

Technical Manual

Operation and installation cooling units **DTS 34-36x1C**

885505113 Rev 01



Preface

The skills and information provided in the ORIGINAL OPERATING MANUAL are required for assembly and safe operation of Pfannenberg’s DTS 34X1C and 36x1C Series Cooling Units. Read carefully before use, keep for future reference.

Below is the general guidelines for the Series different variants:

DTS 34X1C Series	DTS 3441C	Indoor use	DTS 36X1C Series	DTS 3641C	Indoor use
	DTS 3461C	Outdoor use		DTS 3661C	Outdoor use
	DTS 3481C	Washdown use		DTS 3681C	Washdown use

The information is presented in a brief, clearly arranged format. The chapters are numbered throughout. If you have the operating manual in digital format, the links are interactive.

Pfannenberg cooling units are subject to continuous improvement. Please understand that we reserve the right to make changes to the design, equipment and technology. For this reason, no claims to specific features of the unit can be derived from the content of this operating manual.

Safety Instructions and Symbols



DANGER

Identifies an exceptionally hazardous situation. Severe, irreversible injuries or death will occur if this notice is not observed.



DANGER

Identifies an exceptionally hazardous situation in connection with electrical voltage. Severe, irreversible injuries or death will occur if this notice is not observed.



WARNING

Identifies an exceptionally hazardous situation. Severe, irreversible or deadly injuries could occur if this notice is not observed.



CAUTION

Identifies a hazardous situation. Minor or moderate injuries could occur if this notice is not observed.



NOTICE

Notice is used to address practices not related to physical injury.



This symbol on warning labels on the unit directs the operator or technician to refer to this manual before proceeding.

Digital operating manual:

If you have the operating manual in digital format, the links are interactive.

- Clicking on links takes you to the target text position.
- The table of contents is also interactive.



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1 : INTENDED USE

1.1 General Overview

The attachment and installation of the Pfannenberg DTS series cooling units are intended as stationary cooling units for the dissipation of heat from switch cabinets. NOT TO BE ACCESSIBLE TO THE GENERAL PUBLIC.

For exact specifications on power consumption and performance, see Technical data in section 2.6 of this manual. Use of aluminum filters, fleece filters and fluted filters is possible with an additional adapter. See the section on spare parts and accessories.

- For detailed specifications for the controller, see [Technical data](#) and [Operation](#).

All Pfannenberg cooling units are ROHS & TSCA compliant and free from:

- PCT, asbestos, formaldehyde, cadmium
- Moisture-impairing substances.
- PBT, TTBP, Deca-BDE, PIP-3:1, PCTP, HCBd.

1.2 Duty of the Operator

The operator must ensure that the cooling units are used exclusively as intended and dangers of all types to the life and limb of users or third parties are avoided. In addition, accident prevention regulations and recognized safety rules are to be observed.

The operator must ensure that all users have read and understood this operating manual. Non-observance of this operating manual will void the warranty. The same applies if improper work has been carried out on the unit by the customer and/or third parties without the approval of the manufacturer.

2 : UNIT DESCRIPTION

2.1 Description of Use



WARNING

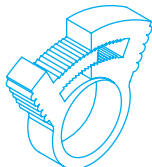
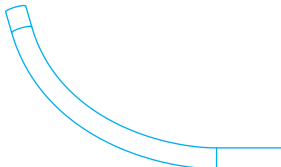
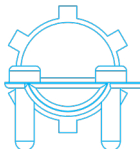
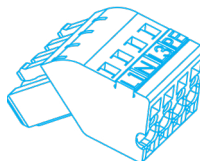
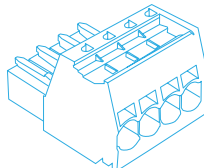
Hazardous due to impermissible use of units

Inappropriate use of the units can cause severe accidents.

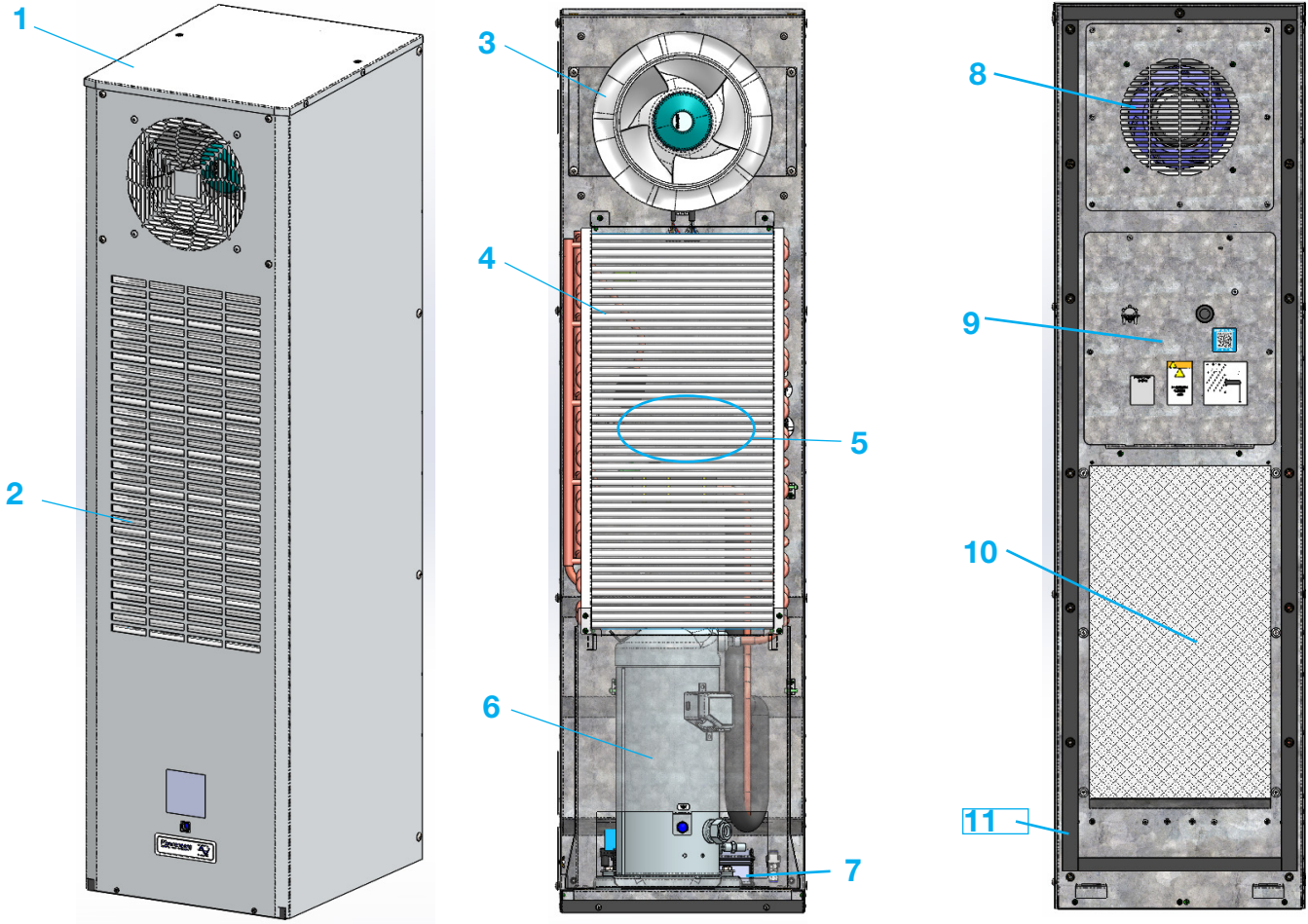
- Cooling units must only be used in stationary operation.
- Pfannenberg DTS series cooling units are designed to dissipate heat from switch cabinets, with intention to maintain the air temperature inside the switch cabinet to allow for normal operation of sensitive components in the switch cabinet.
- These cooling units are only approved for stationary and upright operation with closed switch cabinets. As cooling units with protection rating IP 56, the cooling units are essentially dust-protected and can withstand waterjet spray for a limited time. Limitation: Dust and water can still penetrate after continuous exposure.

2.2 Scope of Delivery

Description	Image	QTY.
DTS 34X1C / 36X1C Cooling Unit with cabinet interface gasket installed		1
Drilling Template DTS 34X1C and DTS 36X1C		1
Manual quick guide		1
CE Letter of Conformity - DTS		1
Hex screw M6x25mm		13
Split lock washer 6mm		15
Washer ID 6.4		15
Slotted Threaded Stud M6x30mm		2
10mm Hex nut M6		2

Description	Image	QTY.
Eye bolt M8		2
Hose clamp D=12-18mm		1
PVC clear hose 12x2mm		270mm
Romex clamp connector 3/8"		1
460V ONLY power connector		1
230V ONLY power connector		1

2.3 Physical Layout



1	Unit cover	7	Condensate evaporation tray with drain
2	Condenser Outlet	8	Evaporator Fan
3	Condenser Fan	9	Connection compartment with cover
4	Condenser	10	Evaporator (internal) with grill outlet
5	High/Low Pressure Switches (internal)	11	Pre-installed gasket
6	Compressor		

2.4 Controller

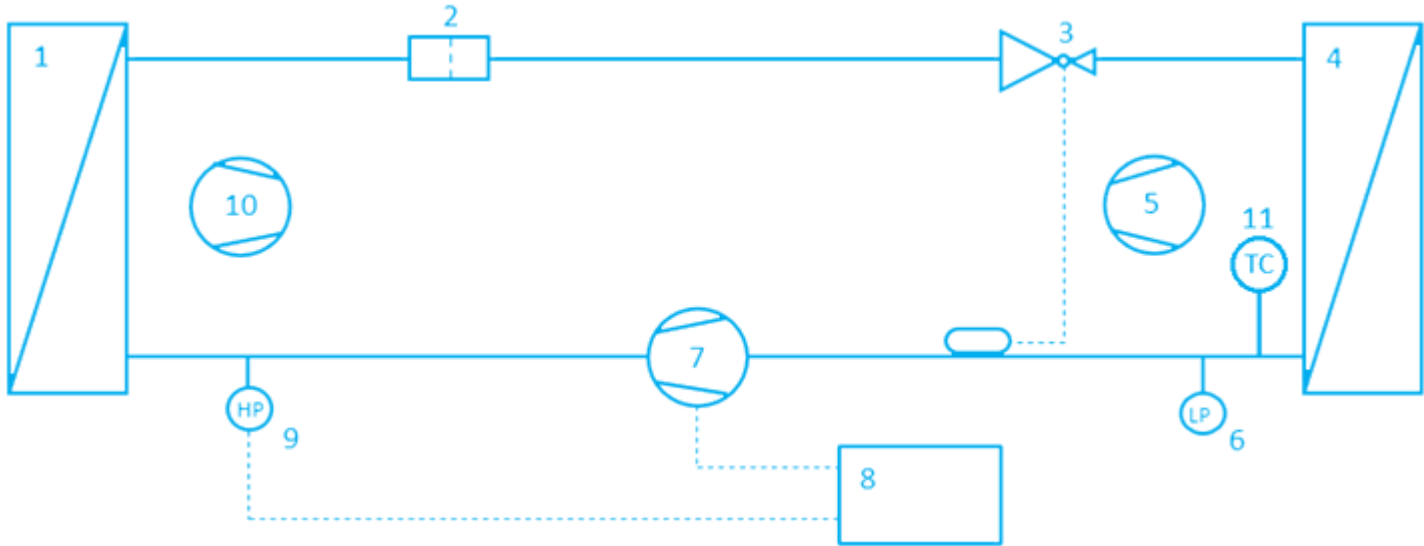
The DTS 34X1C and DTS 36x1C contain an indicator light on the unit to notify the status/activity of the unit.

