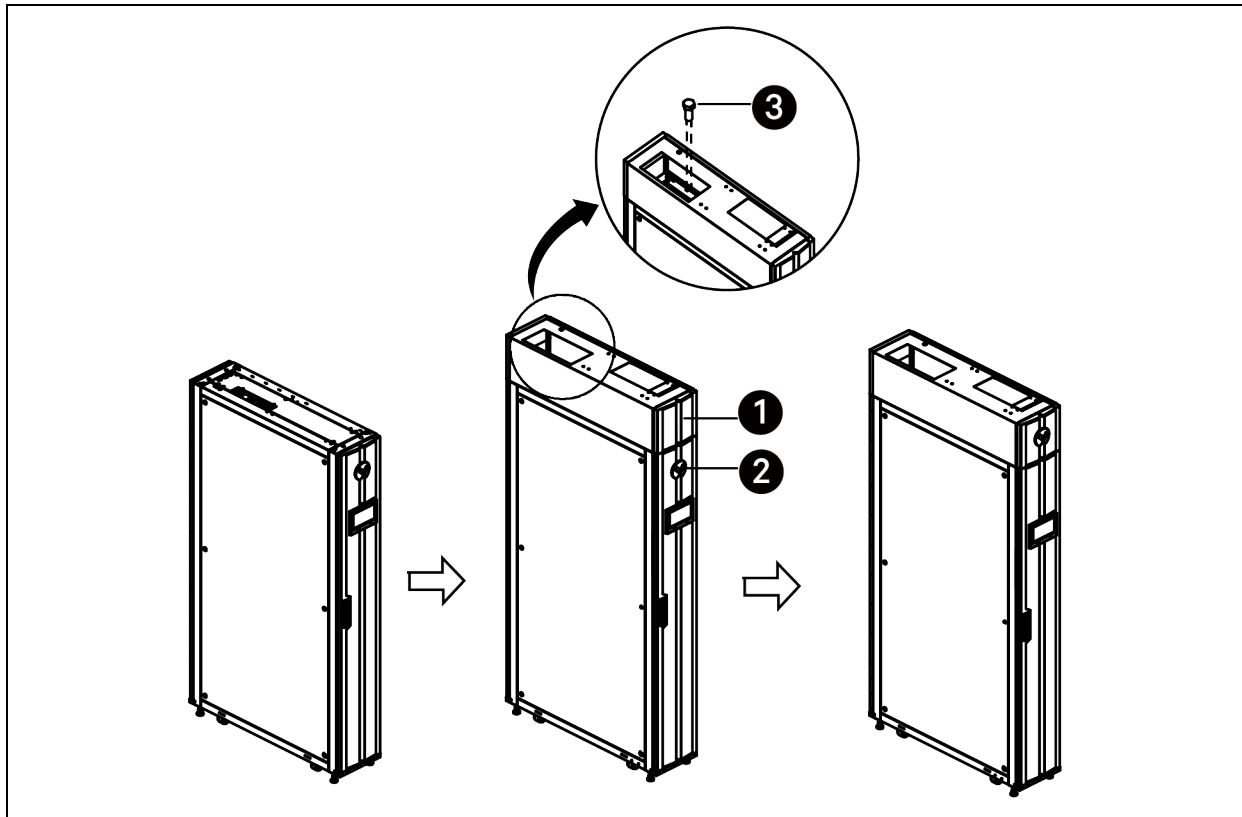
NOTE: All dimensions are in mm (in.).

To install the top frame:

1. Install the top frame and fixed it with four M12 × 30 screws
2. Move the V logo to the top frame.

NOTE: Four M12 x 30 screws are included in the top frame accessory.

Figure 4.5 Installing the Top Frame without the Front Frame

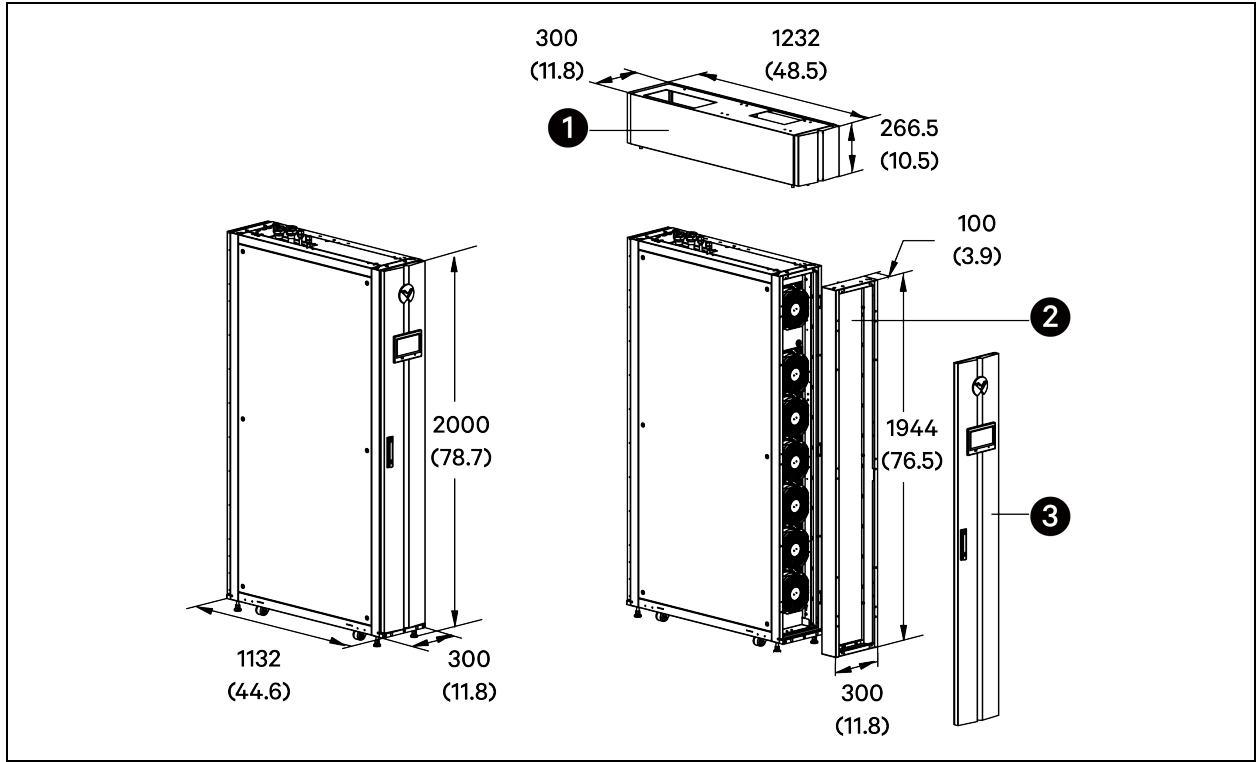


Item	Description	Item	Description
1	Top frame	3	M12 × 30 screw
2	V logo		

NOTE: After the top frame is installed, use plastic caps to cover the unused holes on the top plate.

4.4.2 Installing the Top Frame and the Front Frame

Figure 4.6 Dimensions of the Top Frame and the Front Frame



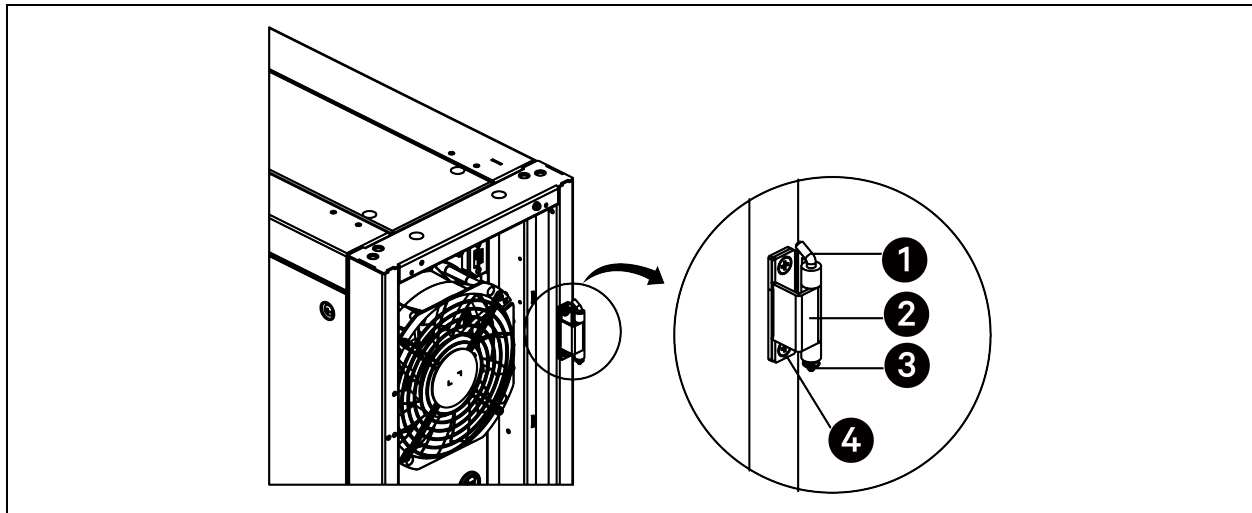
Item	Description	Item	Description
1	Top frame	3	Front door
2	Front frame		

NOTE: All dimensions are in mm (in.).

To install the top frame and the front frame:

1. Open the front door, disconnect the power cable and the communications cable from the HMI by unplugging the two connectors from the PWR port and the CAN1 port.
2. Remove the front door by removing three hinges that connect the door to the vertical post.
 - a. Remove the circlip from the bottom of each hinge using a needle nose pliers.
 - b. Take out the pin from each hinge.
 - c. Remove two M6 Philips head screws from each hinge.

Figure 4.7 Removing the Front Door

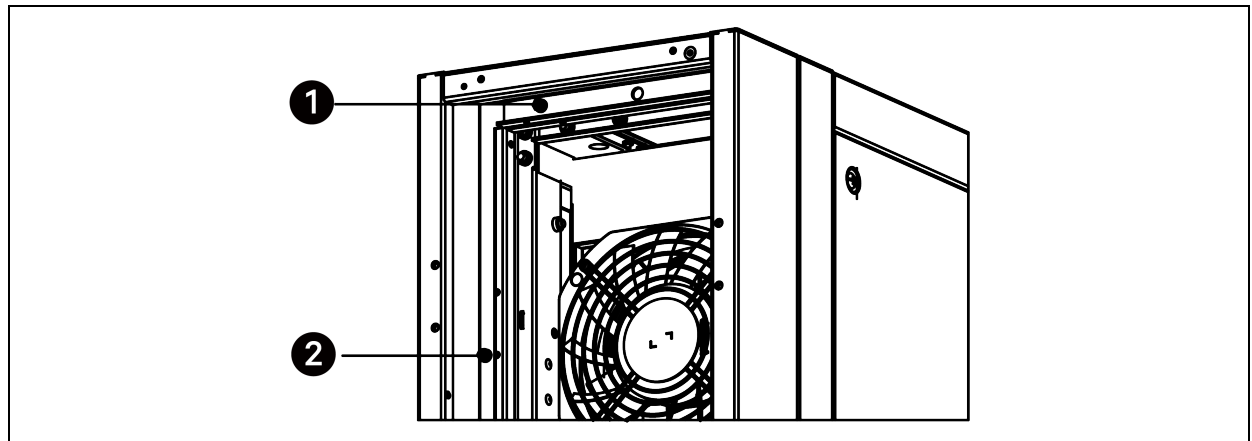


Item	Description	Item	Description
1	Pin	3	Circlip
2	Door hinge	4	M6 Philips head screw

3. Install the front frame to the unit with ten M5 × 12 screws (six on the left and right frames and four on the top and bottom frames).

NOTE: Ten M5 x 12 screws are included in the front frame accessory.

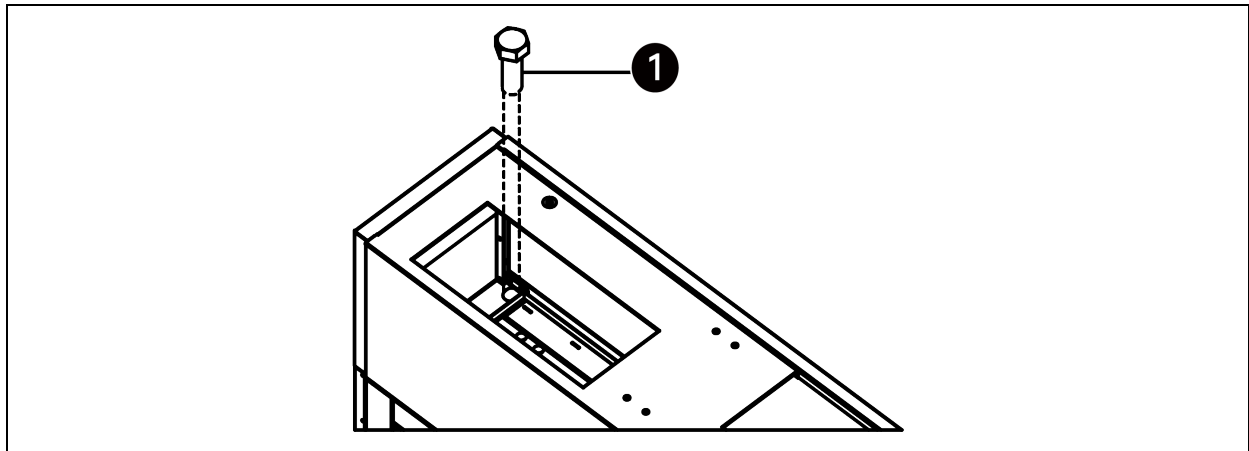
Figure 4.8 Installing the Front Frame



Item	Description
1	M5 × 12 screw on top frame
2	M5 × 12 screw on side frame

4. Install the top frame on the top panel of the unit with four M12 × 30 screws.

Figure 4.9 Installing the Top Frame



Item	Description
1	M12 × 30 screw

5. Install back the front door. Connect the power cable and communications cable to the HMI.
6. Move the V logo to the top frame.

NOTE: After the top frame is installed, use plastic caps to cover the unused holes on the top plate.

5 Piping Connections



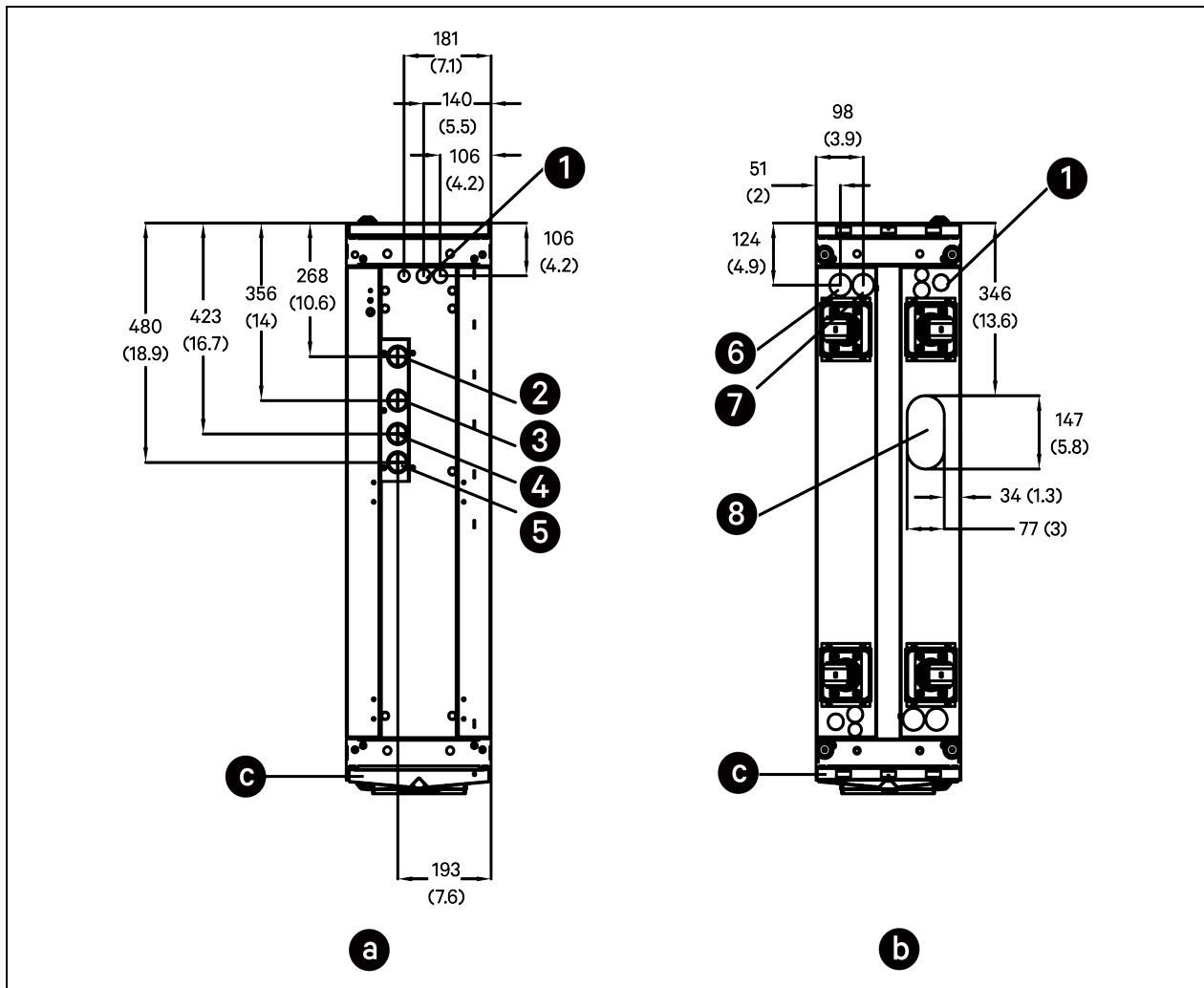
CAUTION: Equipment damage and personal injury can result from improper piping installation, leak checking, fluid chemistry and fluid maintenance.

