



OPERATION MANUAL



***arktik*[®] 4000US**

Container Refrigeration Unit

***arktik*[®]**

The cooling diamond

**You shall read and understand this manual,
before you operate the refrigeration unit.**

**You should retain this operation manual for
future reference after reading it thoroughly.**

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1. General

GOVI provides this manual merely for informational purposes. Information provided in this manual should at no time be regarded as all-inclusive or covering all contingencies. If you feel you need further information, please contact and consult your GOVI Distributor.

Any change and alteration of this container refrigeration unit and aviation from the installation process without prior written permission will void GOVI's warranty. Only use original spare parts or parts approved by GOVI. It is explicitly pointed out that spare parts and accessories which are not supplied by GOVI, are not tested and approved. GOVI does not assume liability or warranty for damage caused by using non-original spare parts.

Only persons who can evaluate the work to be performed due to professional training, knowledge and experience as well as the relevant regulations and recognize possible dangers are allowed to carry out the work described in this operation manual.

Any change and alteration of this refrigeration unit and aviation from the installation process without prior written permission will void GOVI's warranty and liability. In order to ensure the durability of GOVI products, please follow the instructions of this manual.



1.1 Disposal of the unit

Danger of injuries and damage to the environment due to improper disassembly of the container refrigeration unit! Only qualified, special trained specialists are allowed to dispose the container refrigeration unit. Refrigeration fluid must be handled with care as it poses serious health hazards.

The customer is responsible for the proper disposal of the container refrigeration unit.

Table 1. 1. List of material

Designation	Material
Structure	Sheet metal, ferrous material
Condenser, evaporator	Aluminium, copper
Electrical components	Copper, PVC, miscellaneous materials
Compressor	Ferrous materials, copper and other materials
Refrigerant (standard)	R452A
Refrigerant quantity	5,3 lbs [2400 g]
Coating	Epoxide compound

There are federal regulations and state regulations regarding the disposal of refrigeration machines. Consult professionals or specialists and make sure they follow all federal and state regulations strictly when disposing of the container refrigeration unit.

2. Safety Instructions

2.1 Safety Messages and Safety Alert Symbols



DANGER!

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



WARNING!

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION!

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

2.2 Not Hazard-related Messages

Notice indicate a not hazard-related message.



NOTICE

Indicates information considered important, but not hazard-related (e.g. messages related to property damage).

2.3 Safety Precautions



WARNING!

Electrical hazard!

Any work on the container refrigeration unit is allowed with unplugged main plug only!

Protect container refrigeration unit against recommissioning while working on the unit by suitable measures!

Never attempt to plug in or unplug the container refrigeration unit from the power supply when your hands are wet!



WARNING!

Electrical hazard!

The following safety rules must be strictly observed before working on the container refrigeration unit:

- **Switch off!**
- **Lock against reclosure!**
- **Check that lines and equipment dead!**
- **Ground and short circuit phases!**
- **Cover, partition or screen of adjacent line sections!**

The electrical connection must be accomplished by a licensed electrician!



WARNING!

Hazard from toxic gas!

This refrigeration unit contains fluorocarbon refrigerants which, in the presence of an open flame or electrical short, produce toxic gases that are severe respiratory irritants capable of causing death.

Refrigerant tends to displace air and can cause oxygen depletion which may result in death by suffocation!

Be careful when working with a refrigerant or refrigeration system in any enclosed or confined area with a limited air supply!



WARNING!

Fire and explosion hazard from flammable operating fluids!

Avoid open fire, electrical sparks and ignition sources!

Do not smoke!

Observe measures for fire and explosion protection!



WARNING!

Hazard from improper modifications!

Do not drill any additional holes into the container refrigeration unit! You may damage major parts.

Holes accidentally drilled into electrical wiring or refrigerant pipes can cause fire or explosion!



WARNING!

Health hazard from refrigerant!

During maintenance or repair work on the refrigerant circuit emissions of refrigerant may occur, these emissions can occur both, liquid or gaseous and pose a threat to humans and the environment.

Implicitly pay attention to proper eye protection such as goggles, respirator mask and protective gloves when occurring emissions or leaks in the refrigerant circuit!



CAUTION!

Burning hazard!

Components of the container refrigeration unit (such as condenser, evaporator and tubes) can still be hot from operation.

Observe a sufficient cooling of the components before working on the container refrigeration unit!



CAUTION!

Environmental hazard!

The supplies (refrigerant and refrigerant oil) are not biodegradable.

Observe Safety Data Sheet or user instructions of the supplies used!

Supplies and polluted components must be disposed according to locally valid environmental regulations!



CAUTION!

Injury hazard from rotating fan blades!

Keep your hands away from fans!

Accidental contact with the sharp edges of the fan blades can cause severe personal injury!

2.4 Safety Precautions concerning the refrigerant

Fluorocarbon refrigerants are classified as safe refrigerants; however you must observe certain precautions during the operation and installation. When released to the atmosphere in the liquid state, fluorocarbon refrigerants evaporate rapidly. This fast evaporation freezes anything in contact with the liquid refrigerant instantaneously. In contact with parts of the human body, it can cause severe frostbites

2.4.1 First Aid

In the event of frostbite, you should generally protect the affected area from further injury, warm the affected area but do not apply heat and observe and maintain respiration.

Frostbite of the eyes:

In case of contact with liquid refrigerant, immediately flush eyes with large amounts of water (minimum 15 minutes) and get prompt medical attention.