Refer to the diagram below.

INDICATOR LIGHT GUIDE	
Normal Operation	Constant ON/BLUE
Start-up/ Self Diagnose	Constant OFF
Cooling Unit Fault	Alternate Blinking BLUE / RED
System Alarm	Alternate Blinking BLUE / OFF
Please refer to DTS 3000 Technical Manual for more details or scan QR code for video explanation 8850000236 Rev 01-_ https://youtu.be/-4kluVOSGAY 	

2.5 Refrigeration Circuit

The following lays out the active refrigeration circuit within the cooling unit



The following lays out the active refrigeration circuit within the DTS cooling unit.

1	Condenser	5	Temperature sensor	9	Display Interface
2	Filter drier	6	Evaporator fan	10	High pressure switch
3	Expansion valve	7	Compressor	11	Condenser fan
4	Evaporator coil	8	Electronic controller		

2.6 Safety Concept



WARNING

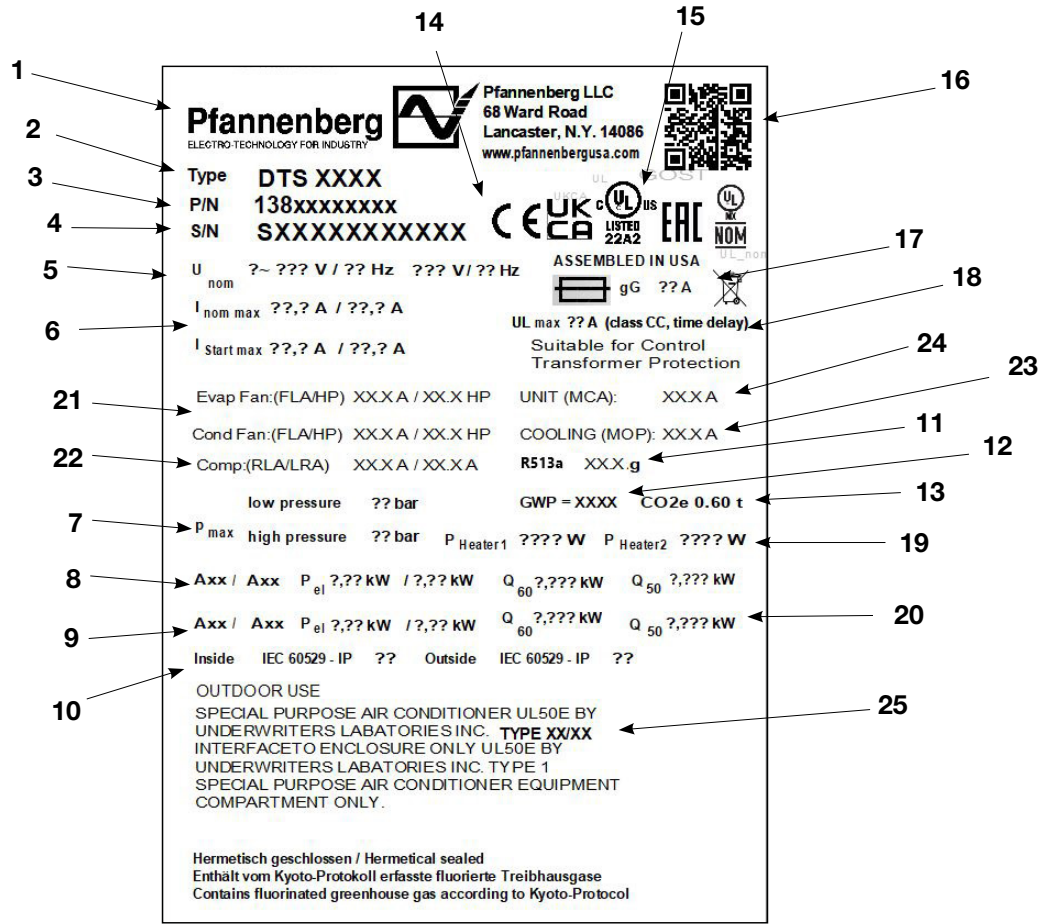
Hazards due to modified safety equipment

Non-functioning or defective safety equipment can cause severe accidents.

- Any changes to the unit, particularly the safety equipment, are prohibited.
- In case of defective safety equipment, shut down the unit and decommission it immediately.
- Fans and compressors are protected from overloading and overheating.
- These cooling units have a pressure switch tested in accordance with UL 60335-2-40. The pressure switch reacts to excessive pressure in the refrigeration system by switching off automatically.

2.7 Type Plate

This figure shows the standard version of type plate.



Item Number	Designation	Item Number	Description
1	Manufacturer logo	14	CE Mark
2	Unit type	15	UL Mark
3	Part number	16	QR Code
4	Serial number	17	Internal Fuse
5	Rated operating voltage & frequency	18	UL Pre-Fuse
6	Current Ratings	19	Heater Power
7	Design Pressures	20	Cooling Capacity
8	Exterior / Interior Temperatures	21	Fan FLA Rating
9	Power ratings	22	Compressor RLA Ratings
10	Protection types (IP, NEMA)	23	Cooling (MOP) Ratings
11	Refrigerant type and weight	24	MCA Ratings
12	Global Warming Potential	25	Protection Types (NEMA)
13	CO2 equivalent value		

Further Explanation of Type Plate Fields

Designation	Explanation
Rated operating voltage & frequency	Criteria for the power supply that must be connected to the unit by the customer.
Current ratings	Inom max: Amperage pull of the cooling unit as a whole at maximum rated ambient condition. Istart max: The maximum amperage pulled for a split second upon compressor start.
Exterior / Interior Temperatures	Temperatures of the external ambient and internal cabinet air for the standard rating conditions where power consumption and cooling capacity were measured.
Power ratings	Power consumption at the standard rating points, and the rated voltage/frequency inputs.
Protection Types	The level of protection from environmental conditions as designated by the NEMA and IP ratings.
Refrigerant type and weight	The type of refrigerant in the unit followed by the mass in grams in the active system / the passive coil, respectively.
Global Warming Potential	A value that compares the refrigerant type to CO2 on the basis of how long it lasts in the atmosphere, how well it absorbs the sun's radiation, and how it reacts with the atmosphere while breaking down.
QR Code	Scan this to register the product to activate warranty.
Internal Fuse	Fuses internal to the cooling unit that protect control or branch circuits.
UL Pre- Fuse	Fuse to be installed by the customer on the cooling unit's incoming power to comply with UL listing.
Heater Power	Maximum heating power of the enclosure heater. (optional)
Cooling capacity	The amount of heat the unit can effectively remove at the standard rating points.

2.8 Technical Data and Spare Parts

Technical data, spare parts, and cutouts can be found on our website here:

<http://pfannenbergusa.com/thermal-management-downloads/>

DTS 34X1C R-134A Series			
Cooling Data	DTS 3441C	DTS 3461C	DTS 3481C
Cooling capacity A35°C(95°F)/A35°C(95°F)	6105 W / 20831 BTU/h	6261 W / 21363 BTU/h	
Cooling capacity A35°C(95°F)/A50°C(122°F)	5085 W / 17351 BTU/h	4914 W / 16767 BTU/h	
Optional at time of Order: Heating capacity (Q0) A-15°C(5°F)/A20°C(68°F)	1500W / 5118 BTU/h OR 2000W / 6824 BTU/h		
Refrigerant type / Refrigerant amount	R-134a: 1850 g / 65.3 oz.		
Adjustable thermostat setting LP2 (factory setting)	+25°C -45°C / (+35°C / +95°F)		
COP / EER A35°C(95°F)/A35°C(95°F)	1.52 / 5.24		
COP / EER A35°C(95°F)/A50°C(122°F)	0.94 / 3.24		
Failure indication: Enclosure internal temp. (factory set)	> +50°C / +122°F		
Ambient air temperature	8°C/46°F...+55°C/+131°F	-4°C / 25°F . . . +55°C / +131°F	
Ambient air temperature - Low Ambient Option	N/A	-25°C / -13°F . . . +55°C / +131°F	
Air volume, external circulation maximum	1359 m³/h / 800 CFM	1240 m³/h / 730 CFM	
Air volume, internal circulation maximum	1385 m³/h / 815 CFM		
Condensation discharge	active evaporation tray; Condensate overflow via hose		
Physical Specifications			
Height	1453 mm / 57.2 inch		
Width	400 mm / 15.75 inch		
Depth	486 mm / 19.13 inch	551 mm / 21.69 inch	
Weight (230V models are 5.1 kg / 11.3 lb lighter)	103 kg / 225 lb	105 kg / 230 lb	
Unit construction	Electrostatic powder coated G90 Galvanized Steel		304 Stainless Steel
Protection classification (against the enclosure, under correct operating conditions)	Type 12 , IP 54 (EN 60529)	Type 3R/4 , IP 55 (EN 60529)	Type 4/4X, IP 55 (EN 60529)
Electrical Data			
Voltage (All Single Phase)	230V 1Φ		400/460V 1Φ
Mains frequency	60 Hz		50/60 Hz
Operating range	207 V .. 253 V		360 V.. 440 V / 414 V .. 506 V
Power consumption @ A35°C(95°F)/A35°C(95°F)	3740 W		4000 W
Nominal Running Current	16.6 A		5 A
Maximum starting current	101 A		45A
Recommended Maximum Fuse Size	35 A (Time Delay Fuse Class CC)		15 A (Time Delay Fuse Class CC)
Short-Circuit Current rating (SCCR)	5 kA		
Minimum Circuit Ampacity (MCA)	19.7		4.1/6.4
Certifications	CE, cULus		