NOTICE

Risk of no-flow condition. Can cause equipment damage. Do not leave the water/coolant fluid-supply circuit in a no-flow condition. Idle fluid allows the collection of sediment that prevents the formation of a protective oxide layer on the inside of tubes. Keep unit switched On and water/coolant fluid-supply circuit system operating continuously.

5.1 General Arrangement

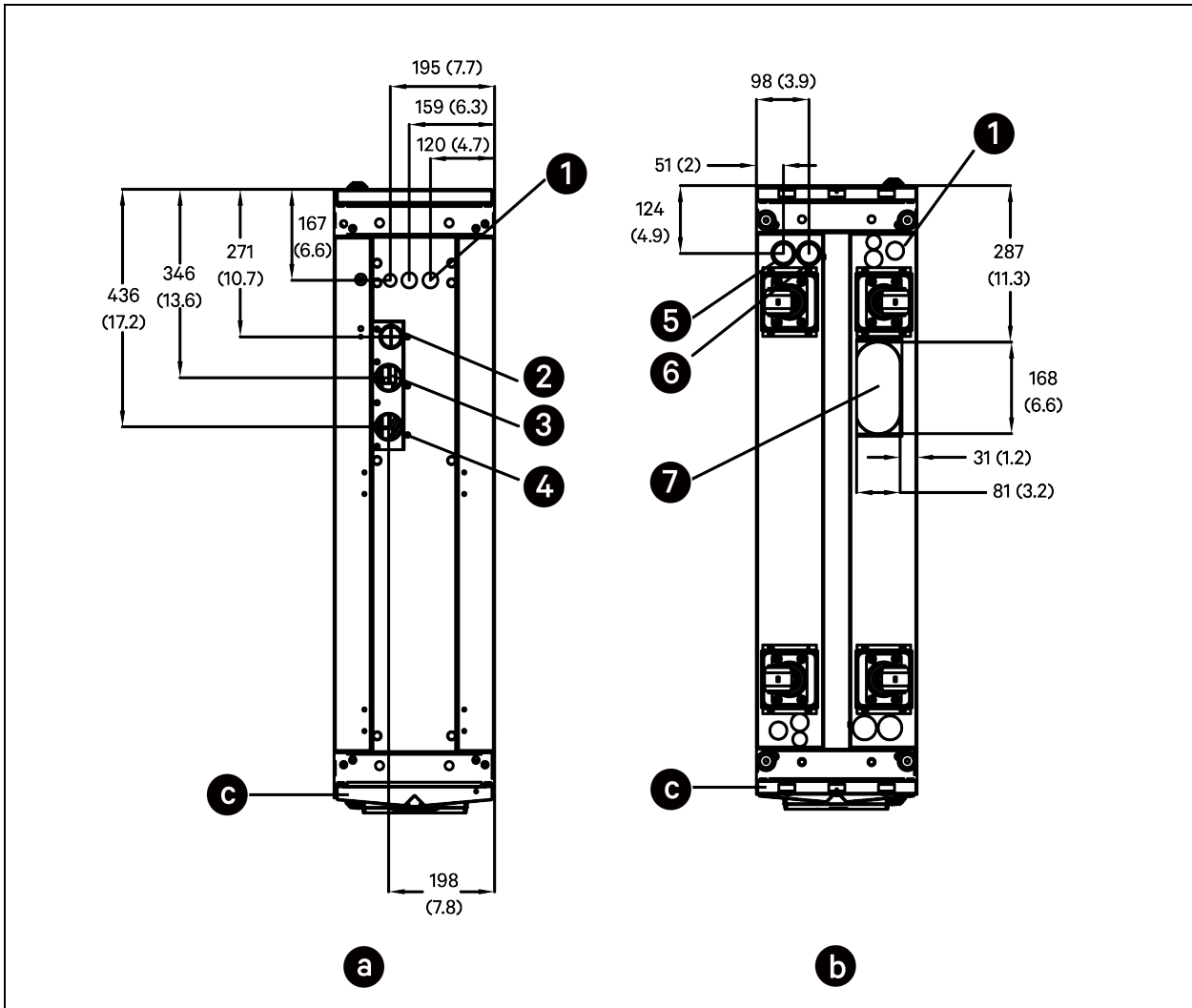
Figure 5.1 CRC30 - Location and Dimension of Pipe and Cable Outlets on Top Plate and Base Plate



Item	Description	Item	Description
A	Top plate	4	Inlet for humidifier connection
B	Base plate (looking up)	5	Pump drainage connection
C	Front door	6	Gravity drainage hole
1	Cable access	7	Pump drainage hole and humidifier water inlet hole
2	Chilled water inlet connection	8	Chilled water inlet and outlet hole
3	Chilled water outlet connection		

NOTE: All dimensions are in mm (in.).

Figure 5.2 CRC60 - Location and Dimension of Pipe and Cable Outlets on Top Plate and Base Plate



Item	Description	Item	Description
A	Top plate	3	Chilled water inlet connection
B	Base plate (looking up)	4	Chilled water outlet connection
C	Front door	5	Gravity drainage hole
1	Cable access	6	Pump drainage hole
2	Pump drainage connection	7	Chilled water inlet and outlet hole

NOTE: All dimensions are in mm (in.).

5.2 Connecting Water Inlet and Outlet Pipes

NOTE: The maximum inlet water pressure is 1.6 MPa.

NOTE: The water pressure should overcome the pressure drop in the system.

NOTE: The pump flow should be 20% to 25% larger than the maximum water flow in the unit.

NOTE: For CRC30, it is recommended that the inlet water temperature is 5 °C to 15.5 °C (41 °F to 59.9 °F). For CRC60, it is recommended that the inlet water temperature is 10 °C to 22 °C (50 °F to 71.6 °F).

The water inlet/outlet pipes are connected by threaded connectors.

Table 5.1 Threaded Connector Specification

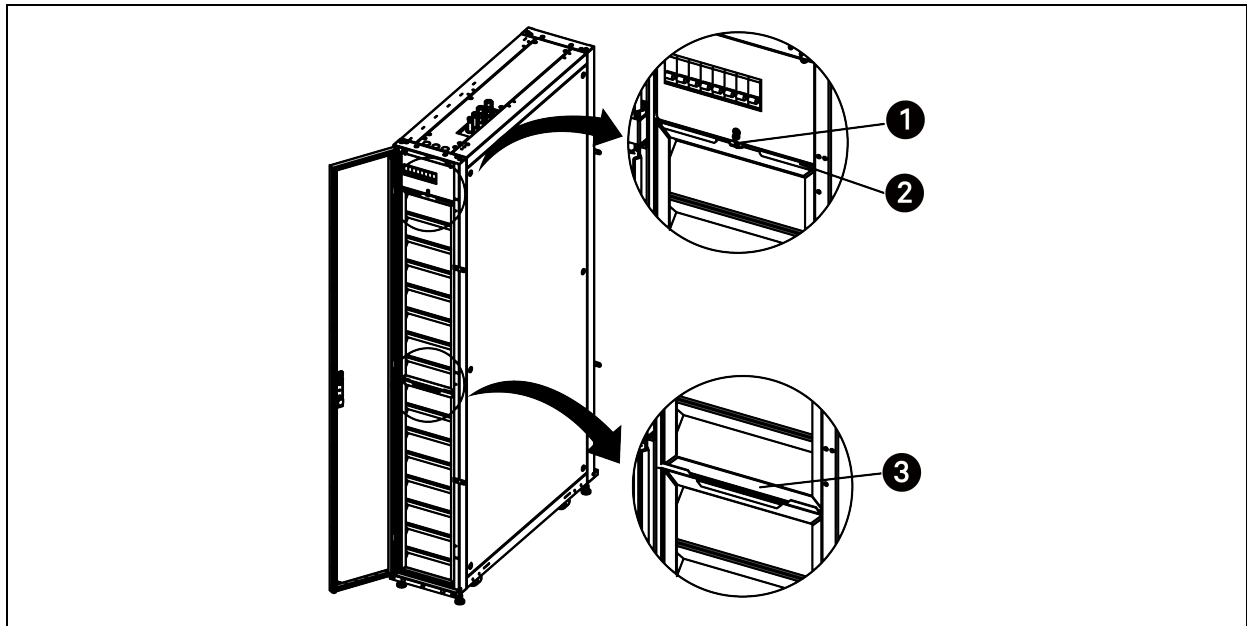
Model	Threaded Connector	External Diameter mm (in.)
CRC30	Rp 1-1/4"	28 (1.1)
CRC60	Rp 1-1/2"	35 (1.38)

5.2.1 Releasing Pre-charged Nitrogen

The unit has been pre-charged with 2 Bar (29 psi) Nitrogen. Open the air discharge valve to release the Nitrogen from the pipeline.

1. Open the rear door.
2. Remove filters.
 - a. Pull the handle in the middle of the fastening plate above the upper filter to remove the plate. Then remove the upper filter.
 - b. Tilt the fastening plate above the lower filter and remove the plate. Then remove the lower filter.

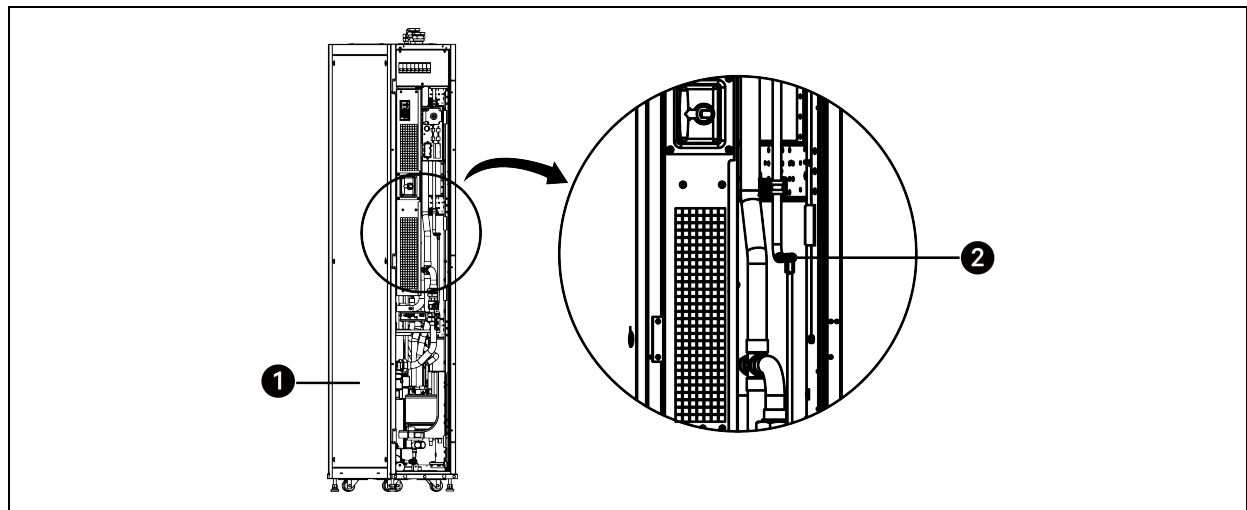
Figure 5.3 Removing the Upper and Lower Filters (CRC30 as an Example)



Item	Description	Item	Description
1	The handle in the middle of the fastening plate	3	The fastening plate above the lower filter
2	The fastening plate above the upper filter		

3. Open the air discharge valve to release the Nitrogen from the pipeline. The valve is located as shown in the figure below.

Figure 5.4 Location of the Air Discharge Valve



Item	Description
1	Rear door
2	Air discharge valve

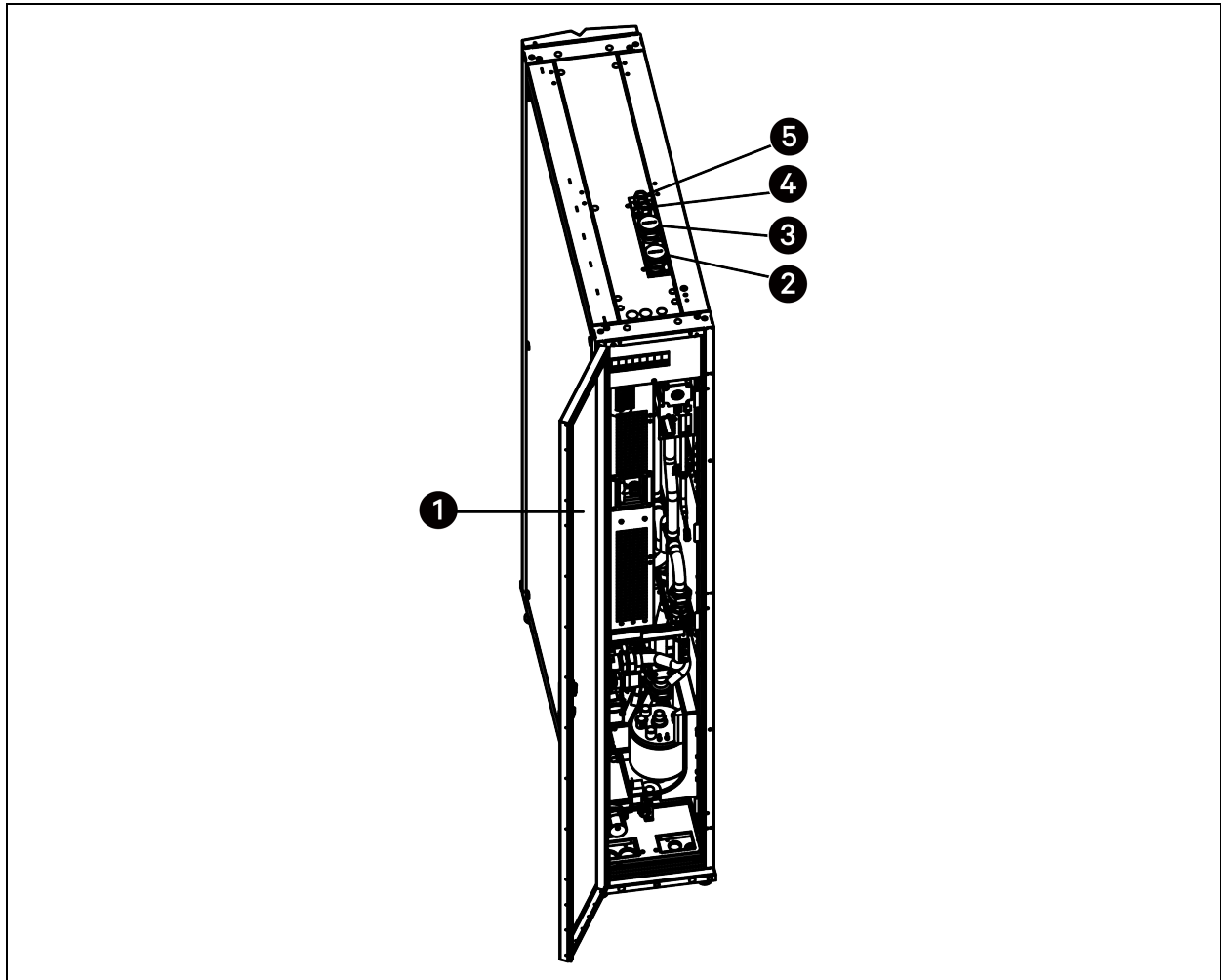
5.2.2 Top Connection

To connect water inlet and outlet pipes through the top panel:

1. Remove the caps from the inlet and outlet pipe connectors that are located on the top panel.
2. Connect the field-supplied pipes with the pipe connectors. Tighten connections to 100 Nm (73.8 ft-lb). The connections should be properly sealed.
3. Install insulation on the provided pipes to prevent loss of cooling capacity.