Frostbite of the skin:

- Remove contaminated clothing and shoes.
- Flush the affected area with large amounts of lukewarm water for a long time.
- Do not apply heat (for example by rubbing or hot water bottle).
- Get medical attention without delay. Loosely bandage frost-bite burns with dry, sterile, sizeable dressing to protect from infection or injury.

Inhalation of refrigerant:

Get medical attention without delay, guide the person to fresh air and redirect if necessary resuscitation measures.

2.4.2 Environmental considerations

GOVI refrigeration units are shipped with a suitable charge of refrigerant R452A.

In case of errors in the refrigerant circuit or fluid leaking out of the container refrigeration unit, the unit must be checked by a specialist and properly be repaired. Under no circumstances the refrigerant shall be vented into the atmosphere.

Accurately read the Safety Precautions in section 2.3 Safety Precautions and the datasheet for the refrigerant R452A provided by the manufacturer.

Defective cooling devices resp. sucked fluids must be disposed according to the relevant environmental regulations.

2.5 Intended Use

This container refrigeration unit is designed for cooling refrigerated containers at locations without explosion / fire hazard. For that purpose, the container refrigeration unit is mounted stationary at the front wall of the refrigerated container by a mechanical fastening system (not scope of delivery).

At outside temperatures between - 4°F [- 20°C] and 104°F [40°C] the container refrigeration unit enables temperatures from 0°F [- 18°C] to 50°F [10°C] in the refrigerated container.

- The container refrigeration unit is not determined for operation in AP.PE EEx (places with explosion hazard).
- The container refrigeration unit is not determined for operation in places with fire hazard.
- The container refrigeration unit is not equipped with reinforced electrical or mechanical components to withstand aggressive atmospheric conditions.

Ensure good ventilation of the container refrigeration unit when placing the refrigeration container. Ensure good air circulation, and good access for maintenance work when indicated.

Do not expose the refrigeration container to direct sunlight.

Ensure good air circulation inside the refrigeration container loading the container. Do not block the evaporator. Avoid the insertion of heat sources in the refrigeration container.

The container is designed for no other purpose than that described above. Any other use is considered improper and is prohibited or requires a permit / approval by the manufacturer.

The Intended Use also includes compliance with the specified maintenance and repair operation, see **section 10 Maintenance**.

3. Technical Data

The container refrigeration unit consists of a self-supporting chassis made of galvanized plate and a main cover made of ABS with paint in standard color RAL9010.

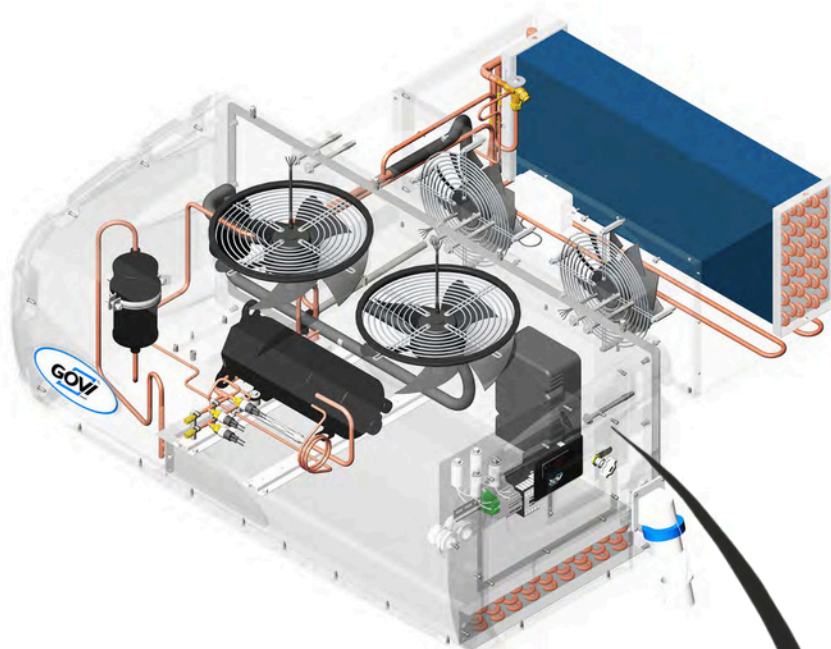


Fig. 3. 1. Nameplate

		Max-Planck-Str. 5 53842 Troisdorf (GERMANY) www.govitrailerrefrigeration.com	
Model:		ARKTIK 4000U	
Serial Number:		C ???????	
Power Supply:		220V/60Hz	LRA: 65A
FLA:		14A	LRA:
Comp. Power:		2260W	
Refrigerant:		R452A	Quantity: 5,3 lbs
Net Weight:		342 lbs	Year: 2020
Peso:		155 kg	Año: 2020
			CE

You can find the serial number of the container refrigeration unit and other important technical data on the name plate located on the right hand side of the main cover next to the receptacle.
 To allow for a prompt and precise respond please always state the Serial Number of the GOVI container refrigeration unit with any technical inquiry.