DTS 34X1C R-513A Series			
Cooling Data	DTS 3441C	DTS 3461C	DTS 3481C
Cooling capacity A35°C(95°F)/A35°C(95°F)	6192 W / 21128 BTU/h	6261 W / 21363 BTU/h	
Cooling capacity A35°C(95°F)/A50°C(122°F)	5334 W / 18200 BTU/h	5267 W / 17972 BTU/h	
Optional at time of Order: Heating capacity (Q0) A-15°C(5°F)/A20°C(68°F)	1500W / 5118 BTU/h OR 2000W / 6824 BTU/h		
Refrigerant type / Refrigerant amount	R-513a: 1400 g / 49.4 oz.		
Adjustable thermostat setting LP2 (factory setting)	+25°C -45°C / (+35°C / +95°F)		
COP / EER A35°C(95°F)/A35°C(95°F)	1.53 / 5.27		
COP / EER A35°C(95°F)/A50°C(122°F)	0.98 / 3.38		
Failure indication: Enclosure internal temp. (factory set)	> +50°C / +122°F		
Ambient air temperature	8°C/46°F...+55°C/+131°F	-4°C / 25°F . . . +55°C / +131°F	
Ambient air temperature - Low Ambient Option	N/A	-25°C / -13°F . . . +55°C / +131°F	
Air volume, external circulation maximum	1359 m³/h / 800 CFM	1240 m³/h / 730 CFM	
Air volume, internal circulation maximum	1385 m³/h / 815 CFM		
Condensation discharge	active evaporation tray; Condensate overflow via hose		
Physical Specifications			
Height	1453 mm / 57.2 inch		
Width	400 mm / 15.75 inch		
Depth	486 mm / 19.13 inch	551 mm / 21.69 inch	
Weight (230V models are 5.1 kg / 11.3 lb lighter)	103 kg / 225 lb	105 kg / 230 lb	
Unit construction	Electrostatic powder coated G90 Galvanized Steel		304 Stainless Steel
Protection classification (against the enclosure, under correct operating conditions)	Type 12 , IP 54 (EN 60529)	Type 3R/4 , IP 55 (EN 60529)	Type 4/4X, IP 55 (EN 60529)
Electrical Data			
Voltage (All Single Phase)	230V 1Φ		400/460V 1Φ
Mains frequency	60 Hz		50/60 Hz
Operating range	207 V .. 253 V		360 V.. 440 V / 414 V .. 506 V
Power consumption @ A35°C(95°F)/A35°C(95°F)	4044 W		4163 W
Nominal Running Current	18 A		5 A
Maximum starting current	105 A		44A
Recommended Maximum Fuse Size	50 A (Time Delay Fuse Class CC)		15 A (Time Delay Fuse Class CC)
Short-Circuit Current rating (SCCR)	5 kA		
Minimum Circuit Ampacity (MCA)	22		9/11.4
Certifications	CE, cULus		

2.8 Technical Data and Spare Parts

Technical data, spare parts, and cutouts can be found on our website here:

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DTS 36X1C R-134A Series			
Cooling Data	DTS 3641C	DTS 3661C	DTS 3681C
Cooling capacity A35°C(95°F)/A35°C(95°F)	6947 W / 23701 BTU/h	7109 W / 24257 BTU/h	
Cooling capacity A35°C(95°F)/A50°C(122°F)	6557 W / 22373 BTU/h	6427 W / 21929 BTU/h	
Optional at time of Order: Heating capacity (Q0) A-15°C(5°F)/A20°C(68°F)	1500W / 5118 BTU/h OR 2000W / 6824 BTU/h		
Refrigerant type / Refrigerant amount	R-134a: 1850 g / 65.3 oz.		
Adjustable thermostat setting LP2 (factory setting)	+25°C -45°C / (+35°C / +95°F)		
COP / EER A35°C(95°F)/A35°C(95°F)	1.52 / 5.24		
COP / EER A35°C(95°F)/A50°C(122°F)	0.94 / 3.24		
Failure indication: Enclosure internal temp. (factory set)	> +50°C / +122°F		
Ambient air temperature	8°C/46°F...+55°C/+131°F	-4°C / 25°F . . . +55°C / +131°F	
Ambient air temperature - Low Ambient Option	N/A	-25°C / -13°F . . . +55°C / +131°F	
Air volume, external circulation maximum	2243 m³/h / 1320 CFM	2107 m³/h / 1240 CFM	
Air volume, internal circulation maximum	1385 m³/h / 815 CFM		
Condensation discharge	active evaporation tray; Condensate overflow via hose		
Physical Specifications			
Height	1453 mm / 57.2 inch		
Width	400 mm / 15.75 inch		
Depth	486 mm / 19.13 inch	551 mm / 21.69 inch	
Weight (230V models are 5.1 kg / 11.3 lb lighter)	105 kg / 230 lb	105 kg / 235 lb	
Unit construction	Electrostatic powder coated G90 Galvanized Steel		304 Stainless Steel
Protection classification (against the enclosure, under correct operating conditions)	Type 12 , IP 54 (EN 60529)	Type 3R/4 , IP 55 (EN 60529)	Type 4/4X, IP 55 (EN 60529)
Electrical Data			
Voltage (All Single Phase)	230V 1Φ		400/460V 1Φ
Mains frequency	60 Hz		50/60 Hz
Operating range	207 V .. 253 V		360 V.. 440 V / 414 V .. 506 V
Power consumption @ A35°C(95°F)/A35°C(95°F)	3765 W		3983 W
Nominal Running Current	17 A		6 A
Maximum starting current	102 A		46A
Recommended Maximum Fuse Size	35 A (Time Delay Fuse Class CC)		15 A (Time Delay Fuse Class CC)
Short-Circuit Current rating (SCCR)	5 kA		
Minimum Circuit Ampacity (MCA)	20.3		4.7/6.7
Certifications	CE, cULus		

DTS 36X1C R-513A Series			
Cooling Data	DTS 3641C	DTS 3661C	DTS 3681C
Cooling capacity A35°C(95°F)/A35°C(95°F)	6941 W / 23683 BTU/h	7132 W / 24336 BTU/h	
Cooling capacity A35°C(95°F)/A50°C(122°F)	6493 W / 22169 BTU/h	6422 W / 21912 BTU/h	
Optional at time of Order: Heating capacity (Q0) A-15°C(5°F)/A20°C(68°F)	1500W / 5118 BTU/h OR 2000W / 6824 BTU/h		
Refrigerant type / Refrigerant amount	R-513a: 1775 g / 62.6 oz.		
Adjustable thermostat setting LP2 (factory setting)	+25°C -45°C / (+35°C / +95°F)		
COP / EER A35°C(95°F)/A35°C(95°F)	1.56 / 5.38		
COP / EER A35°C(95°F)/A50°C(122°F)	0.96 / 3.3		
Failure indication: Enclosure internal temp. (factory set)	> +50°C / +122°F		
Ambient air temperature	8°C/46°F...+55°C/+131°F	-4°C / 25°F . . . +55°C / +131°F	
Ambient air temperature - Low Ambient Option	N/A	-25°C / -13°F . . . +55°C / +131°F	
Air volume, external circulation maximum	2243 m³/h / 1320 CFM	2107 m³/h / 1240 CFM	
Air volume, internal circulation maximum	1385 m³/h / 815 CFM		
Condensation discharge	active evaporation tray; Condensate overflow via hose		
Physical Specifications			
Height	1453 mm / 57.2 inch		
Width	400 mm / 15.75 inch		
Depth	486 mm / 19.13 inch	551 mm / 21.69 inch	
Weight (230V models are 5.1 kg / 11.3 lb lighter)	105 kg / 230 lb	107 kg / 235 lb	
Unit construction	Electrostatic powder coated G90 Galvanized Steel		304 Stainless Steel
Protection classification (against the enclosure, under correct operating conditions)	Type 12 , IP 54 (EN 60529)	Type 3R/4 , IP 55 (EN 60529)	Type 4/4X, IP 55 (EN 60529)
Electrical Data			
Voltage (All Single Phase)	230V 1Φ		400/460V 1Φ
Mains frequency	60 Hz		50/60 Hz
Operating range	207 V .. 253 V		360 V.. 440 V / 414 V .. 506 V
Power consumption @ A35°C(95°F)/A35°C(95°F)	3765 W		3983 W
Nominal Running Current	17 A		6 A
Maximum starting current	132 A		46 A
Recommended Maximum Fuse Size	50 A (Time Delay Fuse Class CC)		15 A (Time Delay Fuse Class CC)
Short-Circuit Current rating (SCCR)	5 kA		
Minimum Circuit Ampacity (MCA)	30.4		10/11.9
Certifications	CE, cULus		

DTS 34 36 Spare Parts List

DTS 34x1C – R134a

Evaporator Fan: 18886000027
Condenser Fan: 18886000027
Compressor 230V: 18881200099
Compressor 460V: 18881200100
TXV: 18850200075
Evaporator Fan Cap: 18884000008
Condensor Fan Cap: 18884000008
Filter Drier: 18885000002
230V Compressor Start Pack: 18881200103
Sump Heater: 18883000037
Compressor Contactor: 18830670139
Condensate Evaporator: 18813000024
Low Pressure Switch: 18813000016
High Pressure Switch: 18830600132
PCB Single Phase 230V: 18800500217
PCB Three Phase 460V: 18880500217
Transformer: 18883000005
Condenser Coil: 18814000044
Accessory Bag 230V: 18800700103
Accessory Bag 460V: 18800700102
Indoor Cover: 18800720293
Outdoor Cover: 18800720295
Washdown Cover: 18800720297
Aluminum External Filter: 18380000023
Indoor Filter Kit Light Gray: 18881500023
Indoor Filter Kit Gray: 18881500024