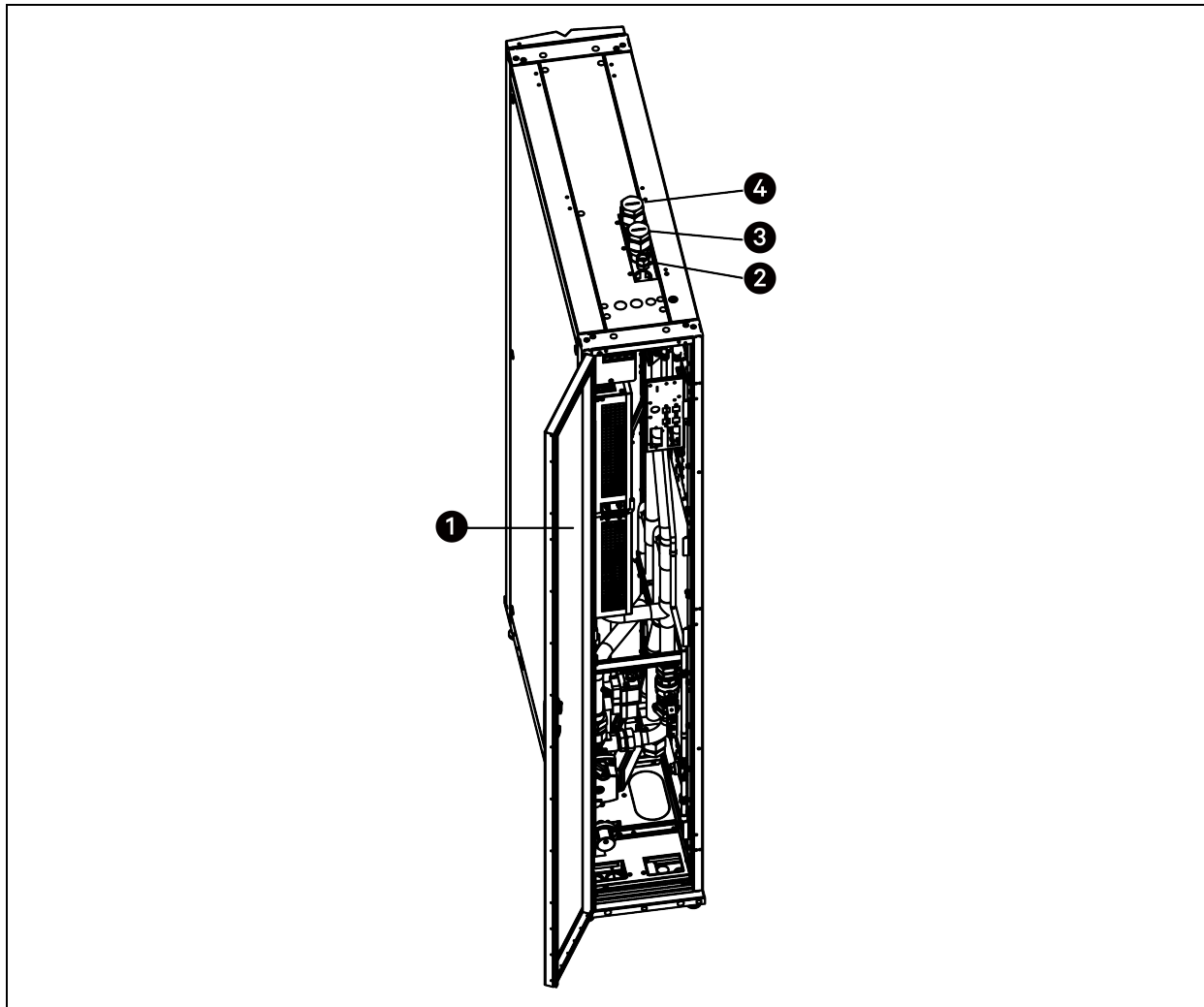
NOTE: If the top frame has been installed, you can install a pipe extension between the water inlet/outlet pipe and the provided pipe. The pipe extension must be higher than 267 mm (10.5 in.).

Figure 5.5 CRC30 - Top Connection



Item	Description	Item	Description
1	Rear door	4	Inlet for humidifier connection
2	Chilled water inlet connection	5	Pump drainage connection
3	Chilled water outlet connection		

Figure 5.6 CRC60 - Top Connection



Item	Description	Item	Description
1	Rear door	3	Chilled water inlet connection
2	Pump drainage connection	4	Chilled water outlet connection

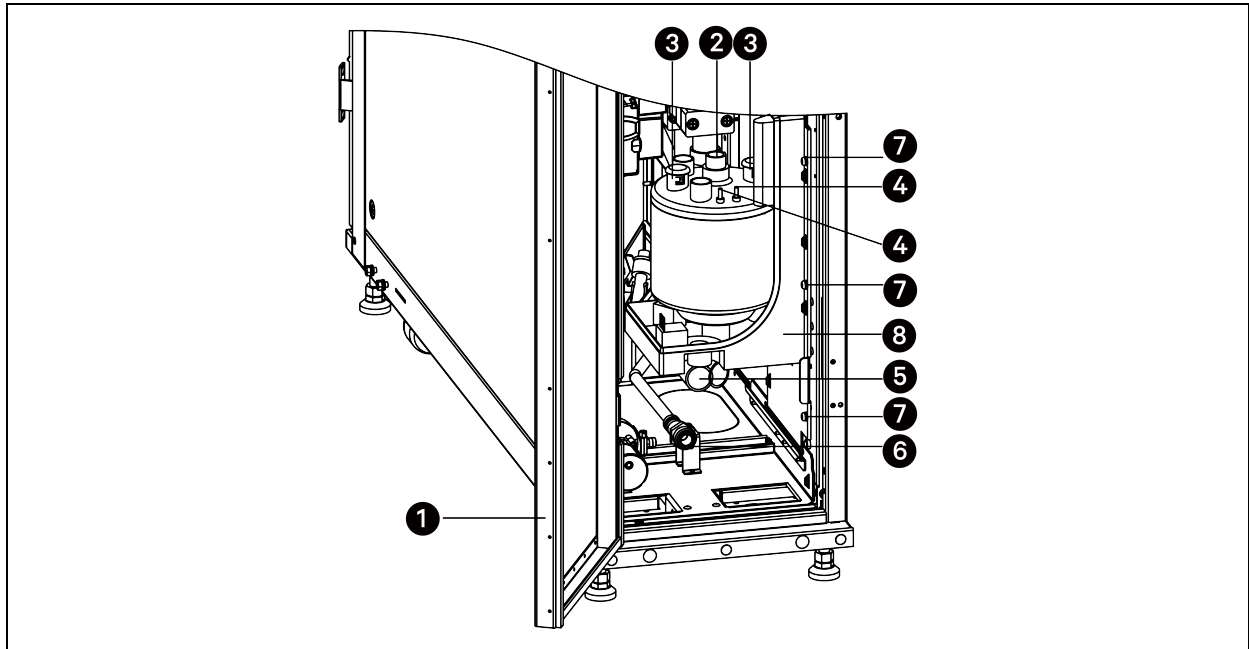
5.2.3 Bottom Connection

To connect water inlet and outlet pipes through the bottom panel:

1. Open the rear door and remove filters. For details on removing filters, See [Remove filters](#). on page 33 .
2. Remove the humidifier together with the support bracket (only for CRC30).
 - a. Loosen the hose clamp and disconnect stream pipe from the top of the humidifier.
 - b. Disconnect the electrode wires from the top of the humidifier.
 - c. Disconnect the level sensor cables from the top of the humidifier.
 - d. Unscrew the soft pipe from the bottom of the humidifier.
 - e. Loosen the hose clamp and disconnect the water supply pipe under the humidifier.

- f. Remove three M5 x 16 pan head screws from the support bracket for humidifier. Pull the support bracket from the unit to remove the humidifier.

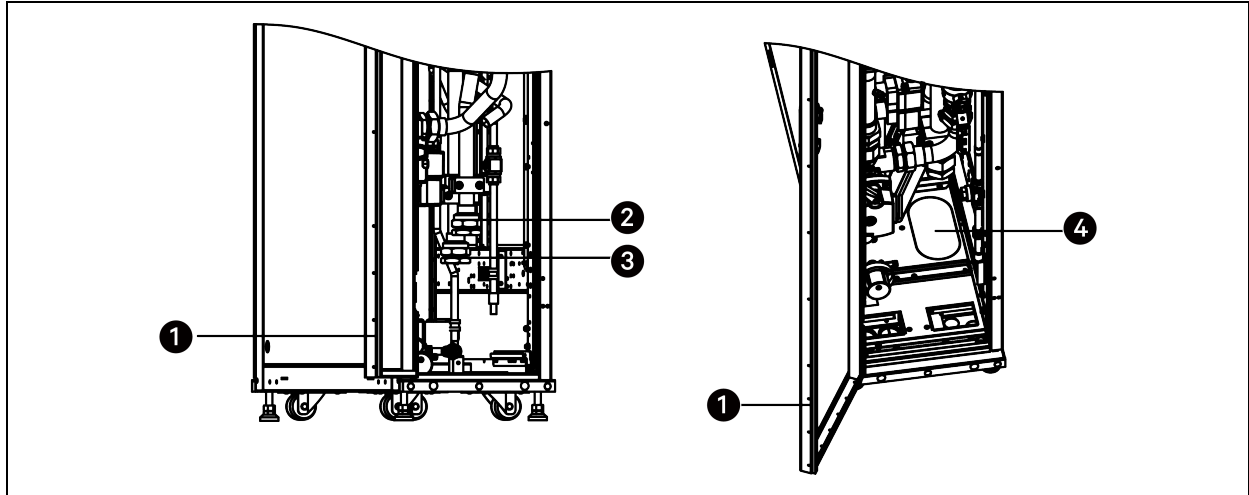
Figure 5.7 Removing the Humidifier together with the Support Bracket (Only for CRC30)



Item	Description	Item	Description
1	Rear door	5	Water drainage connection
2	Steam pipe connection	6	Water inlet pipe connection
3	Electrode wire connection	7	M5 x 16 pan head screw
4	Level sensor connection	8	Support bracket for humidifier

- Remove the caps from the chilled water inlet and outlet pipe connectors located inside the unit. Connect the field-supplied pipes to the connectors. Tighten connections to 100 Nm (73.8 ft-lb). The connections should be properly sealed.
- Knock off the cover plate on the bottom panel using a claw hammer. Route the field-supplied pipes through the chilled water inlet and outlet hole and connect them to your water supply and return system.

Figure 5.8 Connecting Water Inlet and Outlet Pipes from Bottom Panel



Item	Description	Item	Description
1	Rear door	3	Chilled water outlet connector (for bottom connection)
2	Chilled water inlet connector (for bottom connection)	4	Cover plate on the chilled water inlet and outlet hole

5. Install insulation on the provided pipes to prevent loss of cooling capacity.
6. Reinstall the humidifier (only for CRC30).
7. Reinstall the filter.

5.3 Connecting Condensate Drainage Pipes

The water from the humidifier and the condensate water from the coil accumulate in the drain pan. The water in the drain pan is drained through the top or bottom of the unit.

NOTE: The connections must be sealed to prevent water leakage.

5.3.1 Top Connection

A pipe has been pre-installed between the pump and the drainage copper pipe. Connect the top end of the drainage copper pipe (the pump drainage connection on the top plate) to your drainage system. For the location of the pump drainage connection, see [CRC30 - Top Connection](#) on page 35 and [CRC60 - Top Connection](#) on page 36 .

The specification of the pump drainage connector on the top plate is as follows:

Table 5.2 Pump Drainage Connector Specification

Model	Threaded Connector	External Diameter mm (in.)
CRC30/CRC60	Rc 1/2"	12.7 (1/2)

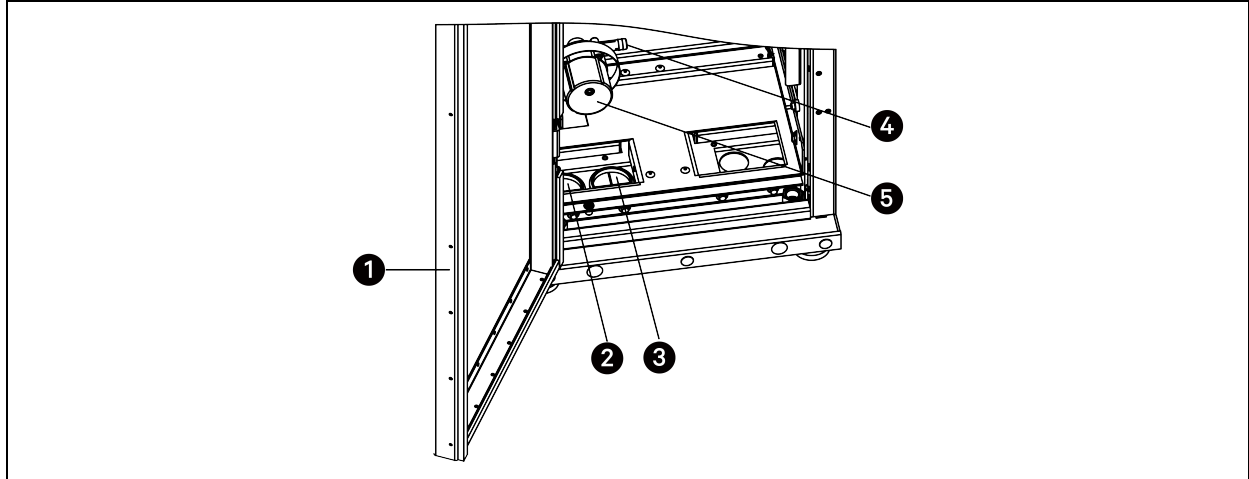
5.3.2 Bottom Connection

To connect condensate drainage pipes from the bottom:

1. Open the rear door and remove filters. For details on removing filters, See [Remove filters.](#) on page 33 .

2. To connect pump drain through the base plate, unscrew the soft pipe from the pump's drainage tube.
3. Take out the soft pipe from the accessories bag and connect it to the drainage tube. Then route the soft pipe through the pump drainage outlet on the base plate to your drainage system.

Figure 5.9 Bottom Connection for Pump Drain



Item	Description	Item	Description
1	Rear door	4	Pump's drainage tube
2	Gravity drainage hole	5	Pump
3	Pump drainage hole and humidifier water inlet hole		

4. Gravity drainage pipe has been pre-installed from the drain pan. Route the pipe through the gravity drainage hole on the base plate and connect it to your drainage system. Wrap a drain trap under the drain pan.

NOTE: All water drainage pipes should resist heat higher than 90 °C (194 °F).

NOTE: Ensure at least a 2% gradient towards the drain.

NOTE: There must be a drain trap placed at least 200 mm (7.9 in.) below the drain tray. Fill the drain trap with water.

5.4 Connecting Water Supply for Humidifier (Only for CRC30)

NOTE: The connections must be sealed to prevent water leakage.

NOTE: The pressure of your water supply system should be within 100 kPa to 700 kPa (14.5 psig to 101.5 psig).

5.4.1 Top Connection

A soft pipe has been pre-installed between the humidifier and the humidifier supply copper pipe. Connect the top end of the humidifier supply copper pipe (the inlet for humidifier connection on the top plate) to your water supply system. For the location of the inlet for humidifier connection, see [CRC30 - Top Connection](#) on page 35 .

The specification of the inlet for humidifier connector on the top plate is as follows:

Table 5.3 Inlet for Humidifier Connector Specification

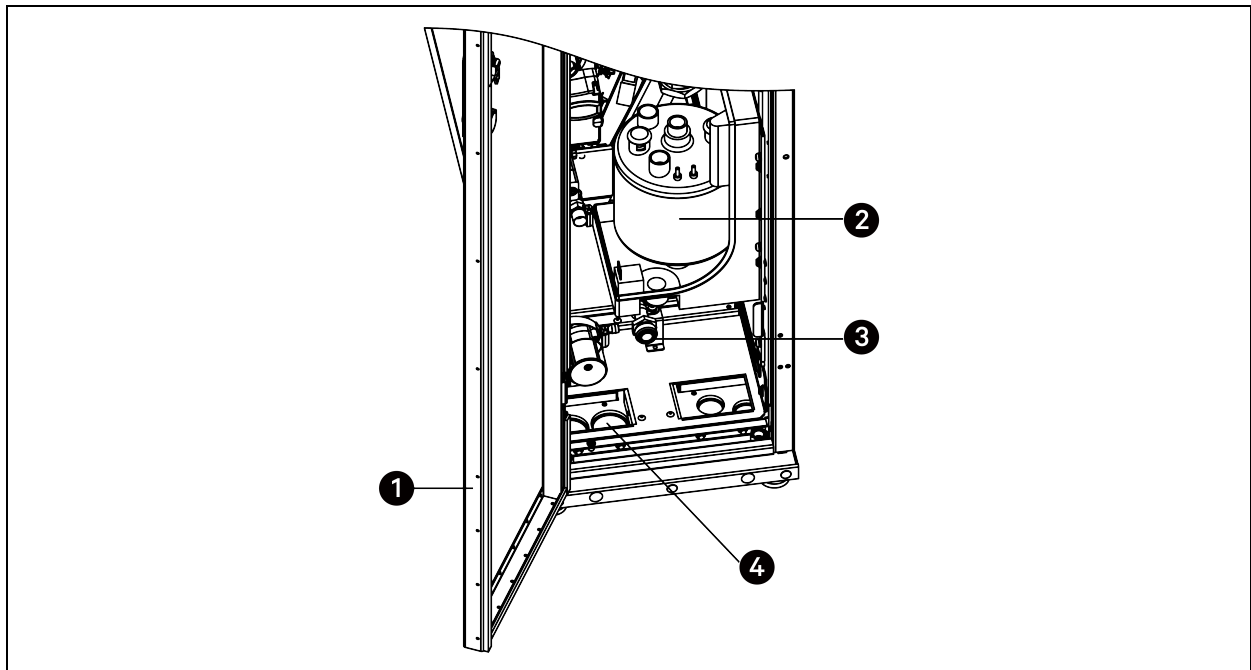
Model	Threaded Connector	External Diameter mm (in.)
CRC30/CRC60	Rc 1/2"	12.7 (1/2)

5.4.2 Bottom Connection

Open the rear door and remove filters. For details on removing filters, See [Remove filters](#) on page 33 . Unscrew the soft pipe from the humidifier supply copper pipe and route the soft pipe through the pump drainage hole and humidifier water inlet hole on the base plate to your water supply system.