Fig. 3. 2. Dimensions

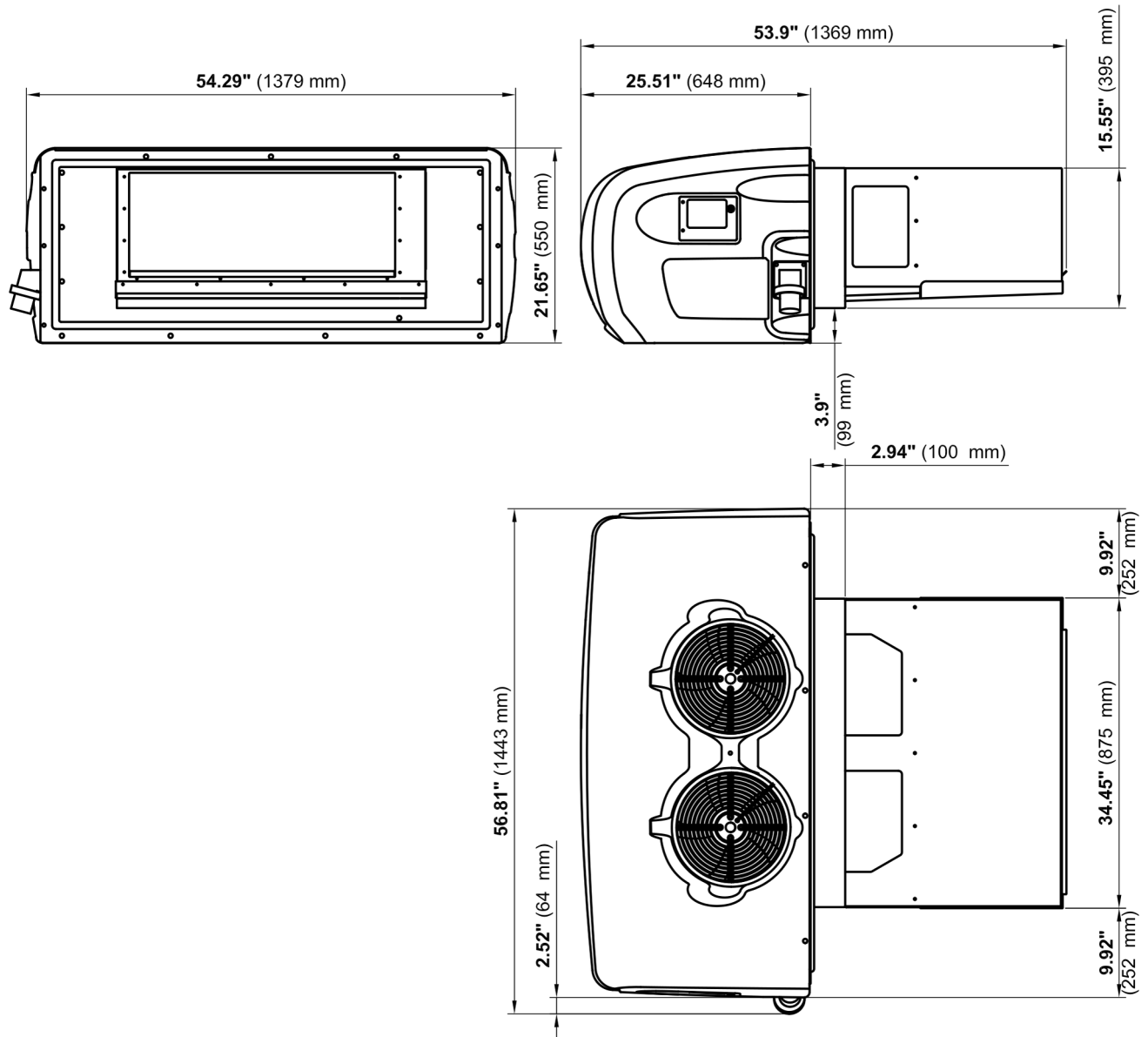


Table 3. 1. Technical data

Designation	arktik 4000US
Refrigerated container internal temperature	$T_A = 36^{\circ}\text{F}$ [2°C]
Supply voltage	220 V
Frequency	60 Hz
Refrigeration capacity	13826 BTU/h [4050 W]
Heating capacity	-
Power consumption	2260 W
Current consumption LRA	65 A
Current consumption FLA	14 A
Defrost	Automatic hot gas defrost
Air quantity evaporator	77 ft ³ /h [2200 m ³ /h]
Air quantity condenser	77 ft ³ /h [2200 m ³ /h]
Protection class, outside	IP54
Refrigerant (standard)	R452A
Refrigerant quantity	5,3 lbs [2400 g]
Maximum operating temperature	104°F [40°C]
Dimensions	See Fig. 3. 2
Weight	138 lbs [75kg]
Paint	RAL9010

4. Package, Transportation and Storage

4.1 Package

For safe transportation the container refrigeration unit is securely packed in a box mounted on pallets.



CAUTION!

Health hazard from emergent refrigerant!

Because of the leaking refrigerant damaged devices can cause skin injuries and damage to property.

In case of severe external damage to the packaging and / or on the container refrigeration unit contact your local GOVI dealer for assistance immediately!

Do not start with the installation of the container refrigerant unit and do not take the container refrigerant unit in operation!

Fig. 4. 1. Delivery inspection / content of the accessories box



- 1. Operation / Installation manual
- 2. Eye bolt
- 3. Spanner for protection cover
- 4. Power plug

- 1. Upon delivery place pallet and box on a level ground. Immediately inspect the box for any damage.
- 2. Inform the furnisher about probably discovered damages.
- 3. Take pictures of the damages and document any damage immediately on the bill of delivery.
- 4. Check the contents of the box for completeness.
- 5. Look for loose parts that may be integral part of the delivery, before disposing the packaging.

4.2 Transport



CAUTION!

Risk of equipment damage!

The container refrigeration unit must be transported horizontally!

The container refrigeration unit must have been in a horizontal position at least six hours prior to commissioning!