DTS 34x1C - R513a

Evaporator Fan: 18886000027
Condenser Fan: 18811000027
Compressor 230V: 18812000166
Compressor 460V: 18812000167
TXV: 18850200075
Evaporator Fan Cap: 18884000008
Condenser Fan Cap: 18884000008
Filter Drier: 18885000002
230V Compressor Start Pack: 18812000168
Sump Heater: 18812000143
Compressor Contactor: 18830670139
Condensate Evaporator: 18813000024
Low Pressure Switch: 18813000016
High Pressure Switch: 18830600132
PCB Single Phase 230V: 18800500217
PCB Three Phase 460V: 18880500217
Transformer: 18883000005
Condenser Coil: 18814000044
Accessory Bag 230V: 18800700103
Accessory Bag 460V: 18800700102
Indoor Cover: 18800720293
Outdoor Cover: 18800720295
Washdown Cover: 18800720297
Aluminum External Filter: 18380000023
Indoor Filter Kit Light Gray: 18881500023
Indoor Filter Kit Gray: 18881500024

DTS 36x1C – R134a

Evaporator Fan: 18886000027
Condenser Fan: 18811000034
Compressor 230V: 18881200099
Compressor 460V: 18881200100
TXV: 18850200075
Evaporator Fan Cap: 18884000008
Filter Drier: 18885000002
230V Compressor Start Pack: 18881200103
Sump Heater: 18883000037
Compressor Contactor: 18830670139
Condensate Evaporator: 18813000024
Low Pressure Switch: 18813000016
High Pressure Switch: 18830600132
PCB Single Phase 230V: 18800500217
PCB Three Phase 460V: 18880500217
Transformer: 18883000005
Condenser Coil: 18814000044
Accessory Bag 230V: 18800700103
Accessory Bag 460V: 18800700102
Indoor Cover: 18800720298
Outdoor Cover: 18800720300
Washdown Cover: 18800720302
Aluminum External Filter: 18380000023
Indoor Filter Kit Light Gray: 18881500023
Indoor Filter Kit Gray: 18881500024

DTS 36x1C – R513a

Evaporator Fan: 18886000027
Condenser Fan: 18811000034
Compressor 230V: 18812000141
Compressor 460V: 18812000142
TXV: 18850200075
Evaporator Fan Cap: 18884000008
Filter Drier: 18885000002
230V Compressor Start Pack: 18812000147
Sump Heater: 18812000143
Compressor Contactor: 18830670139
Condensate Evaporator: 18813000024
Low Pressure Switch: 18813000016
High Pressure Switch: 18830600132
PCB Single Phase 230V: 18800500217
PCB Three Phase 460V: 18880500217
Transformer: 18883000005
Condenser Coil: 18814000044
Accessory Bag 230V: 18800700103
Accessory Bag 460V: 18800700102
Indoor Cover: 18800720298
Outdoor Cover: 18800720300
Washdown Cover: 18800720302
Aluminum External Filter: 18380000023
Indoor Filter Kit Light Gray: 18881500023
Indoor Filter Kit Gray: 18881500024

3 : ASSEMBLY AND INITIAL COMMISSIONING

Safety Information



DANGER

Danger of fatal injury due to electric shock

- Parts may be under voltage when the unit is opened and can cause an electric shock if touched.
- Observe the following points when working on the open unit:
 - Work on the electrical system may only be carried out by authorized electricians.
 - Before commencing work on the electrical system, switch off the power supply, check that no voltage is applied.
 - Secure against being switched back on.
 - Cordon off the working area and post a warning sign.
 - The electrical connection must be made according to nationally valid regulations.



CAUTION

Danger of crushing!

Danger of crushing between the switch cabinet and the unit frame during assembly of the unit.

- Do not place any body parts between the frame and the unit cut-out.
- Work carefully and wear cut-proof gloves.



NOTICE

Damage to the switch cabinet equipment by metal chips

Metal chips can get into the switch cabinet when fitting the assembly cut-outs.

- Protect the switch cabinet from contamination during assembly and use protective covers.

3.1 Storage

- Do not expose the cooling unit to temperatures below -40°C or above +70 °C during storage.
- Unit must be in the upright position.
- The warranty will no longer apply if these instructions are not observed.

3.2 Transport



WARNING

Hazards due to uncontrolled movements

Improper securing of the unit can result in severe accidents.

- Loading must only be carried out by trained, qualified personnel.
- Lash the unit correctly for transport on a truck or trailer.
- Only use lashing straps with an adequate rated strength.
- Use slip-resistant materials for securing, e.g. anti-slip mats.
- When loading by crane, do not walk or stand under the raised units



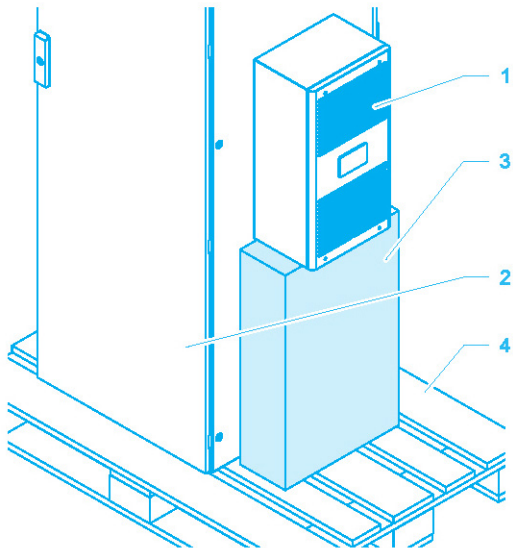
NOTICE

Danger of material damage during transport and setting down of the units.

- Improper device securing or uncontrolled movements can cause damage.
- Exercise maximum caution during movement and transport of the units.
- See Technical Data for unit weight.

Requirements:

- Cooling units must be in the packaging provided by the factory, banded to pallet.
- Unit must be in the upright position.
- If the unit is being shipped after installation to an enclosure, it shall be packed with a support to prevent mounting failure.
See figure below.



1	Cooling unit
2	Enclosure
3	Support structure made of squared timber or boards
4	Palette large enough to prevent tipping

REQUIRED TOOLS AND MATERIAL:

- Lashing straps, loading crane, if applicable

PROCEDURE:

- Always raise cooling units by the pallet they are secured to from the factory.
- Always raise cooling units slowly and evenly and set down safely.
- Secure correctly for transport with lashing straps.
- Verify no physical damage to cooling unit.

Crane transport:



DANGER

Danger to life due to suspended loads. Tipping or falling loads. Can cause severe to fatal injuries.

- Never stand beneath suspended loads.
- Only use approved lifting gear and slings which are designed for the total weight of the attached load.
- Only use slings/load handling devices in technically perfect condition.
- Observe the sling points and center of gravity of the load.
- Secure loads with suitable devices.



WARNING

Risk of injury due to improper crane transport. Moving switch cabinets with integrated cooling units can lead to accidents.

- Lifting by M8 jack rings is only permitted for the cooling unit.
- Make sure that jack rings and unit threads are not damaged and deformed.
- Use only jack rings with sufficient thread length in accordance with DIN 580 and check their fit.

3.3 Unpacking



WARNING

Hazard of accidents due to the heavy weight of the units

Uncontrolled movements of the units during assembly can cause accidents.

- Use suitable lifting equipment and secure units to prevent accidents.
- Secure assembled components.



CAUTION

Hazard of injury due to sharp edges

- For manufacturing reasons, the metal edges of the unit may have burrs.
- Wear gloves during service and assembly work.



NOTICE

- Perform a visual inspection for transport damage when unpacking the cooling units. Take note of any loose parts, dents, scratches, visible loss of oil etc.
- Inspect and secure the packaging material for any loose functional parts before disposal.
- Report any damages to the freight carrier immediately. Observe the “Terms for Cases of Damage”.
- When reporting, use precise information about defects, including possible photos must be provided for the handling of warranty claims. Always specify the type designation and serial number.

Unpacking Procedure:

- Cut banding straps.
- Remove staples from bottom.
- Pull box sleeve up and off the unit.
- Remove protective cardboard collar, careful not to damage interface gasket.
- Employ team lift, or replace the bolts on the top of the unit with the bolts from the access pack to use a crane, to lift the unit out of the bottom packaging and off the pallet.

3.4 Assembly



CAUTION

Hazard of crushing during assembly of the unit

There is a hazard of crushing between the switch cabinet and frame of the unit during assembly.

- Keep body parts out of the space between the frame and unit cut-out.
- Work carefully and wear gloves.
- Employ crane or team lift to position unit.
- Secure the cabinet against tipping.
- If mounting on a door, the hinges must be able to support the weight of the unit in the open position.

3.4.1 General Assembly Requirements

- Select an assembly location for the switch cabinet which will guarantee adequate ventilation of the cooling unit.
- Installed components in the switch cabinet must not impede air circulation.
- Protect the installation location from heavy contamination with covers.
- Inside of the switch cabinet a minimum clearance of 200mm between the back of the cooling unit to the nearest component must be observed to prevent obstruction of airflow and allow access to electrical panel of cooling unit during service and maintenance.
- If ducting is used, contact Pfannenberg for information
- Installed location should not be accessible to the general public.

Make cut-outs for the DTS 34-36x1C cooling unit

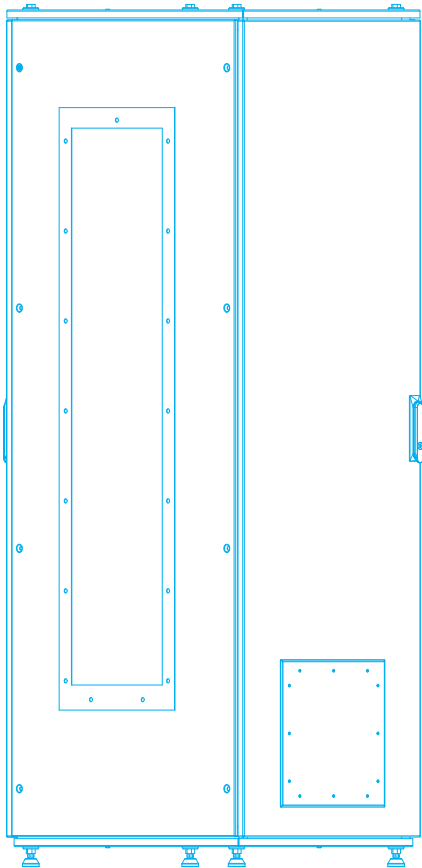
REQUIRED TOOLS AND MATERIAL:

- Saw or switch cabinet cutter
- Drill and 5/16" (8mm) drill bit
- Protective covers
- Accessory kit: Threaded bolts, screws, nuts, washers, cut out template. Eye bolts optional for crane lift.