NOTE: The end of the humidifier supply pipe is G 3/4" connector. You can use the convertor provided in the accessories bag to convert the connector to Rc 1/2".

Figure 5.10 Bottom Connection for Humidifier



Item	Description	Item	Description
1	Rear door	3	Water inlet pipe connection
2	Humidifier	4	Pump drainage hole and humidifier water inlet hole

6 Electrical Connections



WARNING! Arc flash and electric shock hazard. Open all local and remote electric power-supply disconnect switches, verify with a voltmeter that power is Off and wear appropriate, OSHA-approved personal protective equipment (PPE) per NFPA 70E before working within the electric control enclosure. Failure to comply can cause serious injury or death. Customer must provide earth ground to unit, per NEC, CEC and local codes, as applicable. Before proceeding with installation, read all instructions, verify that all the parts are included and check the nameplate to be sure the voltage matches available utility power. The Liebert® controller does not isolate power from the unit, even in the “Unit Off” mode. Some internal components require and receive power even during the “Unit Off” mode of the controller. The only way to ensure that there is NO voltage inside the unit is to install and open a remote disconnect switch. Refer to unit electrical schematic. Follow all local codes.



WARNING! Risk of electric shock. Can cause equipment damage, injury or death. Open all local and remote electric power supply disconnect switches and verify with a voltmeter that power is off before working within any electric connection enclosures. Service and maintenance work must be performed only by properly trained and qualified personnel and in accordance with applicable regulations and manufacturers’ specifications. Opening or removing the covers to any equipment may expose personnel to lethal voltages within the unit even when it is apparently not operating and the input wiring is disconnected from the electrical source.



WARNING! If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or qualified personnel to avoid a hazard.

Before proceeding with the electrical connections, ensure that:

- The unit has been fixed to the floor or the adjacent cabinets.
- All electrical components are in good condition.
- All terminal screws are tight.
- The supply voltage and frequency are as indicated on the unit.

6.1 Connecting Power Supply Cable

The power supply requirement is 400V/3Ph/50Hz for Vertiv™ Liebert® CRV CRC30 and 230V/1P/50Hz for Vertiv™ Liebert® CRV CRC60. The size of power cable must support the full load current. Do not fit the supply cable in the raceways inside the electrical box. Use multipolar cables with sheath (CEI20-22) only. The electrical schematic sheet is included in the accessories bag.

Table 6.1 Rated Full Load Current

Model	Without Heater or Humidifier Ampere	With Heater Ampere	With Humidifier Ampere
CRC30	8	14	10.3
CRC60	13	-	-

NOTE: The heater and humidifier will not work at the same time.

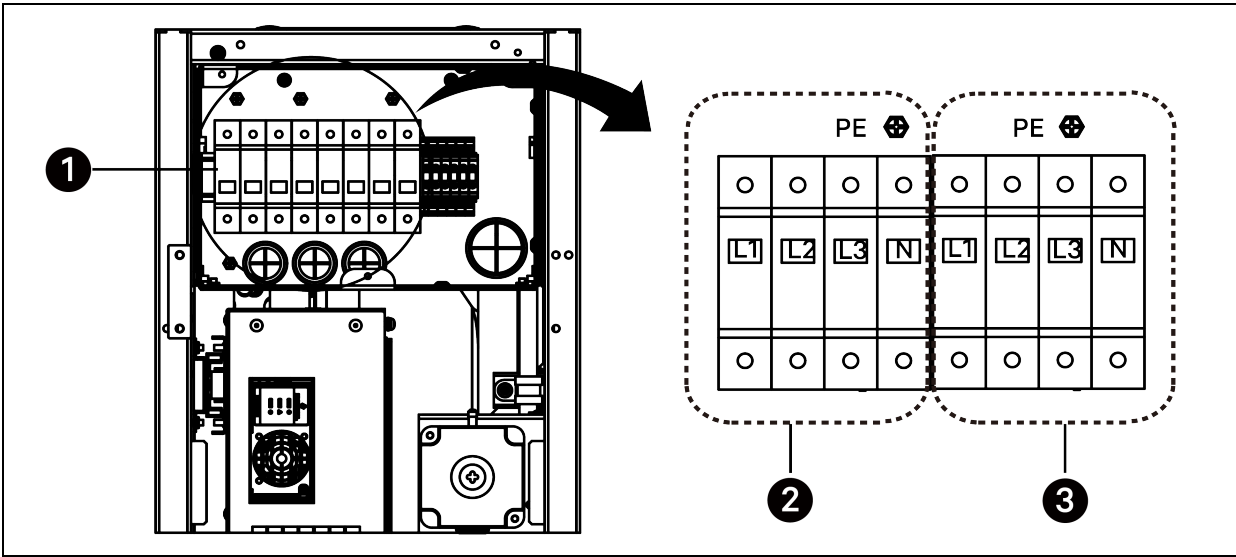
NOTE: Dual power supplies are provided to the unit, with power supply 1 as the primary power feed and power supply 2 as secondary. When power supply 1 fails, power supply 2 automatically takes over. When power supply 1 restores, it automatically resume its function as the primary power feed.

6.1.1 Connecting Power Supply Cable for CRC30

To connect the power supply cable:

1. Open the rear door. Remove the cover plate from the electrical box 1 (main circuit breaker) by removing three M4 x 10 pan head screws.
2. Route the power supply cables into the unit from the top or bottom of the unit and connect the cables to the L1, L2, L3, N, and PE terminals of the main circuit breaker.
3. Fix the cables to the cable clamps in the electrical box.

Figure 6.1 Connecting Power Supply Cable for CRC30



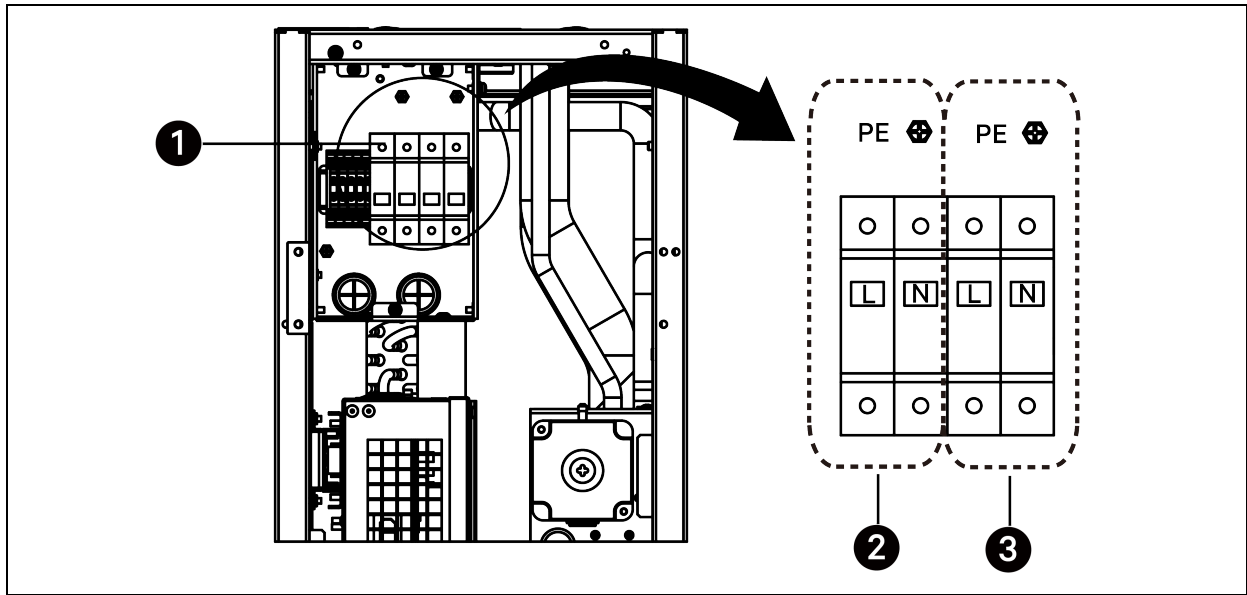
Item	Description	Item	Description
1	Main circuit breaker	3	Connecting to power supply 2
2	Connecting to power supply 1		

6.1.2 Connecting Power Supply Cable for CRC60

To connect the power supply cable:

1. Open the rear door and remove filters. For details on removing filters, see [Remove filters](#) on page 33.
2. Remove the cover plate from the electrical box 1 (main circuit breaker) by removing three M4 x 10 pan head screws.
3. Place the power supply cables into the unit from the top or bottom of the unit and connect the cables to the L, N, and PE terminals of the main circuit breaker.
4. Fix the cables to the cable clamp in the electrical box.

Figure 6.2 Connecting Power Supply Cable for CRC60



Item	Description	Item	Description
1	Main circuit breaker	3	Connecting to power supply 2
2	Connecting to power supply 1		

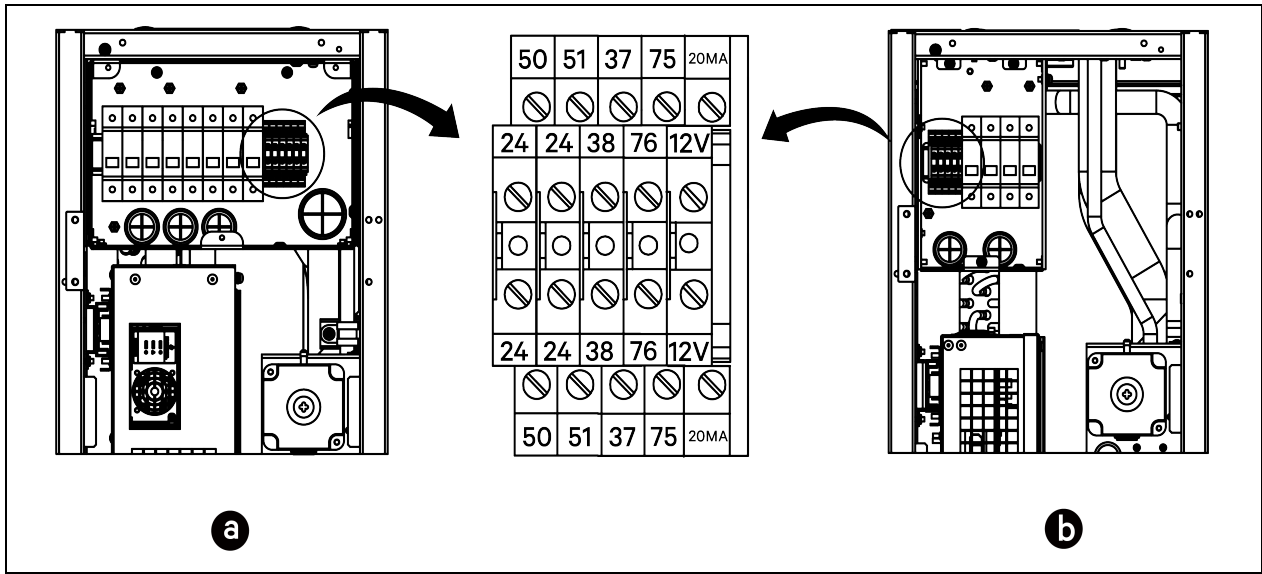
6.2 Connecting Communications Cables

6.2.1 General Arrangement

NOTE: Take anti-static measures when connecting communications cables.

NOTE: The RJ45 port on the back of HMI is not available for any usage.

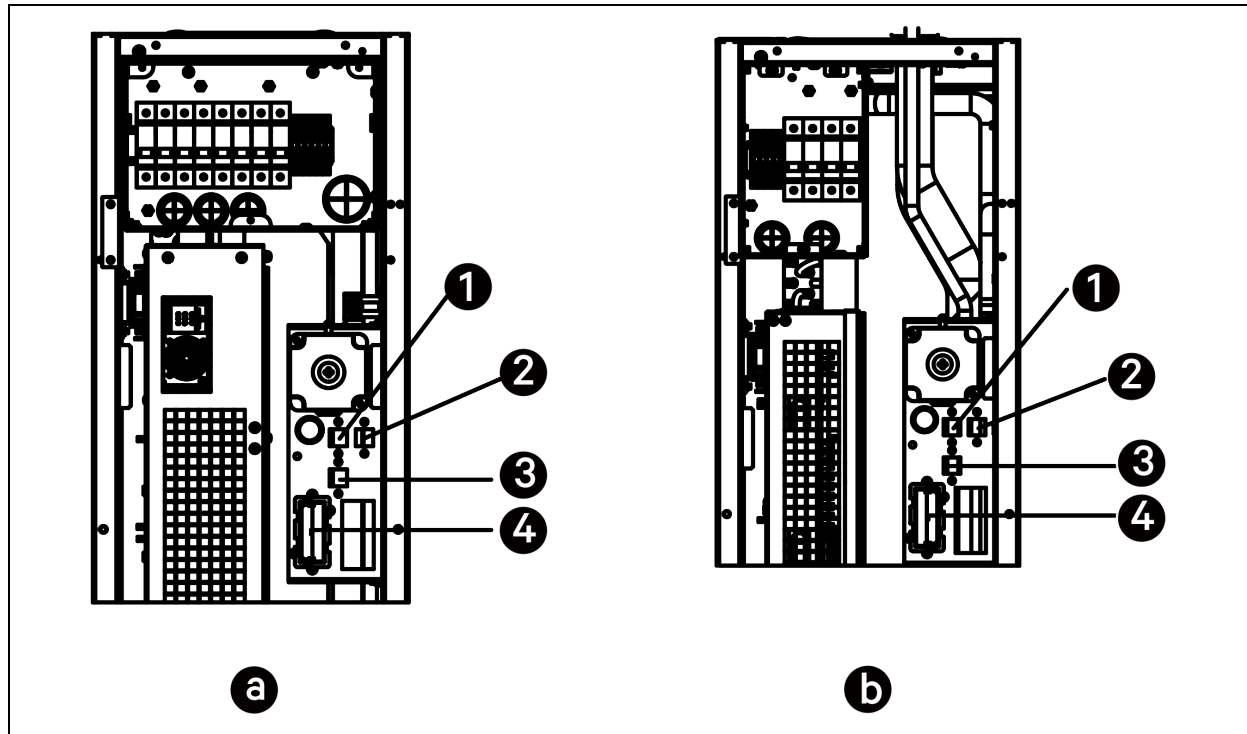
Figure 6.3 Communications Terminal Block



Item	Description	Item	Description
a	CRC30	37/38	Remote on/off
b	CRC60	75/76	Common alarm
50/24	Custom alarm (fire sensor alarm or smoke sensor alarm)	20MA/12V	Static pressure sensor
51/24	Water leakage sensor		

NOTE: The 75/76 terminal is dry contact output.

Figure 6.4 Communications Ports



Item	Description	Item	Description
a	CRC30	2	CAN 2 port
b	CRC60	3	RS485-1 port
1	CAN 1 port	4	Unity card

6.2.2 Connecting the Unity Card

Connect the monitor device to the Ethernet port on the unity card.