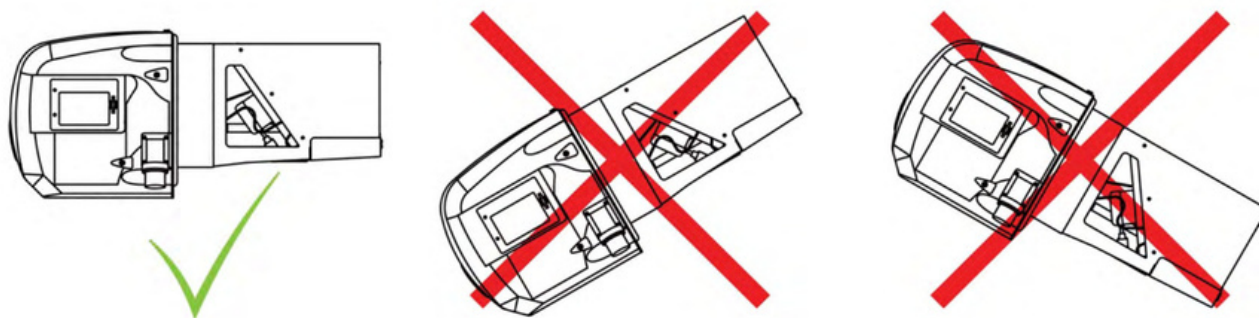


Fig. 4. 2. Transport and storage

- Only use suitable lifting equipment for lifting and transport of the container refrigeration unit. Look at **section 3 Technical Data** for information about the weight.
- Lift the container refrigeration unit according to **section 6.4 Attaching the container refrigeration unit at the container.**

4.3 Storage

Observe the following when storing the container refrigeration unit:

- The container refrigeration unit must be stored horizontally, **see Fig. 4. 2.**
- The storage temperature must not exceed 140°F [60°C].
- The container refrigeration unit must not be stored in aggressive environment.
- Direct sunlight at the storage location must be avoided.

5. System Description

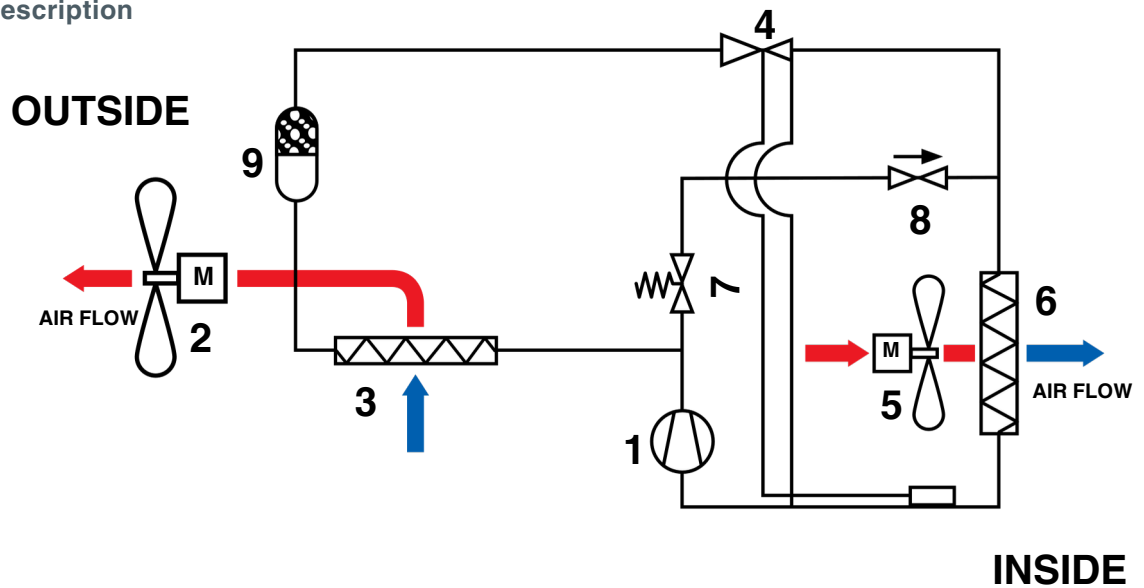


Fig. 5. 1. Functional schematic

1. Compressor
2. Condenser fan
3. Condenser
4. Expansion valve
5. Evaporator fan
6. Evaporator
7. Hot gas solenoid valve
8. Check valve
9. Filter drier / liquid receiver

Operation is based on the cooling cycle principle in that heat transference is by means of a refrigerant which absorbs heat in the evaporator and then releases this in the condenser. All this takes place within a closed loop. The refrigerant is pressurized by an electrically driven compressor, fluidized in the condenser, atomized by means of a throttle valve and evaporated in the evaporator. The evaporator is located inside the container, the condenser on the outside.

The container refrigeration unit is equipped with forced-ventilated condenser and evaporator and fitted with axial fans; the unit has electronic temperature control.