PROCEDURE

Cabinet Cut Out

- Use a protective cover to protect the switch cabinet from chips.
- Use the provided template to mark the prescribed cut out.
Check for level square and center, if applicable.
- Cut along lines and drill holes at center points.
- Deburr the cut edges.
- Remove chips and assembly waste from the switch cabinet



DTS COOLING UNIT INSTALLATION

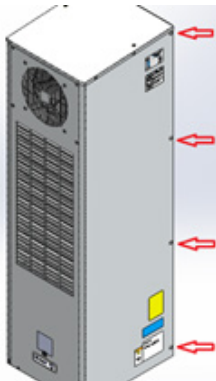
PROCEDURE

• Screw in the two supplied threaded studs (accessory kit) in the upper fastening points of the DTS cooling unit	
• Follow crane lift instructions for eye bolts, or team lift into position. • Be sure to replace the bolts and washers removed to ensure stated IP protection.	
• Suspend the cooling unit on the switch cabinet with the threaded studs installed from outside. • Install flat washer, lock washer and nut to each stud.	
• Thread and tighten the screws on the DTS cooling unit onto the switch cabinet interior. Use the supplied screws, nuts and washers (accessory kit) to fasten the unit. Firmly tighten the screw fasteners to 12 ft · lbf, or until gasket is tightly compressed.	

CONDENSATE DRAIN HOSE INSTALLATION

 NOTICE

- Condensate may drain from unit and cause slippery conditions
- Be sure to install condensate drain tube to collect or manage water draining from unit.

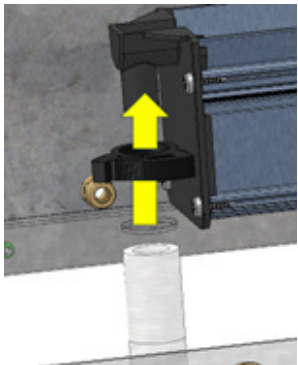
• Remove (2) lifting lug screws from top of unit	
• Remove (8) screws from sides [4 each side]	
• Remove (2) screws from bottom of front face of the cover	

 CAUTION

- If completely removing cover, grounding cable must first be disconnected from the tab attached to the cover, to avoid damage to the cable connection.
- Use plyers to pull connection from its base.



- Push the plastic tube through the hole in the baseplate, and the hose clamp. Then push the tube over the nipple on the condensate tray.



- Position hose clamp over the nipple so that there is still some tube showing at the end.
- Squeeze hose clamp by its tabs so that it is tight and secure to the nipple.



- Re-install cover.

 NOTICE

- Be sure to reconnect display and cover grounding wire if removed.

• **The DTS cooling unit is now fully installed and ready for electrical connection; see Electrical connection.**

3.5 Electrical Connection

3.5.1 Main supply connection

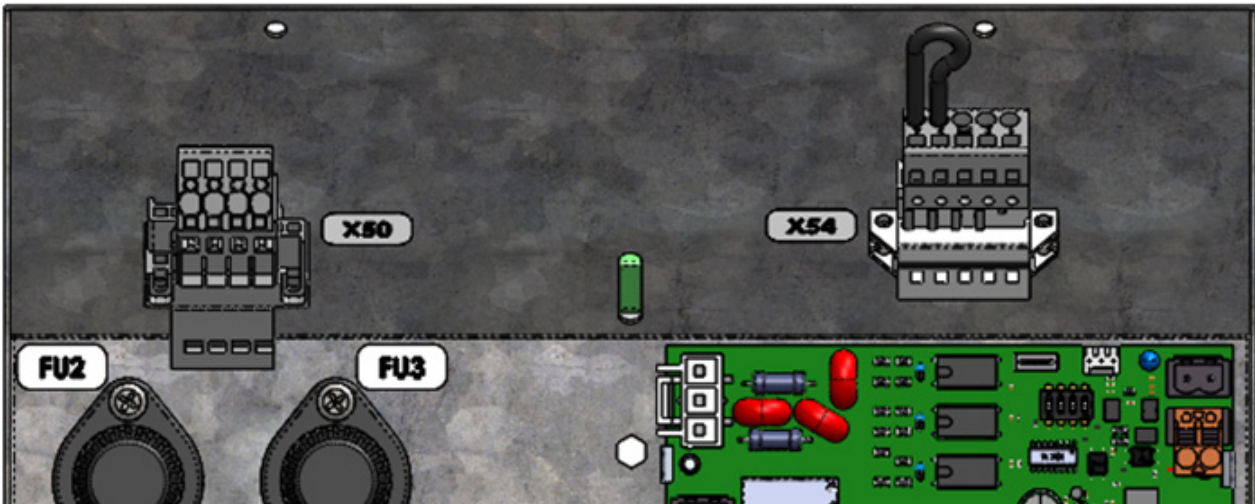


- Danger of fatal injury due to electric shock!**
- Work on electrical connections must be carried out exclusively by trained, qualified electricians
 - Equipment grounding must be provided in accordance with NFPA 79 chapter 8.2 or DIN EN 60204-1, chapter 8.2.
 - Each element of electrical equipment must be connected to the equipment grounding.
 - If parts are removed, e.g. for maintenance work, ensure that equipment grounding is not interrupted for the remaining parts.

- Electric arcing can cause electric shock and burns.**
- The plug connector for mains connection must never be plugged in or disconnected under load/voltage.
 - Before assembly, de-energize all supply lines to the separate fuse or a main switch, disconnect the system and secure to prevent re-connection of the Cooling unit electrical connection
 - Switch off the power supply and secure against switching back on before working on the mains connection.
 - Work on the connectors must only be carried out under sufficient lighting.



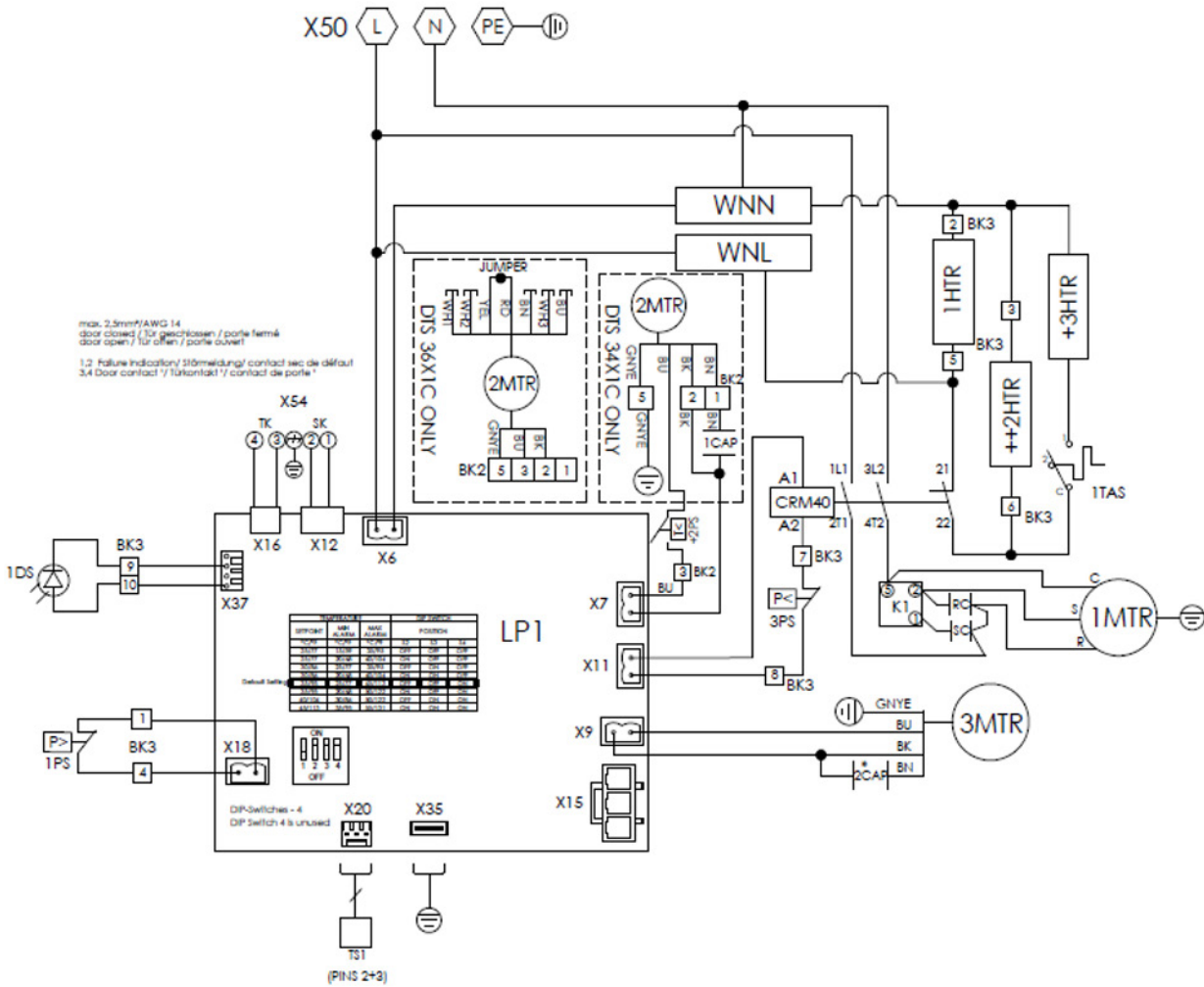
- Risk of fire!**
- An incorrect cable cross-section will cause the cable to overheat. Scorched insulation can cause fires.
- The cable cross-section matches the output required for the power consumption and is 1.5 – 2.5mm² or AWG 16 to AWG 14. 5.26mm² or AWG10 for 230V units.
 - Applying incorrect power will void warranty and can cause operational issues.