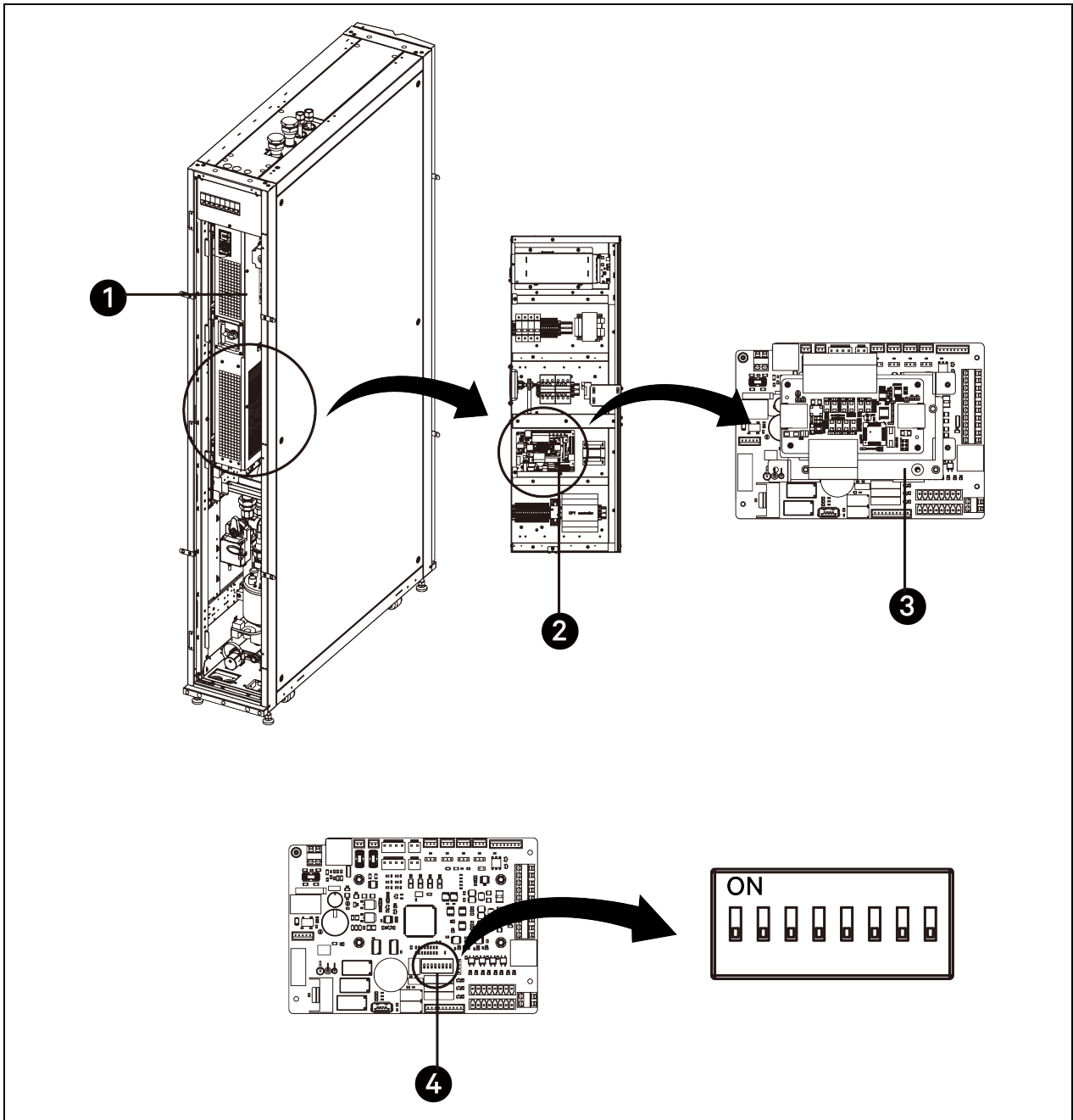
6.2.3 Connecting for Teamwork

Connect the CAN port of one unit to the CAN port of another unit using a CAN network cable. Set the CAN ID of each unit on the DIP SW3. The DIP SW3 is located on the iCOM Edge board, under the 10DI board.

To access the DIP SW3:

1. Open the rear door and remove filters. For details on removing filters, see [Remove filters](#) on page 33.
2. Hold the handle and pull the electrical box 2. Remove the side cover from the box by removing five M4 x 10 pan head screws for CRC30 and four M4 x 10 pan head screws for CRC60.
3. Remove the 10DI board from the iCOM Edge board.

Figure 6.5 Location of DIP SW3 (CRC30 as an Example)



Item	Description	Item	Description
1	Side cover of the electrical box 2	3	10DI board
2	iCOM Edge board	4	DIP SW3

Table 6.2 Address Settings of CAN ID

CAN ID	SW3-1	SW3-2	SW3-3	SW3-4	SW3-5	SW3-6	SW3-7	SW3-8	Note
0	ON	ON	ON	ON	ON	ON	ON	ON	Primary Unit
1	OFF	ON	ON	ON	ON	ON	ON	ON	Secondary Unit 1
2	ON	OFF	ON	ON	ON	ON	ON	ON	Secondary Unit 2
3	OFF	OFF	ON	ON	ON	ON	ON	ON	Secondary Unit 3
4	ON	ON	OFF	ON	ON	ON	ON	ON	Secondary Unit 4
5	OFF	ON	OFF	ON	ON	ON	ON	ON	Secondary Unit 5
6	ON	OFF	OFF	ON	ON	ON	ON	ON	Secondary Unit 6
7	OFF	OFF	OFF	ON	ON	ON	ON	ON	Secondary Unit 7
8	ON	ON	ON	OFF	ON	ON	ON	ON	Secondary Unit 8
9	OFF	ON	ON	OFF	ON	ON	ON	ON	Secondary Unit 9
10	ON	OFF	ON	OFF	ON	ON	ON	ON	Secondary Unit 10
11	OFF	OFF	ON	OFF	ON	ON	ON	ON	Secondary Unit 11
12	ON	ON	OFF	OFF	ON	ON	ON	ON	Secondary Unit 12
13	OFF	ON	OFF	OFF	ON	ON	ON	ON	Secondary Unit 13
14	ON	OFF	OFF	OFF	ON	ON	ON	ON	Secondary Unit 14
15	OFF	OFF	OFF	OFF	ON	ON	ON	ON	Secondary Unit 15

NOTE: The iCOM Edge can connect up to 16 units. Unit CAN ID address must be set in sequence from 0 to 15.

NOTE: CAN ID 0 is primary unit. Teamwork parameters only can be set in primary unit and then shared to secondary units. Secondary unit uploads operation status and alarms to the primary unit.

6.2.4 Connecting the Water Leakage Sensor (Optional)

The water leakage sensor is provided as an accessory. Connect one end of the sensor to terminal 51 and the other end to terminal 24.

6.2.5 Connecting the Remote On/Off Device (Optional)

The remote on/off device is provided as an accessory. Connect the remote on/off device to terminals 37 and 38. These two terminals have been connected with a jumper at the factory and you need to remove this jumper before connecting the terminals with the remote on/off device.

NOTE: If the cable between the 37 and 38 terminals is removed and no remote on/off device is connected to the terminals, the unit cannot be powered on.

6.2.6 Connecting Remote Temperature Sensors (Optional)

The remote temperature sensor is provided as an accessory. The unit can be connected with a maximum of 10 temperature sensors. It is recommended to place the sensors in front of the heat loads, 1.5 m (4.9 ft) higher than the unit base.

NOTE: Only one remote temperature sensor is provided with the unit.

To connect remote temperature sensors:

1. Insert the connector of the sensor to the RS485-1 port. Route the cable through the top or bottom of the unit. Connect the second sensor to the first sensor.
2. Fix the sensor on rack surface using the magnets provided in the kit. Do not fix it on an empty rack. Set the address on the dialing switch on the sensor, according to the following table.

Table 6.3 Address Settings of Remote Temperature Sensors

Sensor	1	2	3	4	5	6	ID
Remote temperature sensor 1	OFF	OFF	OFF	ON	OFF	OFF	10
Remote temperature sensor 2	OFF	OFF	OFF	ON	OFF	ON	11
Remote temperature sensor 3	OFF	OFF	OFF	ON	ON	OFF	12
Remote temperature sensor 4	OFF	OFF	OFF	ON	ON	ON	13
Remote temperature sensor 5	OFF	OFF	ON	OFF	OFF	OFF	20
Remote temperature sensor 6	OFF	OFF	ON	OFF	OFF	ON	21
Remote temperature sensor 7	OFF	OFF	ON	OFF	ON	OFF	22
Remote temperature sensor 8	OFF	OFF	ON	OFF	ON	ON	23
Remote temperature sensor 9	OFF	OFF	ON	ON	OFF	OFF	30
Remote temperature sensor 10	OFF	OFF	ON	ON	OFF	ON	31

6.2.7 Connecting the Static Pressure Sensor (Customer-Supplied)

Connect the static pressure sensor to terminals 20 MA and 12 V. Set the range of the sensor on the HMI: press the menu button, choose **Maintenance > Static Pressure Settings > SP Sensor Range**, and change the set point according to the sensor. The default range is 0 - 250 Pa (0 - 1 inH₂O).

NOTE: For the detailed installation and setting of the static pressure sensor, refer to the Installer/User Guide included with the static pressure sensor.

It is recommended to select the static pressure sensor of the following specifications:

Table 6.4 Static Pressure Sensor Specifications

Item	Description
Range	0 - 250 Pa (0 - 1 in. H ₂ O)
Output Signal	4-20 mA DC (two-wire)
Power Supply	12V DC

This page intentionally left blank

7 Start-up

7.1 Commissioning



WARNING! Commissioning must be performed by authorized professionals from Vertiv.



WARNING! Risk of hair, clothing and jewelry entanglement with high speed rotating fan blades. Can cause equipment damage, serious injury or death. Keep hair, jewelry and loose clothing secured and away from rotating fan blades during unit operation.



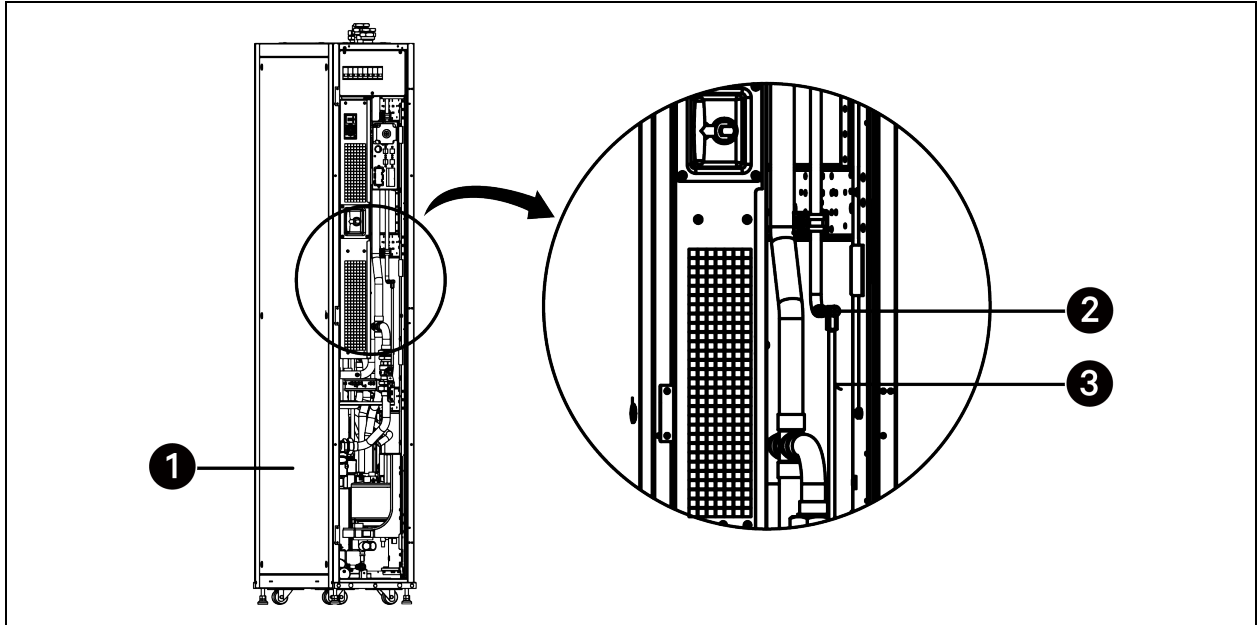
WARNING! Risk of contact with high-speed, rotating fan impeller blades. Can cause injury or death. Open all local and remote electrical-supply disconnect switches, verify with a voltmeter that power is off, and verify that all fan impellers have stopped rotating before working in the unit.

Check and ensure that:

- There is no leakage in the water inlet and outlet pipes, the water supply pipe of the humidifier, and the drainage pipe.
- The filters are correctly installed, and the surface is clean.
- The air inlet and outlet are not blocked.
- The voltage of the main power supply is within $\pm 10\%$ of the rating.
- The power cables and control cables are correctly connected.
- The power cables and low voltage control cables are laid away from each other.

Supply chilled water to the unit. Open the air discharge valve on the water outlet pipe till water flow can be observed in the transparent soft pipe under the air discharge valve. Close the valve.

Figure 7.1 Observing Water Flow



Item	Description	Item	Description
1	Rear door	3	Transparent soft pipe
2	Air discharge valve		

7.2 Start-up

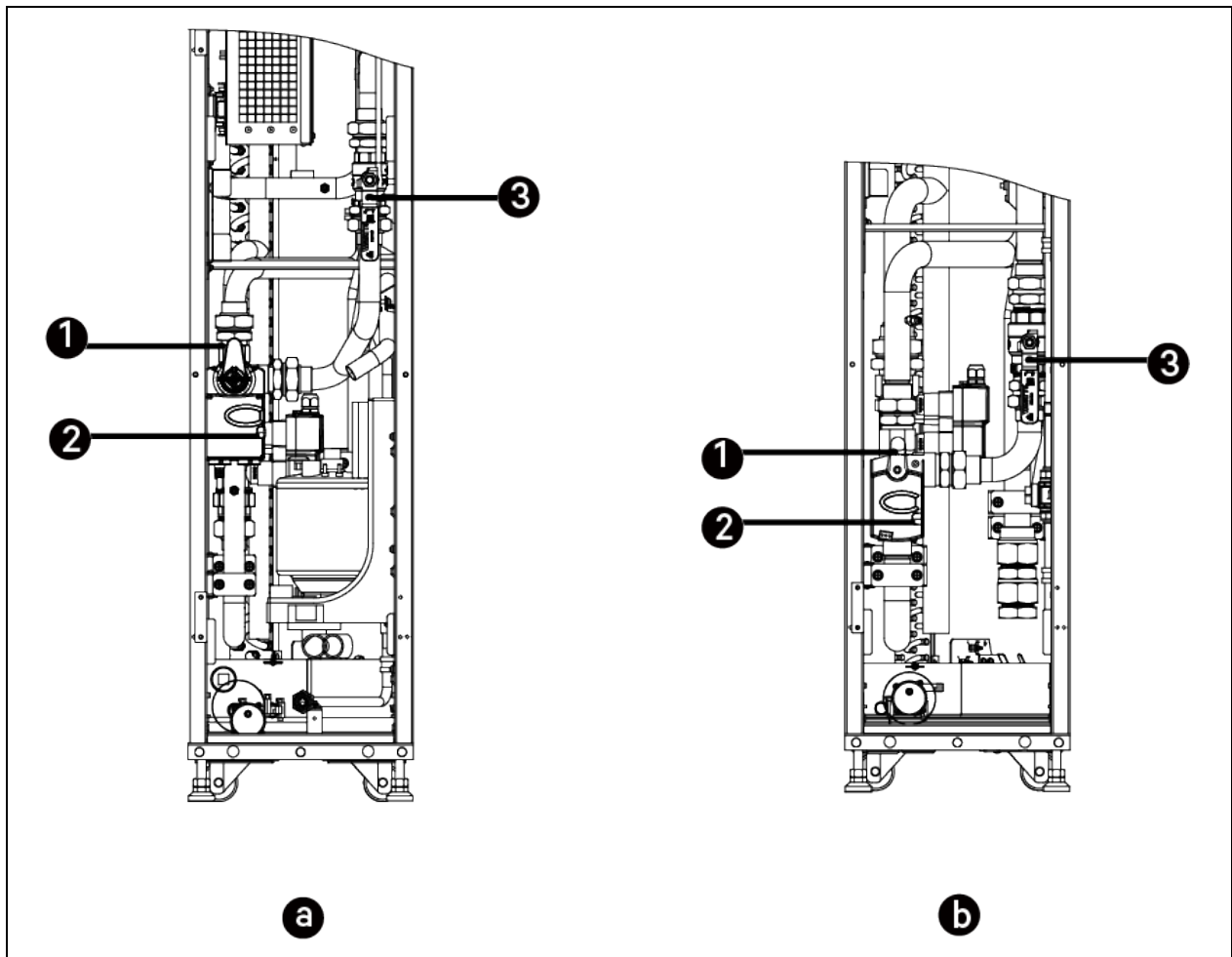
7.2.1 First Start-up (or After Long Standstill)

To start up the unit:

1. Open the rear door and remove filters. For details on removing filters, see [Remove filters](#) on page 33.
2. If the supplied pipe is installed with variable frequency pump, close the manual shut-off valve on the bypass pipe and check that the electric three-way valve is open. If the supplied pipe is installed with constant frequency pump, open the manual shut-off valve on the bypass pipe and check that the electric three-way valve is open.