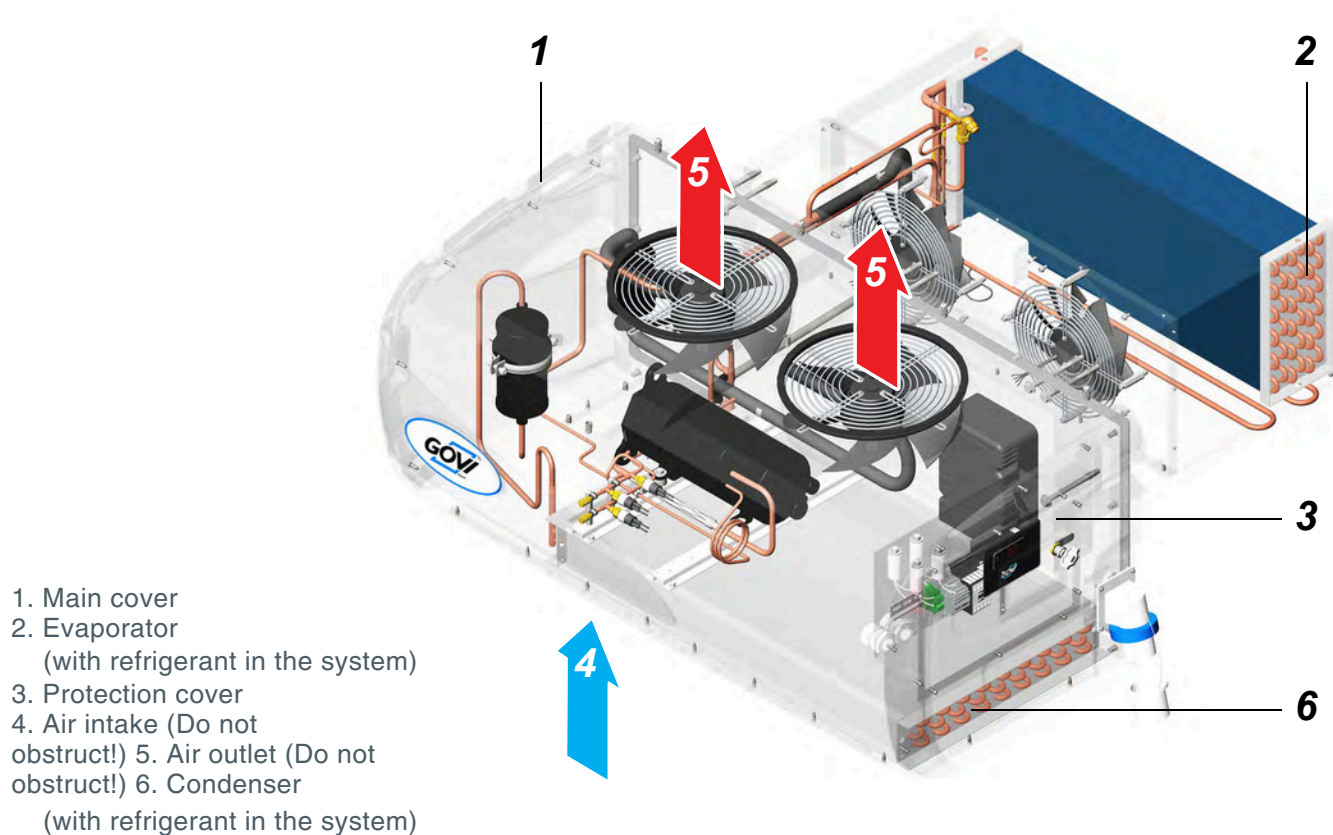


Fig. 5. 2. Overview of container refrigeration unit

Main cover (1)	The main cover (1) covers the outer parts of the container refrigeration unit.
Evaporator (2) and Condenser (6)	In the evaporator (2) heat is absorbed by the refrigerant which is released again in the condenser (6).
Protection cover (3) and setting of nominal temperature	The protection cover (3) shields the control unit from harsh weather and impedes unintended changes of the settings. The nominal temperature is set according to section 9.2 Setting target temperature.
Air intake (4) and Air outlet (5)	The air intake (4) and air outlet (5) must always be kept free. They may not be covered or obstructed.

6. Installation

6.1 Conditions for installation

1. Read this manual to understand how the unit is mounted and installed.
2. Verify that the container refrigeration unit is delivered according to your order. Compare the description on the unit with the order confirmation. Verify by eye sight the unit is in good condition and has no damages.
3. Verify all necessary tools and all additionally required parts are readily available at hand and in good operating condition.
4. Verify that the installation site of the refrigeration container provides a plane surface without unevenness, which may cause vibrations.
5. Verify the front wall of the refrigeration container is able to adequately support the weight of the container refrigeration unit.
6. Make sure that the load crane or your grip device, and the complete lifting cables are of sufficient size to support the weight of the containers. Look at **section 3 Technical Data** for information about the weight.
7. Note that the power supply of the container refrigeration unit cannot be made before the installation of the unit and its accessories has been completed.
8. Provide protection to the trailer's finish to prevent damage by swarf and alike during the installation process.

6.2 Additional parts

Because of the wide variety of installation possibilities, the container refrigeration unit is not shipped with all parts needed for every possible installation situation. The installer needs to make sure that the following parts are readily available.

We recommend keeping the following additional parts ready in a box before starting the installation process:



6 threaded bolts

of appropriate length and strength. The appropriate length depends on the thickness of the wall onto which you mount the container refrigeration unit. The bolts must be strong enough to carry the dynamic weight of the unit. If you are not sure that the strength of the bolts is sufficient, consult professional help.

12 washers (depending on the threaded bolts)

12 self-locking nuts (depending on the threaded bolts)