X50 – Mains Power Strip
X54 – Fault Signal & Door Contact Plug

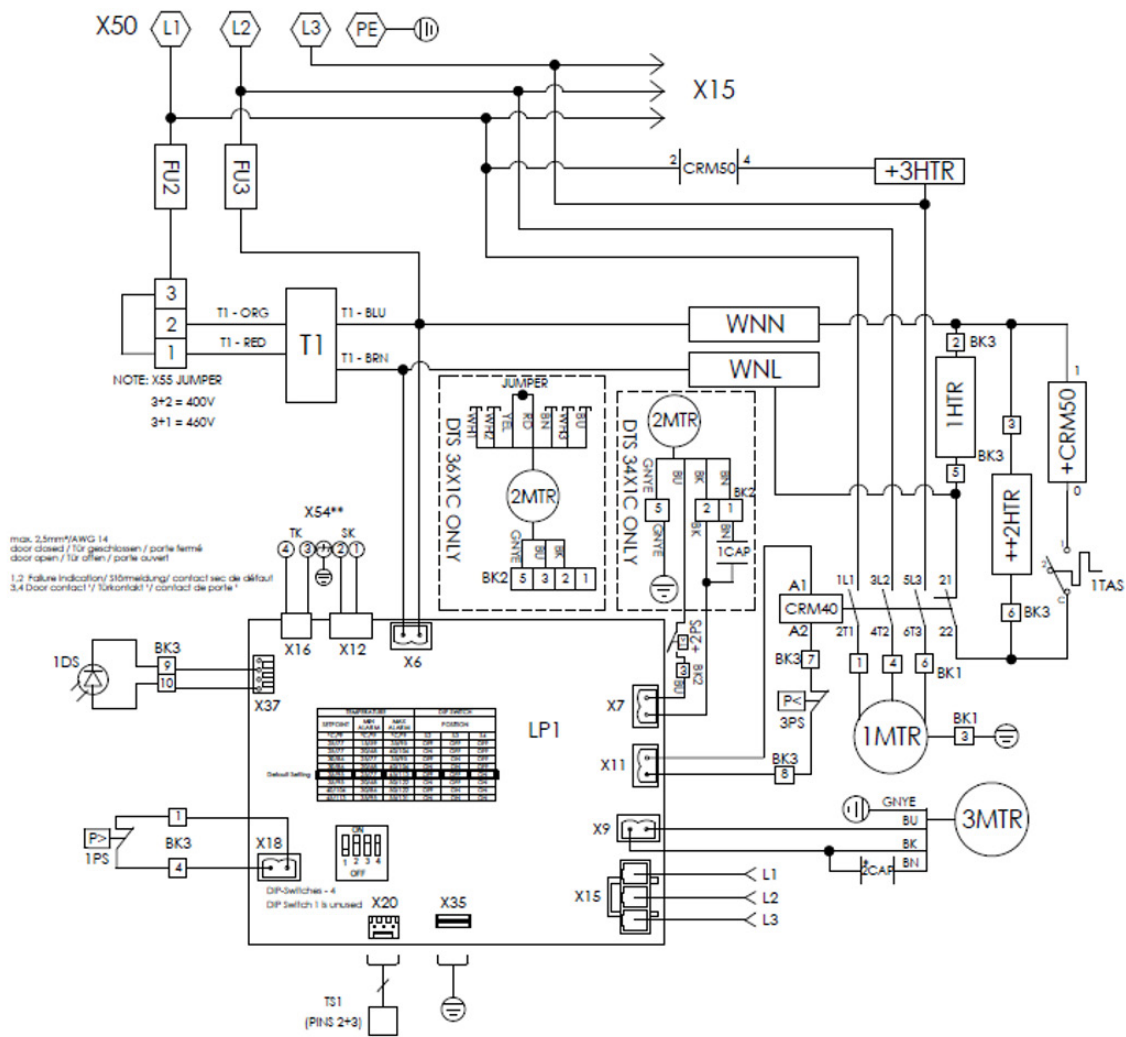
3.5.2 Standard controller (SC) electrical circuit diagram

DTS 34X1C and 36X1C 230V



Circuit Diagram Legend					
2CAP	Evaporator run capacitor	1HTR	Condensate evaporating heater	S2	Door contact
CRM20	Compressor Sump Heater	2HTR	Compressor sump heater	TS1	Thermostat
CRM40	Compressor Relay	3HTR	Enclosure Heater (Low Ambient Option)	X40/42	Earthing Connection
1PS	High Pressure Switch	LP1	PCB	X50	Power Supply
2PS	Fan Cycle Switch	1MTR	Compressor	X54	Door Contact
3PS	Low Pressure Switch	2MTR	Condenser Fan	S1	Start Cap.
1DS	Operating Indicator	3MTR	Evaporator Fan	K1	Potential Relay
1CAP	Condenser fan run capacitor (DTS 34 only)	(≡)	Earthing Connection	R-CAP	Run Cap.

34X1C and 36X1C 460V



Circuit Diagram Legend

2CAP	Evaporator run capacitor	3HTR	Heater	TS1	Thermostat
CRM40	Compressor Relay	LP1	PCB	X50	Power Supply
FU2	Fuse	OLR	Overload Relay	X54	Door Contact
FU3	Fuse	TS1	Temperature Sensor	X55	Transformer Switch
1PS	High Pressure Switch	1MTR	Compressor	CRM50	Heater Relay
2PS	Fan Cycle Switch	2MTR	Condenser Fan	1TAS	Heater Thermostat
3PS	Low Pressure Switch	3MTR	Evaporator Fan	Op. 1	Low Ambient Units
1DS	Operating Indicator	S1	Door Contact	Op. 2	Outdoor Units
1HTR	Condensate evaporating heater	SK	Failure Indicator	X35	Controller Grounding
2HTR	Compressor sump heater	T1	Transformer	()	Earthing Connection
1CAP	Condenser fan run capacitor (DTS 34 only)				

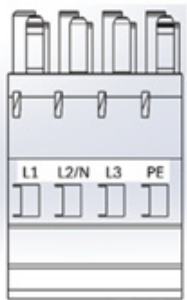
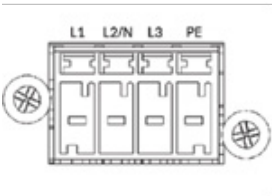
Electrical connection of the cooling unit

The device corresponds to overvoltage category II.

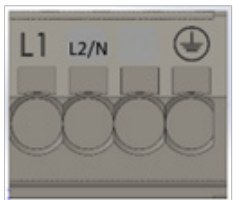
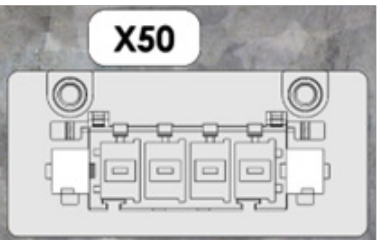
Follow these general requirements to ensure safe and reliable operation of the cooling unit:

- Connection of an upstream temperature control on the feed side is prohibited.
- Connect the fuse or circuit breaker specified on the type plate as line protection to the voltage mains.
- Always connect the cooling unit to the mains via a disconnecting device (switch/contactor).

460V



230V



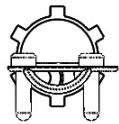
Refer to Connection Diagrams:

	230V	400/460V
L1	L	L1
L2/N	L2/N	L2
L3	N/A	L3
PE		

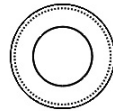
Procedure

1. Connect to the mains according to the circuit diagram, see chapter “Electrical circuit diagram”, Page 27 (230V) and Page 28 (460V).
2. Use at minimum 14AWG for 460V unit, 10 AWG for 230V unit. Feed cable through Romex clamp in panel cover. Strip insulation back 1/2” to 9/16” or 13 – 15mm from ends.

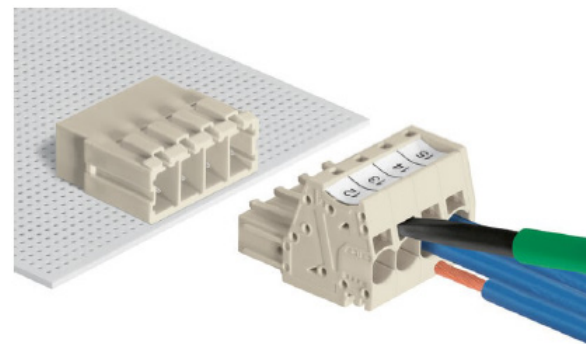
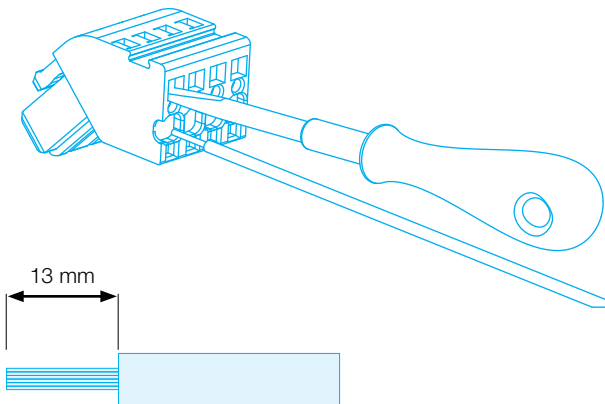
Main Power Connection



Door Alarm / Switch Connection



3. Open the cage clamp terminal of the mating plug with the flat screwdriver and connect the cables on the mating plug.
 - Firmly insert the screwdriver into the cage clamp terminal. Never turn, this will damage the cage clamp terminal.



4. With power switched off, plug the mating plug into the mains plug at X50.
5. Tighten Romex clamp. Leave some slack inside the E-box. Insert the tabs on the E-panel cover into the slots at the bottom of the E-Box and secure the cover in place with (4) M4 screws.
6. Before switching on, make sure that the mains voltage and upstream fuse matches the data on the type plate.
7. The cooling unit is now connected electrically, and ready to operate.

3.5.3 Door Contact Switch



WARNING

Hazard due to connection of external voltage at the input of the door contact

External voltage can cause severe accidents.

- Connection of external voltage to the input for the door circuit will cause damage to the unit.
- Installation of a door contact switch increases safety and prevents increased accumulation of condensate.
- If a door contact switch has not been connected, the connection contact (X54 / S1) must be jumped with the 16AWG supplied in access pack.

Fitting a door contact switch increases safety and prevents increased condensate formation. The door contact switch switches off the cooling unit motors (fan, compressor) when the switch cabinet is opened. The door contact switch must interrupt the connection between the terminals X54:3 and X54:4 when the switch cabinet door is open.

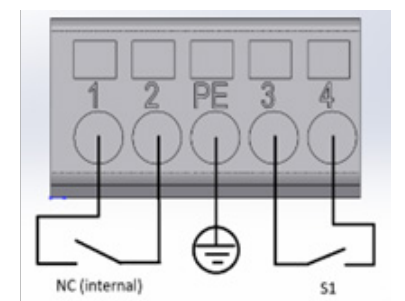
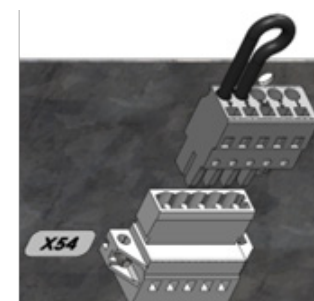
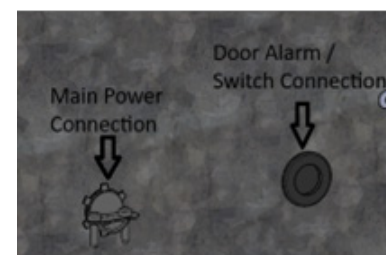
Door contact switch installation

REQUIREMENTS:

- The cooling unit is de-energized.