NOTE: If the electric three-way valve is closed, press the button and rotate the handle in counter-clockwise direction to the open position.

Figure 7.2 Location of Electric Three-way Valve and Manual Shut-off Valve



Item	Description	Item	Description
a	CRC30	2	Button
b	CRC60	3	Manual shut-off valve
1	Electric three-way valve (in the open position)		

3. Check if the supply voltage is normal, if so switch on all the MCBs.
4. Press and hold the ON button on the HMI for three seconds. On the HMI, set the target value of temperature and humidity. Check if the components are working properly via measuring the input voltage and current of single device.
5. Once the system is operating under load, check that fans are operating correctly and temperature, humidity, and water flow are as required. And check if the sensor value needs to be calibrated.

7.2.2 Automatic Restart

The unit will automatically restart on the return of power after a power interruption.

This page intentionally left blank

8 HMI Display

8.1 Appearance

The HMI display is a 7-inch touch-screen color display.

Figure 8.1 HMI Display



The indicator (1) is located under the screen. Its colors and indication are described in the table below.

Table 8.1 Indicator Description

Indicator Color	Description
Blue	Display is starting
Yellow	Unit is shut down, or the display fails to communicate with iCOM Edge
Green	Unit is running normally
Red	An alarm has been generated and the buzzer keeps generating sound (you can tap the display to stop the buzzer)

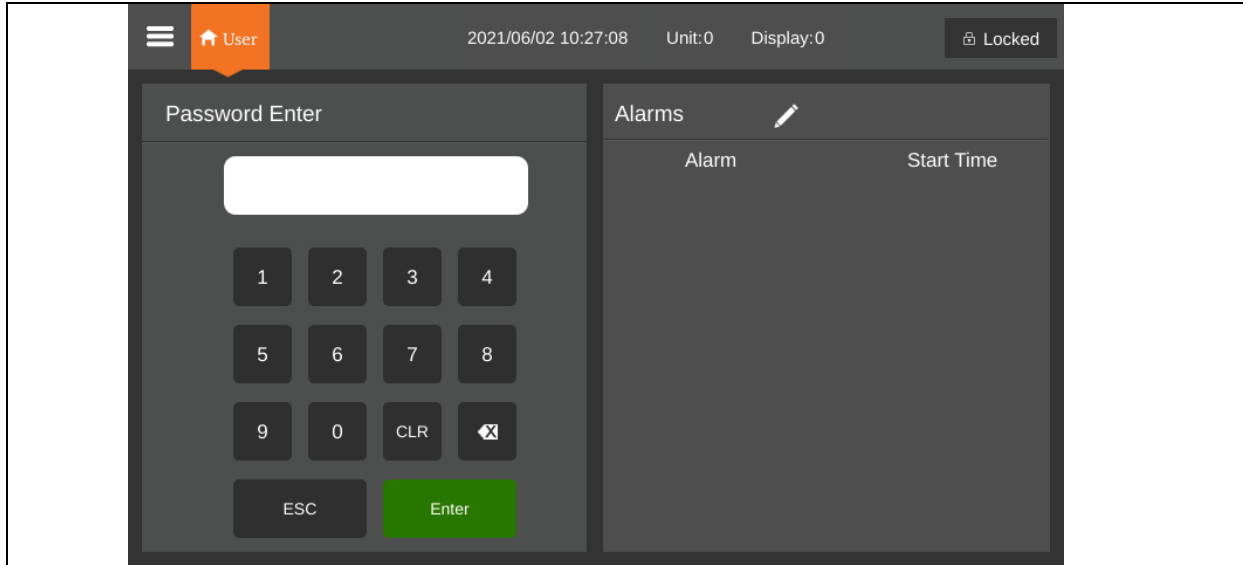
8.2 Main Functions

8.2.1 Home Page

After the HMI display is powered on for one minute, press **Locked**, input password **1490**, and press **Enter**. The home page will be displayed. You can power on or off the unit by pressing and holding the ON/OFF button for three seconds.

NOTE: If no password is entered, you can only view the menu settings.

Figure 8.2 Entering Password



Refer to **Table 8.2** on the facing page to see the list of the touch keys.

Figure 8.3 Functional Keys

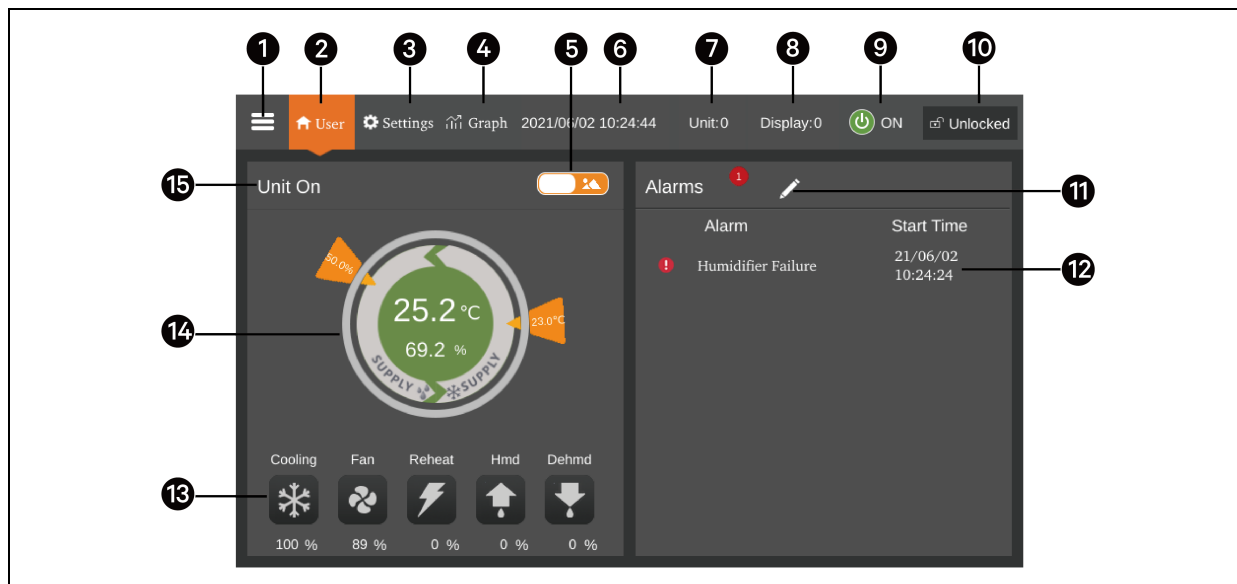


Table 8.2 Function Description

Items	Touch Keys	Functional Description
1	Menu button	View and configure the operation status, alarm information, temperature and humidity settings, parameter settings, and temperature and humidity graph. View version information and service information.
2	Home button	Return to the home page.
3	Settings button	Set temperature and humidity.
4	Graph button	Show the graphs of the average return air temperature, average return air humidity, average supply air temperature, and average remote temperature.
5	Toggle button 1	Switch between the graphical display mode and the list display mode.
6	Time display	Show current time and date.
7	Unit address	Show unit address.
8	Display address	Show HMI address and set the address.
9	ON/OFF button	Press the button for three seconds to start or stop the unit.
10	Unlock button	Unlock the HMI display.
11	Toggle button 2	Switch between the sensor data page and the alarm page.
12	Alarm list	Show current alarms and the time when they are generated.
13	Status display	Show the data of cooling, fan, electric heater, humidifier, dehumidifier, fan speed, heating status, and humidifier status.
14	Control mode	Show unit settings and temperature and humidity data.
15	Operating status	Display the current state of the unit: unit run, remote off, display off, monitor off, and standby.

8.2.2 Control Mode

The water valve is controlled according to temperature (supply air temperature, return air temperature, and remote temperature) and humidity (supply air humidity, return air humidity, and remote humidity).

Figure 8.4 Control Mode Diagram

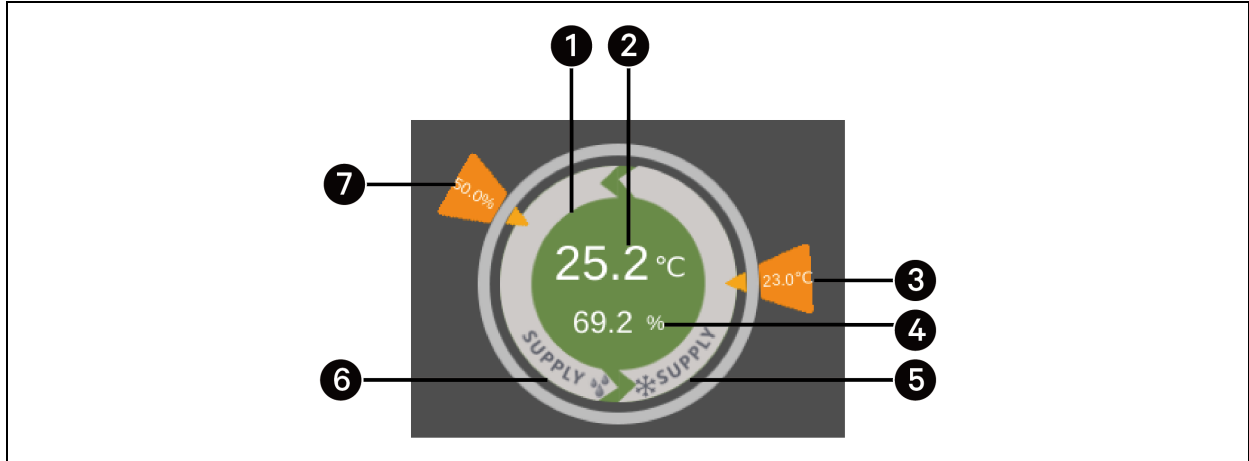


Table 8.3 Description of Control Mode Diagram

Item	Description
1	The color of this area indicates the status of the unit: <ul style="list-style-type: none"> Green: The unit is On and the temperature is within normal range Red: The unit is On and the temperature is not within normal range Grey: The unit is Off
2	Supply air temperature, return air temperature, or remote temperature, depending on the control mode
3	Desired supply air temperature, return air temperature, or remote temperature set by user
4	Theoretical supply air humidity calculated according to current data
5	Control mode: chilled water valve is controled according to supply air temperature, return air temperature, or remote temperature
6	Control mode: chilled water valve is controled according to supply air humidity
7	Desired humidity set by user

8.3 Menu Structure and Parameters

For menu structure and parameters, please refer to [Menu Structure](#) on page 72 .

8.4 Alarm Information

Press the menu button and choose **Alarm Information** to check active alarms and historical alarms. **Active Alarms** show the active alarms and the time they are generated. **Historical Alarms** show active alarms and historical alarms, and the time they are generated and closed (if the alarm has been resolved). [Alarm Table](#) on page 76 lists all the alarms.

NOTE: Alarms are displayed in time sequence, starting with the latest one.

NOTE: Up to 500 historical alarms can be stored. They will not be cleared when unit is powered off.

8.5 Teamwork Control

Press the menu button and choose **Parameter Settings > Teamwork Settings** to set teamwork control. **Teamwork Mode** includes Teamwork 0, Teamwork 1, Teamwork 2, and Teamwork 3. Teamwork 0 indicates standby and rotation control. Teamwork 1 indicates standby, rotation, and cooling/heating cascade control. Teamwork 2 indicates standby, rotation, and avoid fighting control. Teamwork 3 indicates standby, rotation, and fan cascade control.

Standby function

One or several units can be defined as standby unit. The standby unit fan runs at the speed of 0% by default. If the Back Draft Control (BDR) mode is enabled, the standby unit fan will run at 20%. If a critical alarm or normal alarm is generated on the master unit, a standby unit will start to run.

- Critical alarms: fan failure alarm (when the alarm handling is set to shut down), water leakage alarm (when the alarm handling is set to shut down).
- Normal alarms:
 - Airflow loss alarm, high supply temperature alarm, high return temperature alarm, and high remote temperature alarm.
 - Supply temp sensor 1 failure alarm, supply temp sensor 2 failure alarm, and supply temp sensor 3 failure alarm. The standby unit will start to run if all the three alarms are generated on the primary unit when the water valve and fans are controlled according to supply air temperature.
 - Return temp sensor 1 failure alarm, return temp sensor 2 failure alarm, and return temp sensor 3 failure alarm. The standby unit will start to run if all the three alarms are generated on the primary unit when the water valve and fans are controlled according to return air temperature.
 - Remote temp sensor 1 failure alarm, remote temp sensor 2 failure alarm, ..., remote temp sensor 10 failure alarm. The standby unit will start to run if all the ten alarms are generated on the primary unit when the water valve and fans are controlled according to remote temperature.

Rotation function

This function ensures that all the units have equal run time.

Avoid fighting function

This function prevents the units from performing conflicting operations, such as cooling and heating, humidifying and dehumidifying. The primary unit will calculate the number of cooling units and heating units (or humidifying units and dehumidifying units). If cooling units (or humidifying units) are more than heating units (or dehumidifying units), the heating units (or humidifying units) will stop working.

Cascade function

If an alarm is generated on the primary unit or the running units cannot keep the specified temperature, a standby unit will start to run.

This page intentionally left blank

9 Maintenance



WARNING! All maintenance operations must be carried out strictly observing the European and National accident prevention regulations, especially the accident prevention regulations concerning electrical systems, refrigerators and manufacturing resources. Maintenance may be done to air conditioning equipment only by authorized and qualified technicians. To keep all warranties valid, the maintenance must adhere to the manufacturer's instructions.



WARNING! The work should be done on the system only when it is at switched-off. Stop the system by switching off the air conditioner at the controller and the main switch. Check that the electrical components of device are off and not receiving a power supply.

NOTICE

Only original spare parts made by Vertiv may be used. Using third-party material can invalidate the warranty. When the spare parts must be brazed, be careful not to damage the internal parts (gaskets, seals, o-rings, etc.).

NOTICE

Risk of release of hazardous substances into the environment. Can cause environmental pollution and violation of environmental regulations.

NOTICE

When the unit stops work for a long time, drain the water inside the unit through the water drainage valve under the coil. To open the valve, remove the water drain pan filter and remove the cap from the valve. The location of the water drain pan filter is shown in [Removing the Water Filter](#) on page 64

9.1 Maintenance Schedule

Conduct monthly, quarterly, biannual and annual checks according to the following guidelines.

Component	Check Items	Maintenance Period			
		Monthly by user	3 months	6 months	1 year
General	Check unit/remote display for clogged-filter warning	X			
	Check for irregular noise from unit fans	X			
Filters	Check the state of filters		X		
	Clean or replace air filters if necessary		X		
Fan	Verify that impellers move freely		X		

Component	Check Items	Maintenance Period			
		Monthly by user	3 months	6 months	1 year
	Check bearings			X	
	Check that motor supports are fixed securely			X	
Electronics	Check the condition of contactors			X	
	Check electrical connections				X
	Check the operation of controller			X	
	Check unit operation sequence			X	
Humidifier	Check steam hoses conditions			X	
Humidifier cylinder	Check humidifier cylinder conditions			X	
Electric heater	Check the operation of the electric heater		X		
	Check the erosion of the electric heater		X		
Chilled water circuit	Check circuit for leakage		X		
	Check water (glycol) inlet temperature			X	
	Check the operation of the water regulating valve			X	
	Check mixture glycol level (if applicable)				X

9.2 Facility Fluid and Piping

Maintaining facility water and glycol quality is required throughout the life of the coolant fluid piping system. A coolant-fluid maintenance program must be established that will evaluate fluid chemistry and apply necessary treatment. The complexity of water/glycol solution condition problems and the variations of required treatment programs make it extremely important to obtain the advice of a competent and experienced water-treatment specialist and follow a regularly-scheduled coolant-fluid system-maintenance program.

9.3 Glycol Solution

It is difficult to establish a specific schedule of inhibitor maintenance because the rate of inhibitor depletion depends upon local water conditions. Analysis of water samples at the time of installation and through a maintenance program should help to establish a pattern of depletion. A visual inspection of the solution and filter residue is often helpful in judging whether active corrosion is occurring.

The complexity of water/glycol solution condition problems and the variations of required treatment programs make it extremely important to obtain the advice of a competent and experienced water-treatment specialist and follow a regularly-scheduled coolant-fluid system-maintenance program. It is important to note that improper use of water treatment chemicals can cause problems more serious than using none. Proper inhibitor maintenance must be performed in order to prevent corrosion of the glycol system. Consult the glycol manufacturer for testing and maintenance of inhibitors. Do not mix products from different manufacturers.

9.4 Spare Parts

Only original spare parts made by Vertiv™ may be used. Using third-party material can invalidate the warranty.

NOTE: When replacing a faulty component, follow the relevant manufacturer instructions.