1 evaporator drain pipe or drain hose

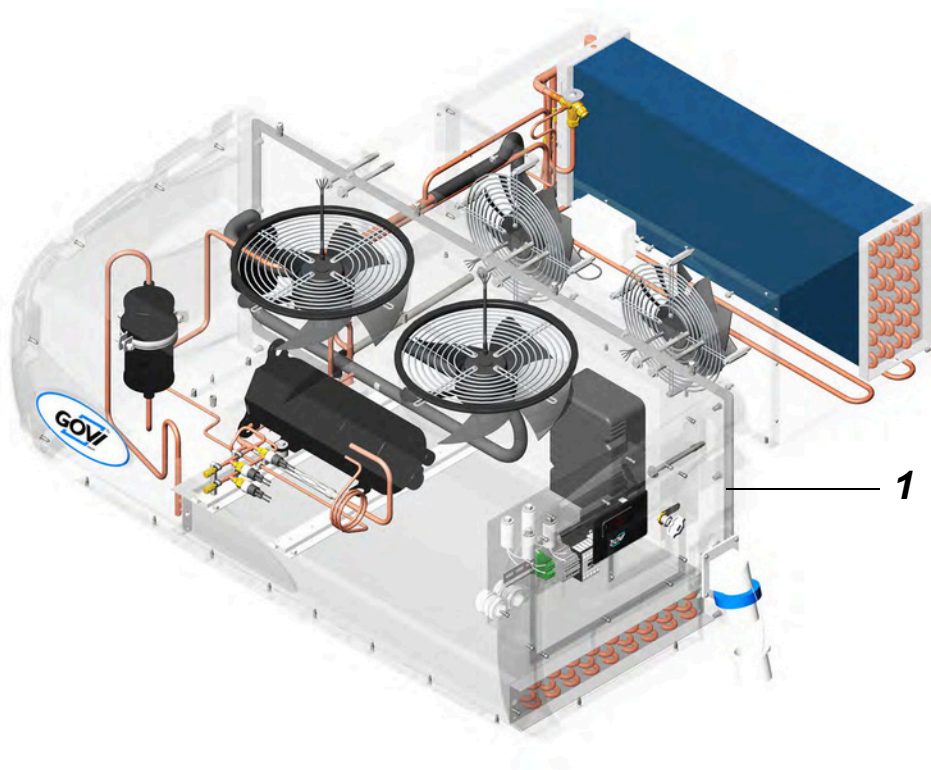
with an internal diameter of 19/32" [15mm] and suitable length.

6.3 Preliminary activities

6.3.1 General preparation

Fig. 6. 1. PU-seal of the container refrigeration unit

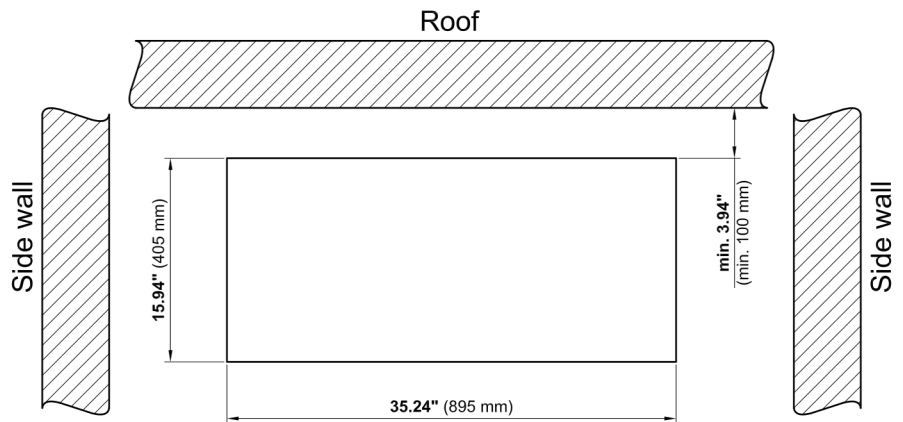
1. PU-seal



1. Position refrigeration container and container refrigeration unit side by side on a dry and clean level ground.
2. Verify that the refrigeration container is in horizontal position.
3. Verify that the contact area between the front wall of the refrigeration container and the container refrigeration unit is free from pollution.
4. Remove all obstacles from the installation area.
5. Prepare all required tools and parts and place them in a safe place easily accessible from the installation area.
6. Verify that the PU-seal (1) at the backside of the container refrigeration unit is existent and intact.

6.3.2 Wall opening at the refrigeration container

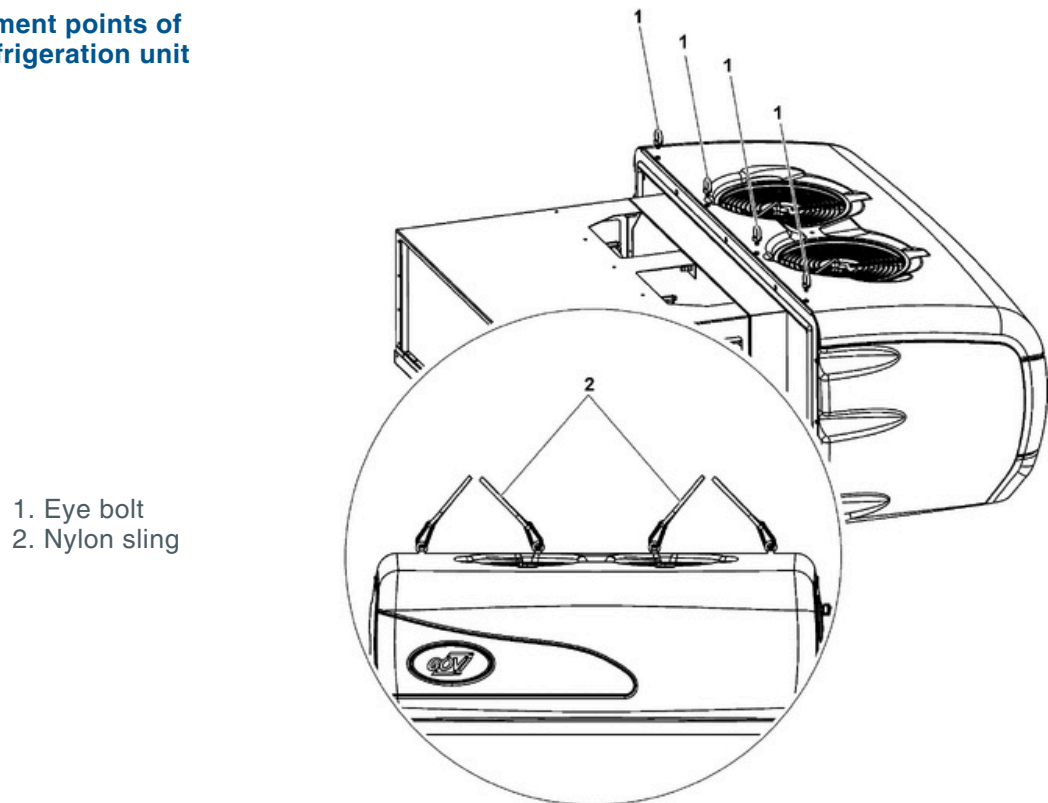
Fig. 6. 2. Dimensions of wall opening at the refrigeration container