PROCEDURE:

- Feed cable through grommet in E-Box Cover Panel
- The door contact switch - S1 (not included with unit) should be connected to the X54 connection at 3 & 4 (see electrical circuit diagram in the housing cover or technical datasheet)
- The door contact is supplied with low voltage from the control board on the DTS 34X1C and DTS 36x1C Series units.
- When wired correctly, the fan and compressor switch off if the cabinet door is opened.
- If a door switch is not present, a cable comes pre-installed in the X54 connector.



3.5.4 Centralized Fault Indicator

- On the same plug as the door contact (X54), connections at 1 & 2 can be used to connect a fault signal line.
- The alarm circuit inside the unit is normally closed (NC) and will open when a fault is present.



WARNING

- Fault connection points may be connected to a live electrical line with a maximum 230V, 5A.

4 : OPERATION

4.1 General Functions



NOTICE

Danger of damage to the cooling unit

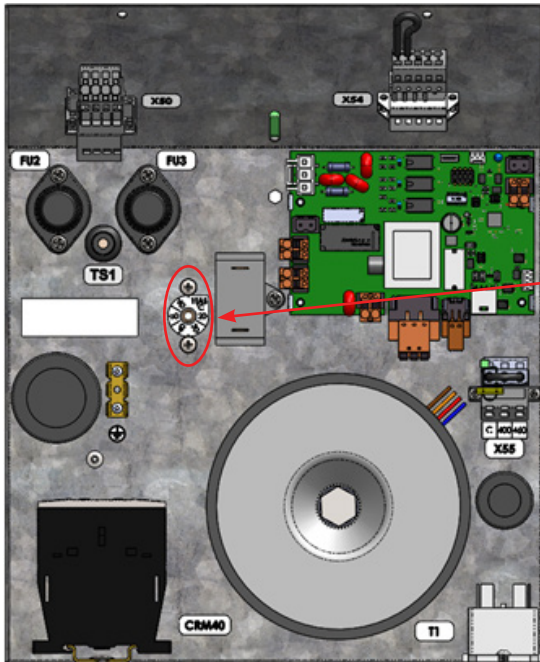
- Operation without the unit cover prevents the adequate supply of air to the condenser, and limits stated capacity.
- Only operate the cooling unit with the unit cover installed.
- The ambient temperature must be less than 55°C.

4.2 Operation of the cooling unit

- After connection and switching on of the mains voltage, the device switches to operating mode.
- The cooling unit is equipped with an electronic control unit. A temperature sensor detects the temperature of the air sucked in from the interior of the switch cabinet.
- All unit motors switch off when the door contact is opened.
- If the upper or lower limit temperature is exceeded or undercut, a fault indication is triggered.
- The LED indication light will flash certain sequences. Please see troubleshooting section for more information.

Operating conditions

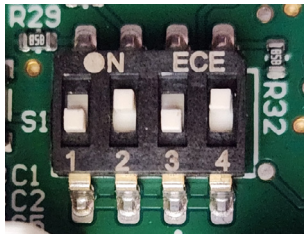
- The mains voltage must lie within the specified range.
- A deviation of $\pm 10\%$ is permissible.
- The ambient temperature must be equal to or below 55°C.
- The cooling unit must only be used in such a manner as to ensure that the specified cooling capacity is able to meet actual demands.
- Only the specified refrigerant may be used.
- If unit has the Low Ambient Heater option, the enclosure heater is controlled by a mechanical thermostat in the E-Box. The thermostat heater can be set by hand (no tool needed).



- Thermostat location for heater on Low Ambient option (Inside electrical panel)
- Unit is set at factory to 50°F (10°C)

4.3 Adjusting Set Points

To adjust the setpoint and over temp alarm of the cooling unit, locate the DIP switches on the top of the circuit board.



Switch down = 0

Switch up = 1

Switch 1 (S1) is not used. Refer to table below for setpoints and temperature alarms:

S2	S3	S4	Setpoint (°C/°F)	Alarm (°C/°F)	Max Alarm (°C/°F)
Off	Off	Off	25/77	45/113	0000
On	Off	Off	30/86	45/113	1000
Off	On	Off	35/95	45/113	0100
On	On	Off	35/95	50/122	1100
Off	Off	On	40/104	50/122	0010
On	Off	On	40/104	55/131	1010
Off	On	On	45/113	55/131	0110
On	On	On	45/113	60/140	1110

*Default factory setting. Cooling mode is set to 35°C to prolong component life while preventing humidity from condensing into moisture.

4.4 Service and Maintenance

General

The refrigeration circuit is a maintenance-free, hermetically sealed system.
The units are 100%-tested at the factory.

Manufacturer recommendation to the owner for maintenance work:

- Perform maintenance work regularly every 12 months according to the maintenance checklist, see section “Maintenance Schedule”. Shorter maintenance intervals are required for cooling units exposed to ambient air containing oil and dust. A shorter guide value of two to six months applies these cases.
- Pfannenberg add-on filters are designed to fit the cooling unit and have a positive effect on the scope of cleaning maintenance.

4.5 Safety Information



DANGER

Life-threatening hazard due to electric shock

- Live units and exposed connection cables can generate an electric shock and cause severe accidents.
- Work on electrical connections must be carried out exclusively by trained, qualified electricians.
- Before working on the unit, de-energize all supply lines to the separate fuse or a main switch, disconnect the system and secure to prevent re-connection.
- Test to ensure the absence of voltage on the unit.



CAUTION

Hazards of crushing during removal of the unit cover

- Hands and other body parts can be crushed during removal and re-installation of the unit cover.
- Keep body parts out of the space between the frame, springs and unit cut-out.
- Work carefully and wear gloves.



NOTICE

Danger of unit damage due to incorrectly performed maintenance

- Disregard of the recommended maintenance work reduces the cooling capacity of the cooling unit and could result in reduced machine availability.
- Maintenance work must be carried out regularly, as specified in the maintenance checklist.
- Warranty claims are only valid for units that have been maintained according to specification.

4.6 Maintenance checklist template

Cooling Unit Maintenance Checklist

Maintenance Interval:

- Conduct maintenance every twelve months.
- Conduct maintenance every two to six months in oil and dust-laden environmental air.

Type:

Serial number:

Date of maintenance:

Technician:

	Unit range designation/ Required maintenance tasks	Visual inspection	To Do	Result
1	Assess before maintenance			
1.1	General visual inspection of the cooling unit			
1.2	Inspection for corrosion damage			
2	Refrigeration circuit			
2.1	Check refrigerant carrying parts for oil traces			
2.2	Check refrigerant carrying parts for leaks			
2.3	Check electrical connections for damage			
3	Condenser & passive heat exchanger			
3.1	Inspection for general corrosion damage			
3.2	Inspect for blockage from contaminants			
3.3	Check, clean and align fins*			
4	Condenser fan (external)			
4.1	Inspect mount for loose parts			
4.2	Inspect the electrical connection for damage			
4.3	Check motor bearings for noises			
4.4	Check the drive for signs of overheating			
4.5	Clean fan*			
5	Evaporator fan (internal)			
5.1	Inspect mount for loose parts			
5.2	Inspect the electrical connection for damage			
5.3	Check motor bearings for noises			
5.4	Check the drive for signs of overheating			
5.5	Clean fan*			

* Maintenance intervals are more frequent, depending on the degree of contamination.

4.7 Removing and Installing Cover



WARNING

Hazard due to improper maintenance work

Damage of components and faulty replacement of components can cause accidents.

- Always switch off the disconnecter/contactor before beginning maintenance work.
- Wait For unloading phase of 5 minutes for the electric components, to open unit cover.
- Ensure that the fans are in idle position and are no longer rotating.
- After replacement of defective parts or components, inspect the unit for correct and safe operation.
- After all maintenance check to ensure the full capability of the condensate drain.
- Condenser coil may be as hot as 80°C (176F) after running for extended periods. Wait to cool before operating in it's space.

4.7.1 Procedure: remove cover

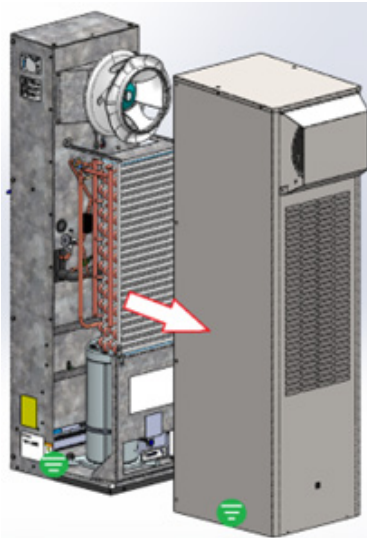
1. See illustrated procedure for cover removal in the condensate hose installation section.
 2. Remove the (8) M6 Philip screws from sides, (2) M4 Philip screws from bottom front, and (2) lifting lug screws on top of the unit cover.
 3. Lift the unit cover about 15 mm
 4. Pull the cover off, away from enclosure
- ATTENTION** – Damage to grounding cable
- Always pull off the grounding wire (3) from the inside of the unit cover before fully removing the unit cover.
5. Re- Installing: move the cover into position and connect display and grounding connections. Be sure that they do not get caught in the cover.
 6. Replace cover and be sure to hook the flange on the front of it over the unit. Then line up and re install the 8 screws and 2 sealing washers on top

1. Identify (4) Philips Head Screws on each side of unit and remove.	
2. Remove (2) Philips Head Screws at bottom front of cover.	

Procedure: re-install cover

3. Pull the cover away from the unit. Detach the grounding cable from the left side of the unit base or the bottom of the cover.

Follow these steps in reverse to re-install cover.



Cleaning fans and heat exchangers

Hazards of accidents due to component damage during cleaning
Cleaning of cooling units with water jet, steam jet, high-pressure washer or sharp objects can damage the electrical and electronic assemblies. Malfunctions can cause accidents.

- Do not clean with a water jet, pressure washer or flammable cleaning agents.
- Protect electrical components from the penetration of moisture.
- Do not use pointed or sharp-edged objects to clean the fins. They must not be pinched or damaged.