NOTE: When the spare parts must be brazed, be careful not to damage the internal parts (gaskets, seals, O-rings, etc.).

9.5 Air Filters

Check the filters monthly to maintain efficient air distribution through the evaporator coil.

1. Open the rear door and remove filters. For details on removing filters, see [Remove filters](#) on page 33.
2. Disconnect the main circuit breaker.
3. If the filters appear dirty, replace them.

NOTE: Prior to replacing filters, check that the air differential pressure switch tube is not damaged.

NOTE: After replacing filters, clear the fan operating time. Press the menu button on the HMI display, choose [Maintenance > Parameter Reset](#), and select [Yes](#) for [Confirm Filter Maintenance](#).

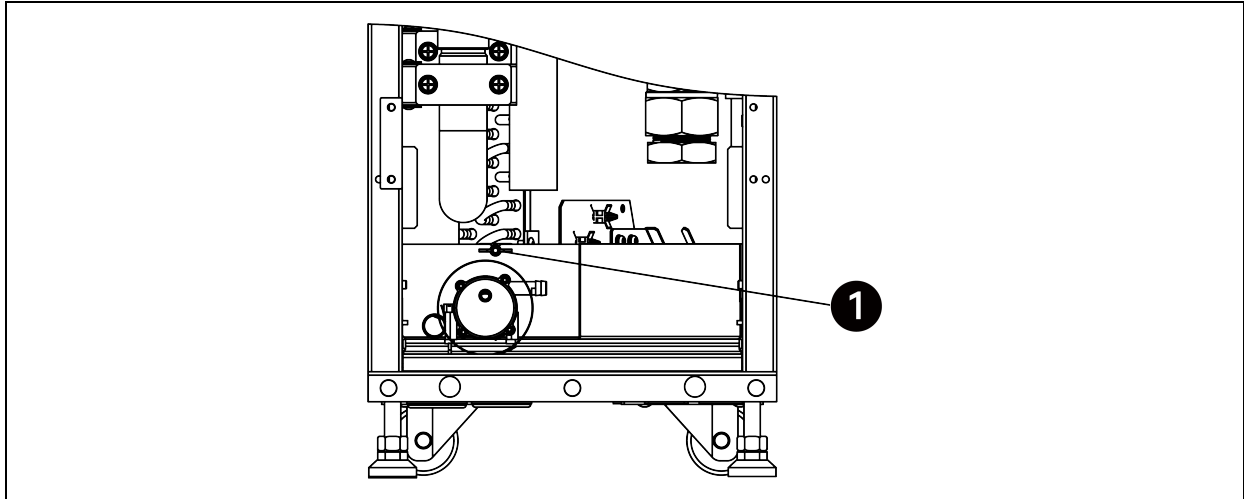
9.6 Condensate Drain and Condensate Pump

Condensate drain

To maintain the condensate drain:

- Check and clear any obstructions in pipelines during routine maintenance.
- Check that the water filter on the condensate drain pan is not blocked. To remove the water filter:
 - a. Open the rear door and remove filters. For details on removing filters, see [Remove filters](#) on page 33.
 - b. Disconnect the main circuit breaker.
 - c. Rotate the butterfly screw counter-clock wise to loosen it.
 - d. Hold the butterfly screw to remove the water filter.

Figure 9.1 Removing the Water Filter



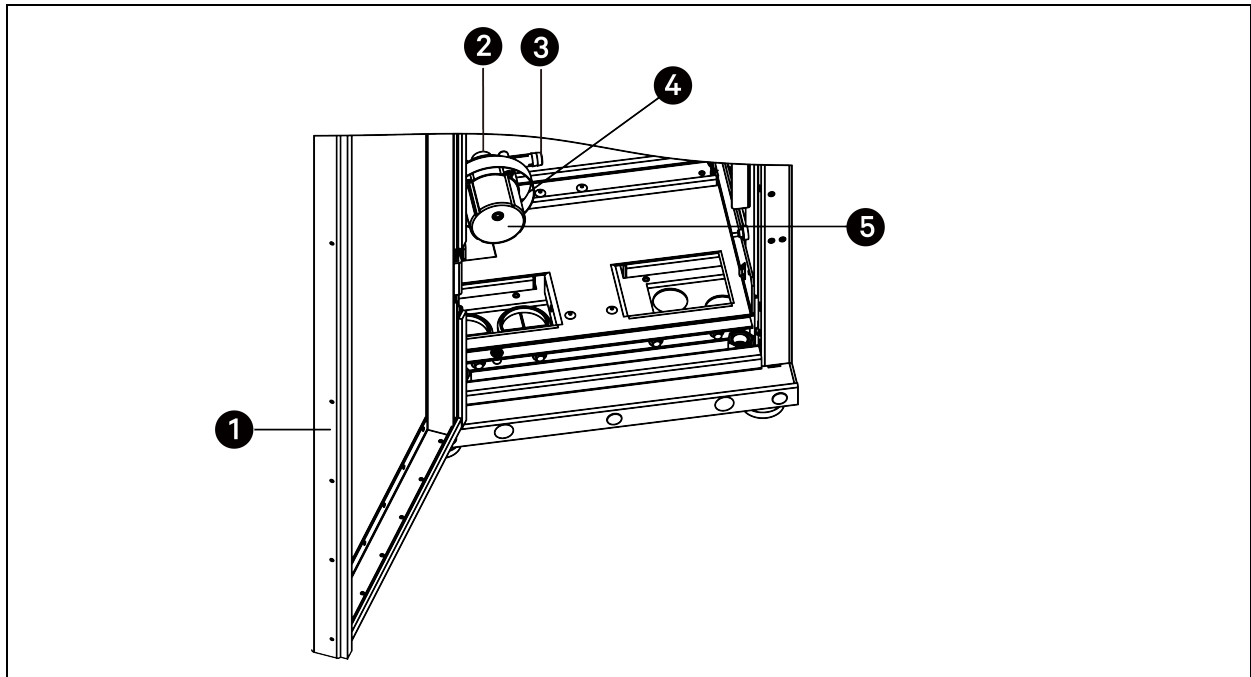
Item	Description
1	Butterfly screw

Condensate pump

To replace the pump:

1. Open the rear door and remove filters. For details on removing filters, see [Remove filters](#) on page 33.
2. Disconnect the main circuit breaker.
3. Unplug the two power cables (labeled "Pump") from the terminals near the pump. Loosen the hose clamp on the connection between the water inlet tube and the soft pipe. Loosen the hose clamp on the connection between the drainage tube and the soft pipe. Pull out the soft pipes.
4. Loosen the hose clamp around the pump. Remove the pump and replace it.

Figure 9.2 Removing the Condensate Pump



Item	Description	Item	Description
1	Rear door	4	Hose clamp around the pump
2	Water inlet tube	5	Pump
3	Drainage tube		

9.7 Fan

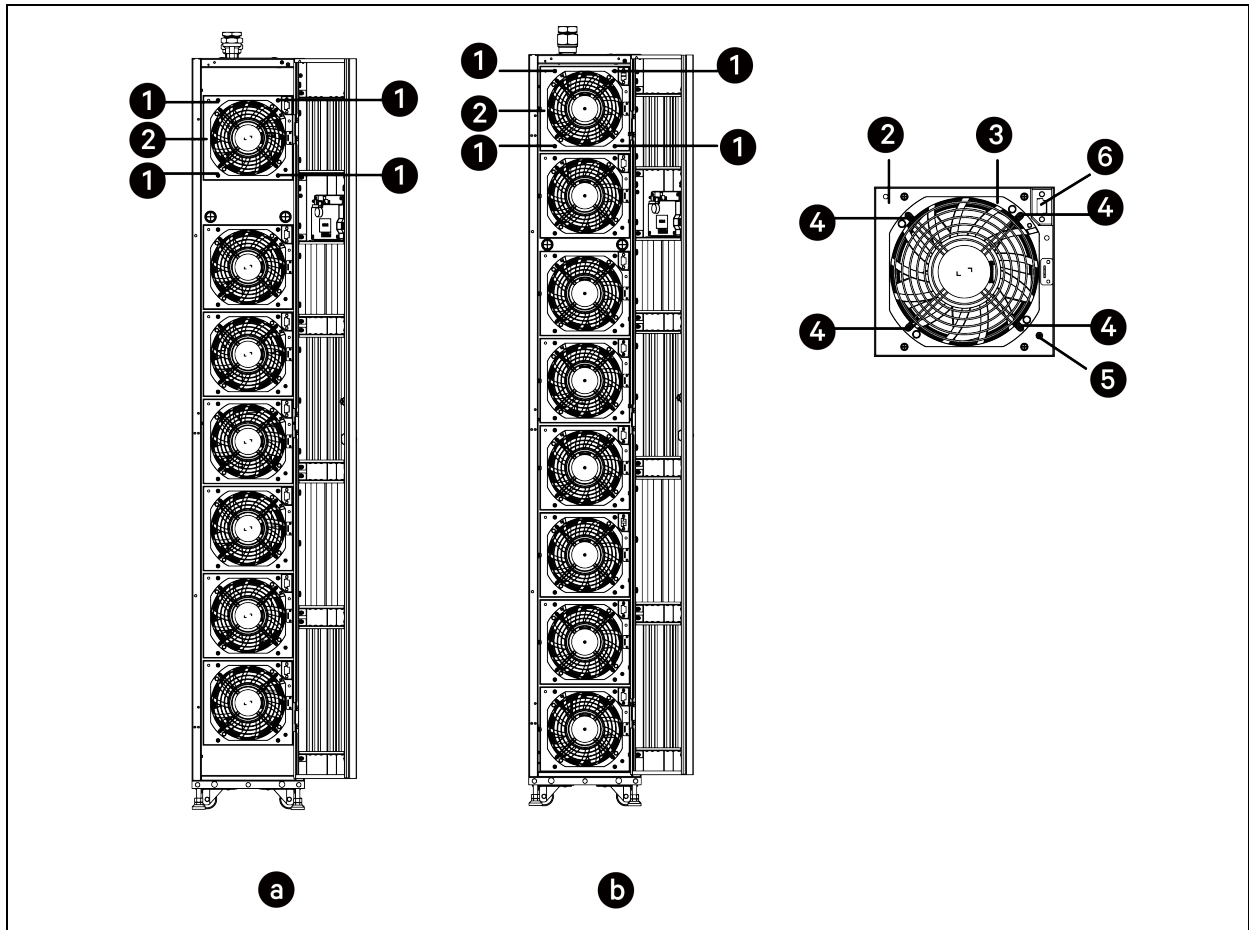


WARNING! Risk of electric shock and contact with high speed rotating fans. Can cause injury or death. Switch off all local and remote electrical supplies, verify that power is off with a voltmeter and verify that all fans have stopped rotating before working inside the unit cabinet or disconnecting the fan power wires.

To replace the fan:

1. Open the rear door. For CRC30, disconnect the main circuit breaker. For CRC60, remove the filters and then disconnect the main circuit breaker.
2. Open the front door.
3. Remove the fan frame assembly by removing the four M5 x 12 hex screws in the corners.
4. Set the fan assembly in a work area.
5. Remove the fan by removing the four M4 x 80 pan head screws, remove one grounding screw that attach the fan to the fan frame, and unplug the power supply terminal from the power socket on the fan frame assembly.
6. Replace the fan.

Figure 9.3 Removing the Fan



Item	Description	Item	Description
a	CRC30	3	Fan
b	CRC60	4	M4 x 80 pan head screw
1	M5 x 12 hex screw	5	Grounding screw
2	Fan frame assembly	6	Power socket

9.8 Electric Heater (Only for CRC30)



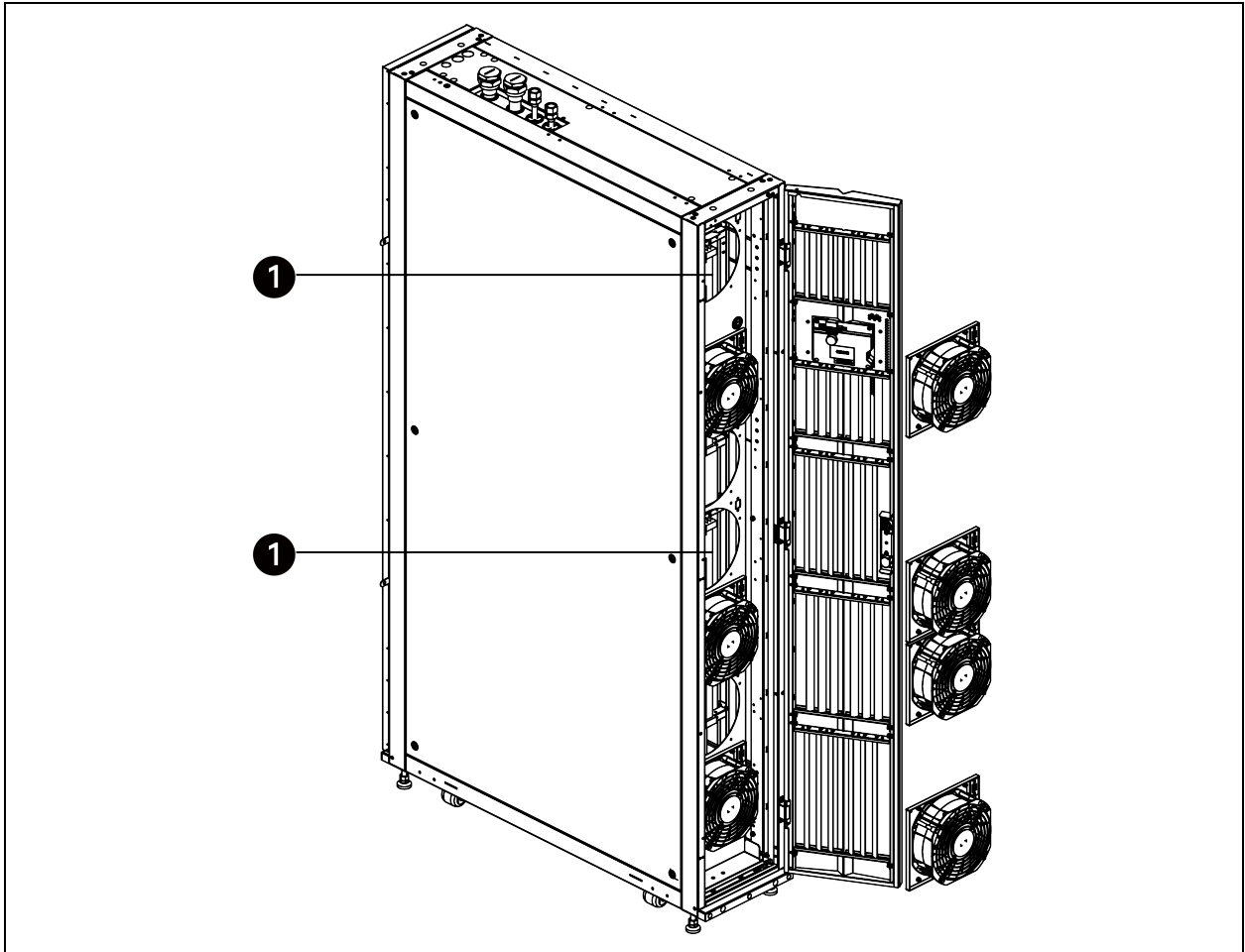
WARNING! Risk of electric shock and contact with hot surface. Can cause injury or death. Switch off all local and remote electrical supplies and verify that power is off with a voltmeter before working inside the unit cabinet.

To maintain the electric heater:

1. Open the rear door and disconnect the main circuit breaker.
2. Open the front door.
3. Remove seven fan frame assemblies.

4. Remove the power supply cables from the terminal block of the electric heater.
5. Remove the M4 x 12 pan head screws from the electric heater. Each electric heater is fixed by four screws (two on top the two on bottom). Take out two electric heaters.
6. Inspect and clean heating elements.
7. Inspect and tighten support hardware.