7. Prepare the wall opening together with 6 drill holes for the fastening elements in the middle of the front wall of the refrigeration container. Make sure that the minimum size for proper operation of the container refrigeration unit is observed, **see Fig. 6. 2.**

6.4 Attaching the container refrigeration unit at the container

Fig. 6. 3. Attachment points of the container refrigeration unit



1. Eye bolt
2. Nylon sling



CAUTION!

Risk of equipment damage!

Without main cover, the individual components of the container refrigeration unit are vulnerable to damage during installation!
Leave the main cover at container refrigeration unit during installation!

1. Remove the hexagon head screws from the mounting holes of the main cover on the top of the container refrigeration unit one by another and insert the eye bolts (1) from the accessories box (see Fig. 4. 1.) in each free mounting hole.



WARNING!

Injury hazard!

The weight of the container refrigeration unit is approximately 342 lbs [155 kg]!

Always wear a helmet when lifting and positioning the container refrigeration unit!

Use only suitable and approved tools!

Use all four attachment points!

2. Attach 4 suitable nylon slings (2) at all 4 eye bolts (1).

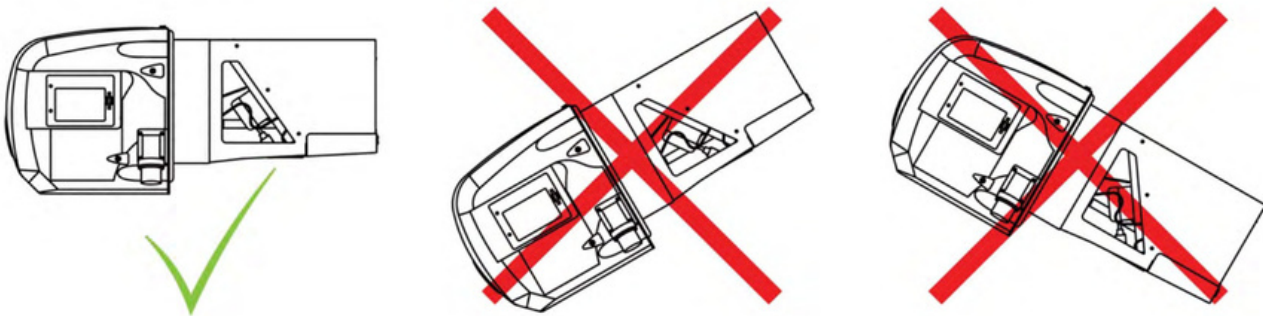


Fig. 6. 4. Alignment for mounting



CAUTION!

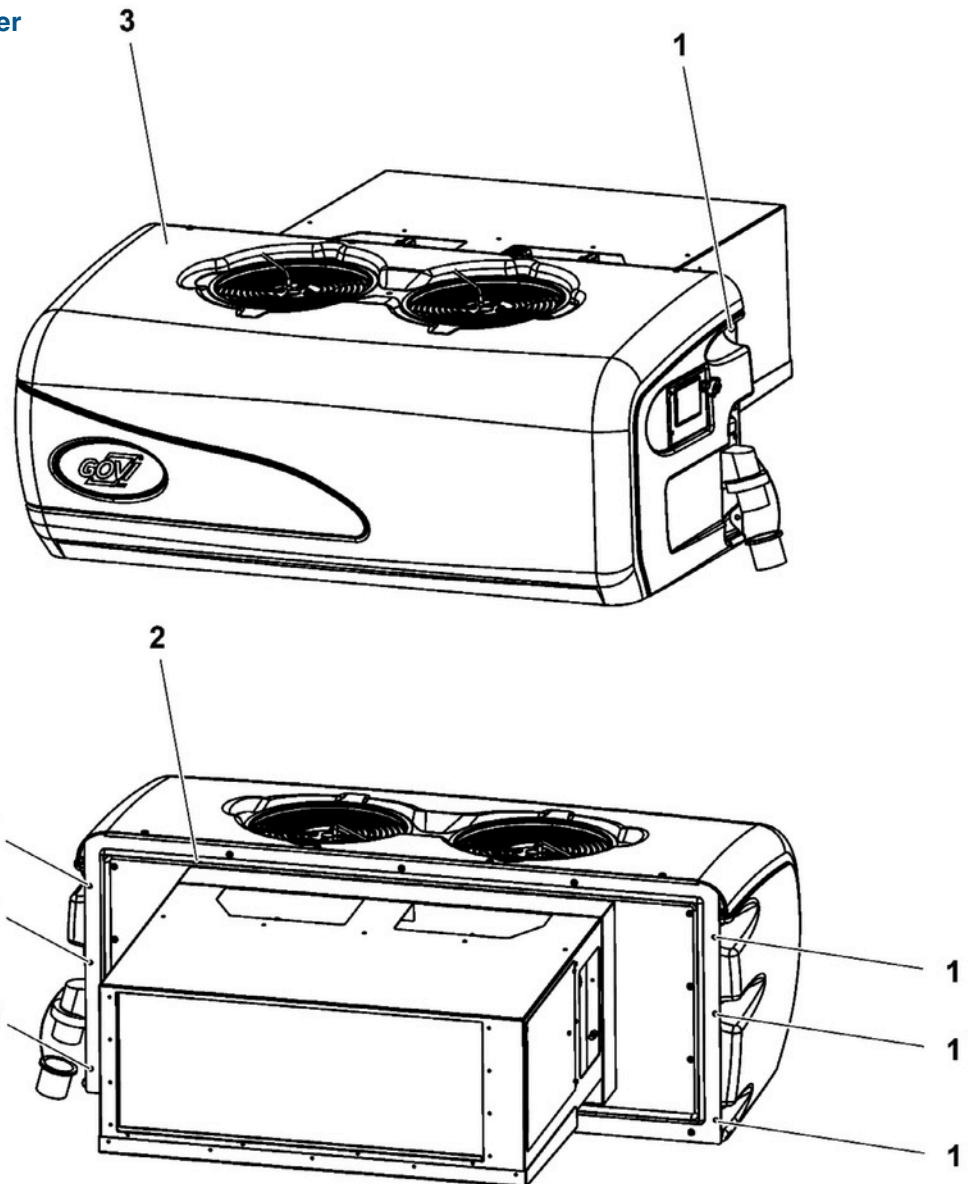
Risk of equipment damage!