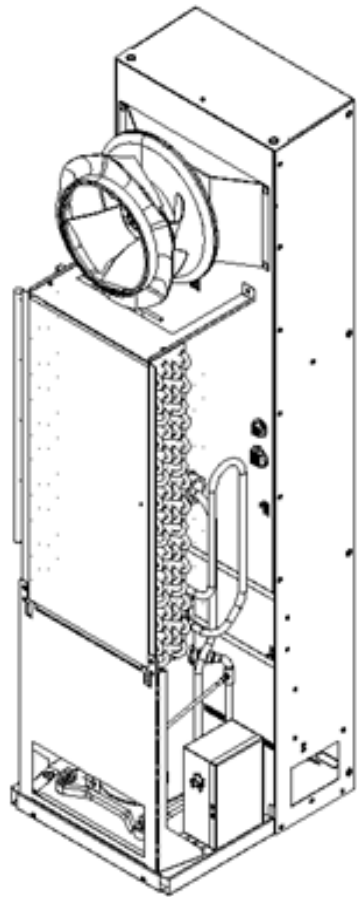
Procedure

1. Clean heat exchanger fins and condenser fan with a soft brush, with compressed air or with a vacuum cleaner with brush attachment.

CAUTION – risk of injury. Do not touch the sharp heat exchanger fins.

CAUTION – dust development when cleaning with compressed air. Wear eye, mouth and nose protection when cleaning with compressed air.

2. Check heat exchanger for bent fins; straighten fins with fin comb.
3. Refit the unit cover.
4. Check that the cooling unit works properly and safely after cleaning.



5 : TROUBLESHOOTING

General

Note: See LED indicator label for light sequences

Fault	Possible causes	Corrective measures
Unit does not cool; evaporator fan (internal) running	Temperature setting too high	Check the temperature setting
Unit does not cool sufficiently	Operating limits exceeded	Check the ambient temperature and internal load
	Too little refrigerant	Call in authorized qualified personnel; check the unit for leakage
	Heat exchanger dirty	Clean the heat exchanger
	Evaporator fan (internal) defective Condenser fan (external) defective	Call in authorized, qualified personnel; replace fan
	Disruption in the air circulation inside the cabinet	Check the installation and the path of air circulating in the switch cabinet
		Check air flow path of the outlet and return air of the cooling unit and the air paths through the cooling unit
Excessive Condensation is accumulating inside of the switch cabinet	Temperature setting is too low	Check the set point value
	Switch cabinet is not sufficiently sealed	Check that electrical enclosure is properly sealed to prevent ingress of humidity
Condensate fails to drain	Condensate drain is clogged	Clean condensate drainage hose; ensure that drainage hose is angled downward without bending

6 : SPARE PARTS AND ACCESSORIES



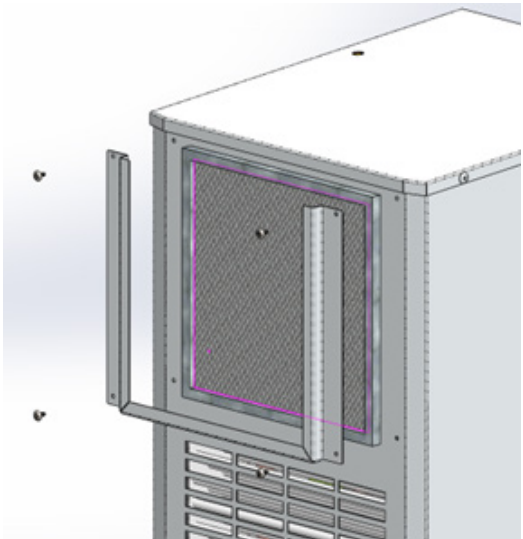
WARNING

Spare parts from third-party manufacturers can damage the unit and cause accidents.

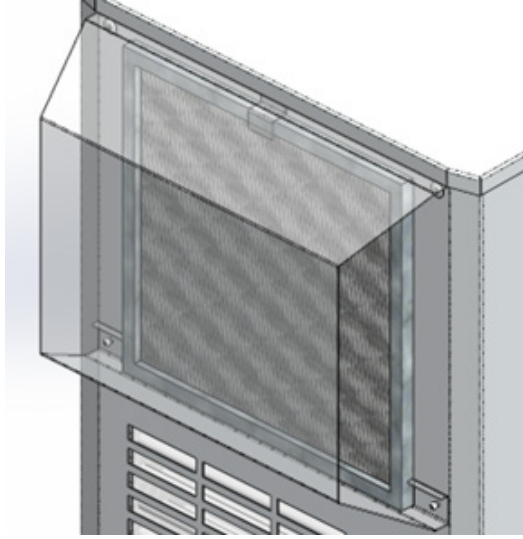
- Only original parts are subject to the manufacturer's quality control.
- Only use specially agreed manufacturer parts for safe and reliable operation.

Note: Always specify the Pfannenberg part numbers when ordering spare parts and accessory parts.
See *Technical Data Sheets for Spare Parts Lists*

Indoor Filter Option



Outdoor Filter Option



7 : TERMS OF WARRANTY The warranty does not apply or is voided in the following cases:

- Improper use of the unit.
- Failure to observe operating conditions or disregard of the operating manual.
- Lack of regular maintenance on the cooling units.
- Damage due to disregard of maintenance recommendations.
- Damage to cooling units due to soiled or clogged filters.
- Damage due to unauthorized opening of the refrigerant circuit.
- Modifications carried out on the unit or a change to the serial number.
- In the event of damage during transport or other accidents.
- Replacement of parts by unauthorized personnel.
- Only original Pfannenberg parts are permitted for use. Violations void the warranty.
- Applying incorrect power will void warranty and can cause operational issues.

For recognition of warranty claims and return of the unit, observe the following:

- Begin warranty claim by submitted a ticket at <https://www.pfannenbergusa.com/service-request-form/>
- Include a reference document (delivery note or invoice copy).
- Follow instruction provided by Pfannenberg, once ticket is started.
- Observe transport instructions; see [Transport](#).

8 : DISMANTLING AND DISPOSAL

The unit must be dismantled and disposed of in an environmentally friendly way at the end of its useful life.



Units marked by the symbol opposite may not be disposed of with unsorted domestic waste. They must be taken to a separate electrical and electronic waste collection depot. For further information about disposal, scan the QR code or call www.pfannenber.com/disposal.



DANGER

Danger of fatal injury due to electric shock!

Parts may be under voltage when the unit is opened and can cause an electric shock if touched.

Observe the following points when working on the open unit:

- Work on the electrical system may only be carried out by authorized electricians.
- Before commencing work on the electrical system, switch off the power supply, check that no voltage is applied and secure against being switched back on.
- Cordon off the working area and post a warning sign

8.1 Temporary Decommissioning



WARNING

Hazard of injury due to materials and substances

Improper work on the unit can be damaging to health.

- Always ensure that the unit is de-energized before working on the unit.
- The unit must only be disposed of by qualified personnel and in accordance with applicable environmental regulations.
- If the cooling unit is no longer needed for a longer period, it must be disconnected from the voltage supply.
- Ensure that improper start-up by third parties is not possible.

8.2 Final Decommissioning



CAUTION

Hazard of crushing during the decommissioning of units

Hands and other body parts can be crushed during removal of units.

- Keep body parts out of the space between the frame, springs and unit cut-out.

If cooling units are to be definitively decommissioned or disposed of, the following must be observed:

- Applicable statutory regulations of the user country and environmental protection regulations must be observed.
- Refrigerant must be professionally extracted from the refrigerant system. Avoid refrigerant emissions.
- The cooling unit must only be disposed of by authorized, qualified personnel.
- Waste equipment can be disposed of correctly by Pfannenber. Freight charges for delivery to one of our manufacturing facilities must be pre-paid.

8.3 Safety Information

All work may only be performed by persons with certified qualifications under consideration of:

- the minimum qualification
- this manual
- the valid local regulations and laws
- company-internal work, operation and safety regulations

Use the necessary personal protective equipment for the respective activity for all work.

Risk of cutting and injury!



CAUTION

Risk of cutting and injury due to production-related, sharp sheet metal edges on the unit.

- Inspect unit for signs of corrosion damage.
- Use personal protective equipment (cut-proof gloves).
- Handle with care.



CAUTION

Risk of injury due to improper working!

Risk of injury due to improper working on the refrigeration unit.

- The refrigeration unit may only be dismantled by specialized refrigeration companies.



NOTICE

Hazards for the environment

Refrigerants are harmful to the environment as soon as they escape into the atmosphere.

- Only have work on the refrigeration unit carried out by experts in accordance with the chemicals climate protection directive.
- Do not damage refrigerant lines.
- Pass on refrigerants for professional treatment.

NOTE: Dismantling and disposal are to be carried out by the owner or persons authorized by them.

Contact the local authorities or special disposal companies for information on issues of environmentally friendly disposal.

8.4 Dismantling



DANGER

Requirements

Danger to life due to electric shock. Make sure that the unit is voltage-free.

Procedure

1. Switch off the unit, secure against switching back on and wait until all parts have a temperature below 40 °C.
2. Physically disconnect all energy and media supplies from the unit, discharge stored residual energy.
3. Clean dirt and contamination from the unit.
4. Remove operating and auxiliary materials and dispose of them in an environmentally friendly way.
5. Dismantle the unit into the different separable materials.
 - Observe the valid work safety and environmental protection regulations.



8.5 Disposal



NOTICE

Old units are also professionally disposed of by Pfannenber.

Delivery to one of our manufacturing facilities shall be free of charge.

Dismantled components should be recycled unless return or disposal agreements have been made:

- Scrap metals
- Hand over plastic elements for recycling
- Dispose of other parts sorted according to their material properties



NOTICE

Hazards for the environment

Improper disposal of chemicals (e.g. additives) can cause environmental pollution.

- Chemicals must not be thrown in with the domestic trash and must not be allowed to get into the sewer system or ground.
- Wear appropriate protective clothing (gloves, eye protection, etc.) for disposal.
- Dispose of the used chemicals (as special waste if necessary) and pass on for recycling separately.
- Refrigerants may not escape into the atmosphere. Pass on refrigerants for professional treatment.
- Work on the refrigeration circuit may only be carried out by experts in accordance with the chemicals climate protection directive.
- Observe safety data sheets as well as valid national and local regulations.

The components of the plant or the unit basically consist of the following materials:

- plastic
- non-ferrous metals
- stainless steel
- steel and aluminum parts
- electronic sub-assemblies
- refrigerants in the refrigeration circuit (type and amount, see section "Refrigeration circuit", Page 10)

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All information contained was thoroughly checked in 2026.
However, we make no guarantee as to the completeness and correctness of the specifications.

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