Figure 9.4 Removing Electric Heater (Only for CRC30)



Item	Description
1	Electric heater

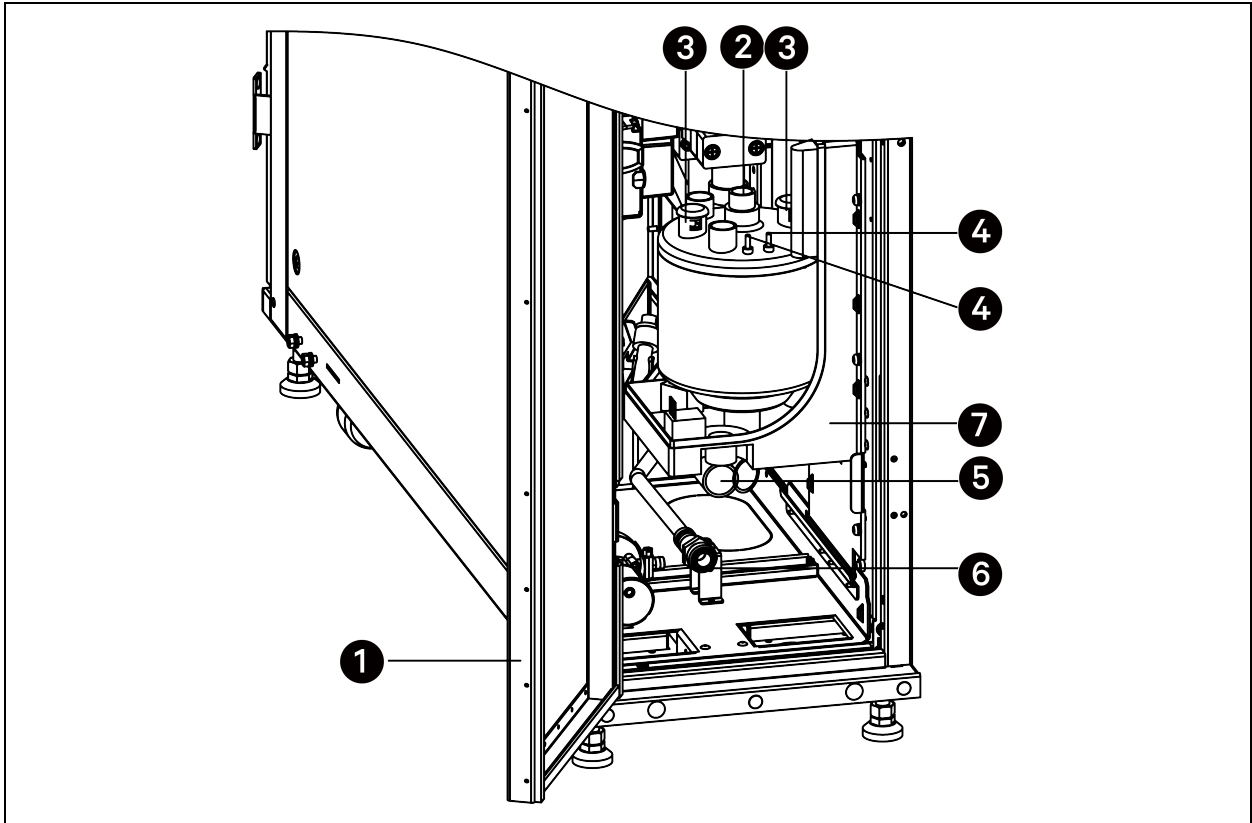
9.9 Humidifier (Only for CRC30)

To replace the humidifier:

1. Open the rear door and remove filters. For details on removing filters, see [Remove filters](#) on page 33.
2. Drain all the water from the cylinder by turning the power switch to 1 on the electrical box near the humidifier.
3. Disconnect the main circuit breaker.
4. Loosen the hose clamp and disconnect stream pipe from the top of the humidifier.
5. Disconnect the electrode wires from the top of the humidifier.

6. Disconnect the level sensor cables from the top of the humidifier.
7. Unscrew the soft pipe from the bottom of the humidifier.
8. Loosen the hose clamp and disconnect the water supply pipe under the humidifier.
9. Loosen the rubber belt around the cylinder and pull the cylinder out of the support bracket.
10. Replace the cylinder.

Figure 9.5 Removing Humidifier (Only for CRC30)



Item	Description	Item	Description
1	Rear door	5	Water drainage connection
2	Steam pipe connection	6	Water inlet pipe connection
3	Electrode wire connection	7	Support bracket for humidifier
4	Level sensor connection		

9.10 Dismantling the unit



CAUTION: To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

NOTICE

Please be environmentally responsible and recycle this product through your recycling facility at its end of life. Do not dispose of this product as unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of waste electrical and electronic equipment (WEEE).

The machine has been designed and built to ensure continuous operation. The working life of some of the main components, such as the fan and the compressor, depends on the operating condition and maintenance that they receive.

9.11 Troubleshooting

The following table lists possible issues and their cause and corrective steps.

Table 9.1 Troubleshooting

Problem	Possible Cause	Corrective Action
Problem	Possible Cause	Corrective Action
Rack temperature is too high	Dirty filters	Replace filters
	Filter clog sensor	Call Vertiv Technical Support
	Incorrect position of remote temperature sensors	Verify that remote temperature sensors are correctly positioned
	Inlet water temperature too high	Check cooling water temperature
	Cold air short-cycling issues	Verify unit positioning/room configuration
	Insufficient room cooling capacity	Reduce rack heat load or add cooling units
	Water-regulating valves issue	Contact your local Vertiv representative
	Unit safety device tripped	
Low supply temperature alarm/room over-cooling	Low return temperature	Place a unit into standby (if applicable)
	Poor airflow	Install blanking panels in open areas of racks
	Inlet water temperature too low	Check cooling water temperature
Low room humidity	Humidifier problem	Check fault LED on humidifier PCB enclosure
	Room humidity problem	Room humidity has exceeded the humidity control band. Verify set points and confirm room is properly sealed

Table 9.1 Troubleshooting (continued)

Problem	Possible Cause	Corrective Action
Unit fan fails to start	Fan is faulty	Contact your local Vertiv representative
	Fan failure alarm	Confirm fan contractor is pulled in Confirm line voltage is present at the fan Contact your local Vertiv representative
Water drops carried by airflow	Room humidity is over acceptable limit	Check room condition
	Condensate pan drain is clogged	Contact your local Vertiv representative
	Problem with humidifier control	
Fans will not modulate from 100%	Fan control not properly set	
Water on the floor around the unit	Unit is not properly leveled	Adjust the leveling feet
	Unit condensate drain pipe is clogged	Remove pipe obstruction
	Leak in the water circuit	Locate and repair the leak
	Piping insulation broken/damaged	Restore insulation integrity
	Leak in the draining circuit	Contact your local Vertiv representative
	Condensate pump is faulty	Contact your local Vertiv representative
	Leak in the humidifier filling hose	
Unsteady air delivery temperature	Incorrect positioning of remote temperature sensors	Verify correct positioning of temperature sensors
	Unbalanced heat load distribution	Redistribute rack heat load
	Remote temperature sensor issue	Contact your local Vertiv representative
	Faulty temperature sensor	
	Unit controller issue	
Local display is not operational but unit operates	Local display cable disconnected	Connect cable
	Local display cable damaged	Replace cable
	Local display configuration lost	Contact your local Vertiv representative
Local display is not operational and unit does not operate	Unit electrical supply is Off	Restore electrical supply
	Unit main circuit breaker is Off	Switch on the unit
	Control board supply issue	Contact your local Vertiv representative
	Control board issue	
Contractor is engaged and there is no heating effect	MCB of the heater is disconnected	Check that voltage of the contractor is within normal range
	Heater is damaged	Replace the heater

Appendices

Appendix A: Technical Support and Contacts

A.1 Technical Support/Service in the United States

Vertiv Group Corporation

24x7 dispatch of technicians for all products.

1-800-543-2378

Liebert® Thermal Management Products

1-800-543-2778

Liebert® Channel Products

1-800-222-5877

Liebert® AC and DC Power Products

1-800-543-2378

A.2 Technical Support/Service in Europe, the Middle East and Africa

Europe, the Middle East and Africa: For technical support, please contact your local Vertiv or Partner office. You can also contact us using the contact details on our website: <https://www.vertiv.com/en-emea/contacts2>

A.3 Locations

United States

Vertiv Headquarters

1050 Dearborn Drive

Columbus, OH, 43085, USA

Europe

Via Leonardo Da Vinci 8 Zona Industriale Tognana

35028 Piove Di Sacco (PD) Italy

Asia

7/F, Dah Sing Financial Centre

3108 Gloucester Road, Wanchai

Hong Kong

Appendix B: Menu Structure

Level 1 Menu	Level 2 Menu	Parameter
Operation Status	Temp/Hmd Information	Return Temp 1
		Return Hmd 1
		Return Temp 2
		Avg Return Temp
Avg Return Hmd		
Supply Temp 1		
Supply Temp 2		
Supply Temp 3		
Avg Supply Temp		
Avg Supply Hmd		
Remote Temp 1		
Remote Temp 2		
Remote Temp 3		
Remote Temp 4		
Remote Temp 5		
Remote Temp 6		
Remote Temp 7		
Remote Temp 8		
Remote Temp 9		
Remote Temp 10		
Avg Remote Temp		
CW Inlet Temp		
CW Outlet Temp		
	System Information	CW Flow
		Air Flow
		Cooling Capacity
	Switch Status	Filter Clogged
		High Condensate Water
		Condensate Water Level
		Remote Shutdown
		Water Leakage
		Heater Failure
		Custom 1
	Humidifier Failure	
	Teamwork Information	Unit 00 Status
		Unit 01 Status
		Unit 02 Status

Level 1 Menu	Level 2 Menu	Parameter
		Unit 03 Status Unit 04 Status Unit 05 Status Unit 06 Status Unit 07 Status Unit 08 Status Unit 09 Status Unit 10 Status Unit 11 Status Unit 12 Status Unit 13 Status Unit 14 Status Unit 15 Status
Alarm Information	Active Alarms	-
	Historical Alarms	-
Temp/Hmd Settings	Temp Settings	Supply Temp SP Return Temp SP Remote Temp SP
	Hmd Settings	Supply Hmd SP
Parameter Settings	Teamwork Settings	Teamwork Mode Unit Address Unit Quantity Standby Quantity Rotation Quantity Rotation Cycle Rotate Interval Daily Rotate At Manual Rotation Active/Standby Delay Cascade Mode Cascade Start Point Cascade Stop Point Cascade Max Point Cascade Start Delay Cascade Stop Delay Cascade Min Time
	Alarm Settings	High Supply Temp Alarm SP Low Supply Temp Alarm SP

Level 1 Menu	Level 2 Menu	Parameter
		High Return Temp Alarm SP
		Low Return Temp Alarm SP
		High Return Hmd Alarm SP
		Low Return Hmd Alarm SP
		High Remote Temp Alarm SP
		Low Remote Temp Alarm SP
		High CW Inlet Temp Alarm SP
		Low CW Inlet Temp Alarm SP
		High CW Outlet Temp Alarm SP
		Low CW Outlet Temp Alarm SP
Alarm Attribute		High Return Temp
		Low Return Temp
		High Return Hmd
		Low Return Hmd
		High Supply Temp
		Low Supply Temp
		High Remote Temp
		Low Remote Temp
		High CW Inlet Temp
		Low CW Inlet Temp
Communication Settings		Monitor Protocol
		Monitor Baudrate
		Monitor Address
Time Settings		Date Settings
		Time Settings
Display Settings		Language
		Buzzer
		Display Address
Password Settings		Level 1 Password
		Level 2 Password
Temp/Hmd Graph	Avg Return Temp	-
	Avg Return Hmd	-
	Avg Supply Temp	-

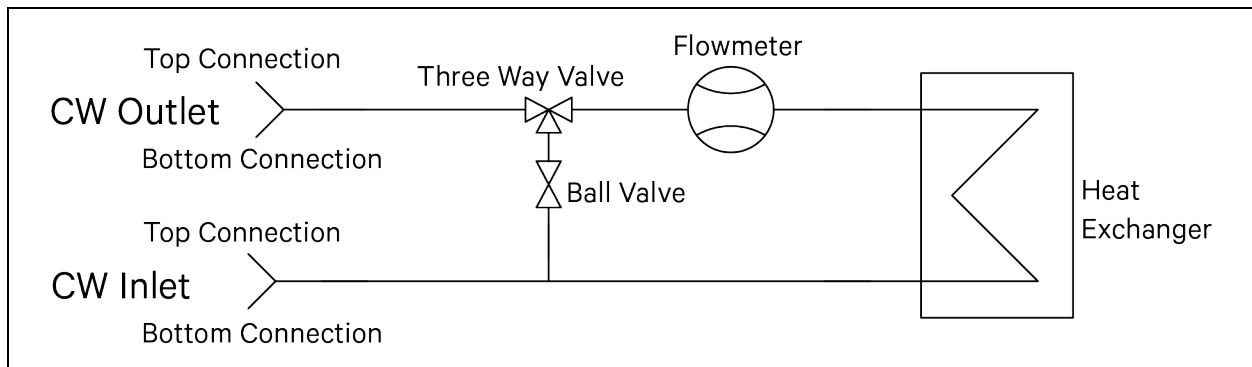
Level 1 Menu	Level 2 Menu	Parameter
	Avg Remote Temp	-
About	Version Information	Controller Firmware Model Controller Firmware Version Display Firmware Model Display Firmware Version
	Service Information	Country Service Enquiries

Appendix C: Alarm Table

Alarm	Description
High Return Temp	The temperature of the return air is higher than the set value.
Low Supply Temp	The temperature of the supply air is lower than the set value.
High Supply Temp	The temperature of the supply air is higher than the set value.
High Return Humidity	The humidity of the return air is higher than the set value.
Low Return Humidity	The humidity of the return air is lower than the set value.
Water Leakage	The condensate water is leaking from the drain pan onto the room floor.
High Condensate Water	The condensate water in the drain pan reaches the highest level.
Filter Clogged	The filter is clogged.
Filter Maintenance	The filter has not been maintained in the specified time period.
Airflow Loss	All fans cannot work normally.
Remote Shutdown	The unit has been shut down remotely.
Primary Unit Loss	The primary unit cannot communicate with secondary units.
Secondary Unit Loss	The secondary unit cannot communicate with the primary unit.
Return Temp Sensor 1 Failure, Return Temp Sensor 2 Failure, Return Temp Sensor 3 Failure	The temperature of the return air is out of the detection range of the return temperature sensor.
Return Humidity Sensor 1 Failure	The humidity of the return air is out of the detection range of the return humidity sensor.
Supply Temp Sensor 1 Failure, Supply Temp Sensor 2 Failure, Supply Temp Sensor 3 Failure	The temperature of the supply air is out of the detection range of the supply temperature sensor.
Remote Temp Sensor 1 Failure, Remote Temp Sensor 2 Failure, Remote Temp Sensor 3 Failure, Remote Temp Sensor 4 Failure, Remote Temp Sensor 5 Failure, Remote Temp Sensor 6 Failure, Remote Temp Sensor 7 Failure, Remote Temp Sensor 8 Failure, Remote Temp Sensor 9 Failure, Remote Temp Sensor 10 Failure	The air temperature is out of the detection range of the remote temperature sensor.
Heater Failure	The heater cannot work normally.
Humidifier Failure	The humidifier cannot work normally.
Unit Address Duplicated	The address of one unit is the same with the address of another unit.
Low Return Temp	The temperature of the return air is lower than the set value.
High Remote Temp	The ambient temperature detected by the remote temperature sensor is higher than the set value.
Low Remote Temp	The ambient temperature detected by the remote temperature sensor is lower than the set value.
10DI Communication Failure	The 10DI board cannot communicate with the iCOM Edge board.
Fan 1 Failure, Fan 2 Failure, Fan 3 Failure, Fan 4 Failure, Fan 6 Failure, Fan 8 Failure, Fan 9 Failure, Fan 10 Failure	The fan cannot work normally.
Custom 1	This alarm can be set as Smoke Sensor Alarm or Fire Sensor Alarm. Or it can be customized.

Alarm	Description
Fire Sensor Alarm	Fire is detected.
Smoke Sensor Alarm	Smoke is detected.
High CW Inlet Temp	The temperature of the inlet chilled water is higher than the set point.
Low CW Inlet Temp	The temperature of the inlet chilled water is lower than the set point.
High CW Outlet Temp	The temperature of the outlet chilled water is higher than the set point.
Low CW Outlet Temp	The temperature of the outlet chilled water is lower than the set point.
CW Inlet Temp Sensor Failure	The temperature of the inlet chilled water is out of the detection range of the inlet CW temperature sensor.
CW Outlet Temp Sensor Failure	The temperature of the outlet chilled water is out of the detection range of the outlet CW temperature sensor.
Static Pressure Sensor Failure	The static pressure is out of the detection range of the static pressure sensor.
CW Flow Meter Failure	The chilled water flow volume is out of the detection range of the CW flow meter failure.

Appendix D: Hydraulic Schematic



This page intentionally left blank

Connect with Vertiv on Social Media



<https://www.facebook.com/vertiv/>



<https://www.instagram.com/vertiv/>



<https://www.linkedin.com/company/vertiv/>



<https://www.twitter.com/Vertiv/>



Vertiv.com | Vertiv Headquarters, 1050 Dearborn Drive, Columbus, OH, 43085, USA

© 2023 Vertiv Group Corp. All rights reserved. Vertiv™ and the Vertiv logo are trademarks or registered trademarks of Vertiv Group Corp. All other names and logos referred to are trade names, trademarks or registered trademarks of their respective owners. While every precaution has been taken to ensure accuracy and completeness here, Vertiv Group Corp. assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Specifications, rebates and other promotional offers are subject to change at Vertiv's sole discretion upon notice.

SL-70748_REVB_01-23