The container refrigeration unit must be transported horizontally!
The container refrigeration unit must have been in a horizontal position at least six hours prior to commissioning!

3. Make sure that the container refrigeration unit stays in a horizontal position while lifting the container refrigeration unit carefully out of the box, use an adequate lifting device.

4. Position the container refrigeration unit in front of the wall opening at the front wall of the container using an adequate lifting device resp. loading crane.

Fig. 6. 5. Fixing the container refrigeration unit



- 1. Threaded bolt, washers and self-locking nuts
- 2. PU-seal
- 3. Main cover

5. Make sure that the PU seal (2) do not become damaged when inserting the unit and attach the container refrigeration unit at the mounting area.

6. Fasten the container refrigeration unit using mounting bolts, washers and self-locking nuts (1) at the container, **see section 6.2 Additional parts.**

7. Remove eye bolts with the nylon slings and fasten main cover (3) using the hexagon head screws.

A. Gap

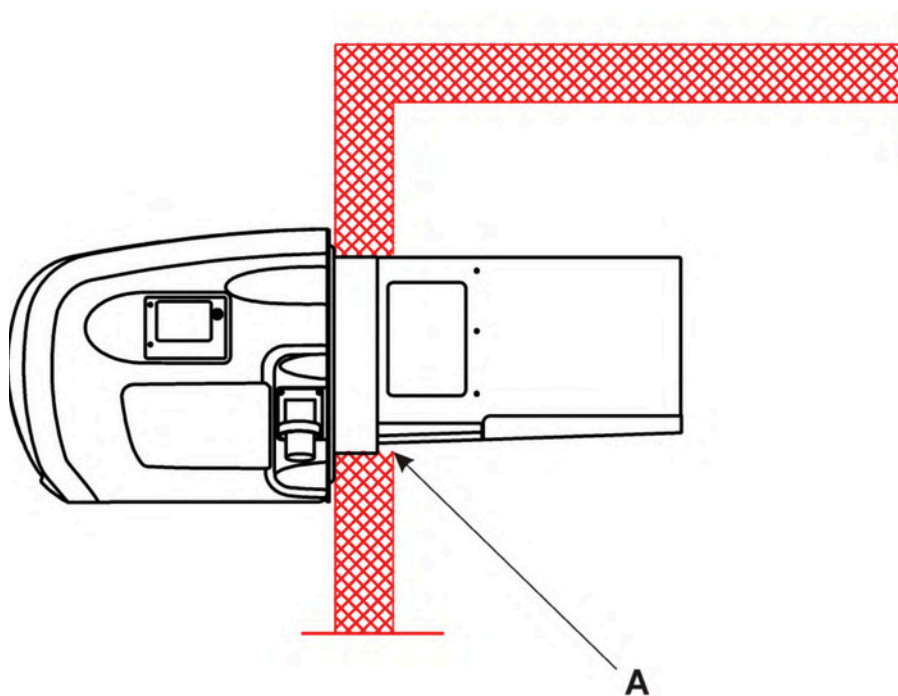


Fig. 6. 6. Sealing at the inside of the refrigeration container

8. Seal the gap (A) between front wall of the refrigeration container and the container refrigeration unit from inside the container using silicone.

9. If necessary, connect a drain hose at the bottom of the condenser, make sure that the drain hose is not kinked or damaged and position it so that it is routed with a fall, see section 6.2 Additional parts.

6.5 Installation of ancillary components

Optional a system for lighting the interior of the refrigeration container can be connected to the container refrigeration unit. Doing so the connected lightning system can be operated with the container refrigeration unit, **see section 6.2 Additional parts.**

It is not necessary to open the unit installing the lighting system. The power supply connection has been prefitted at the factory. The connect - ed cable for the interior lighting is located on the evaporator side panel.

7. Operating Elements

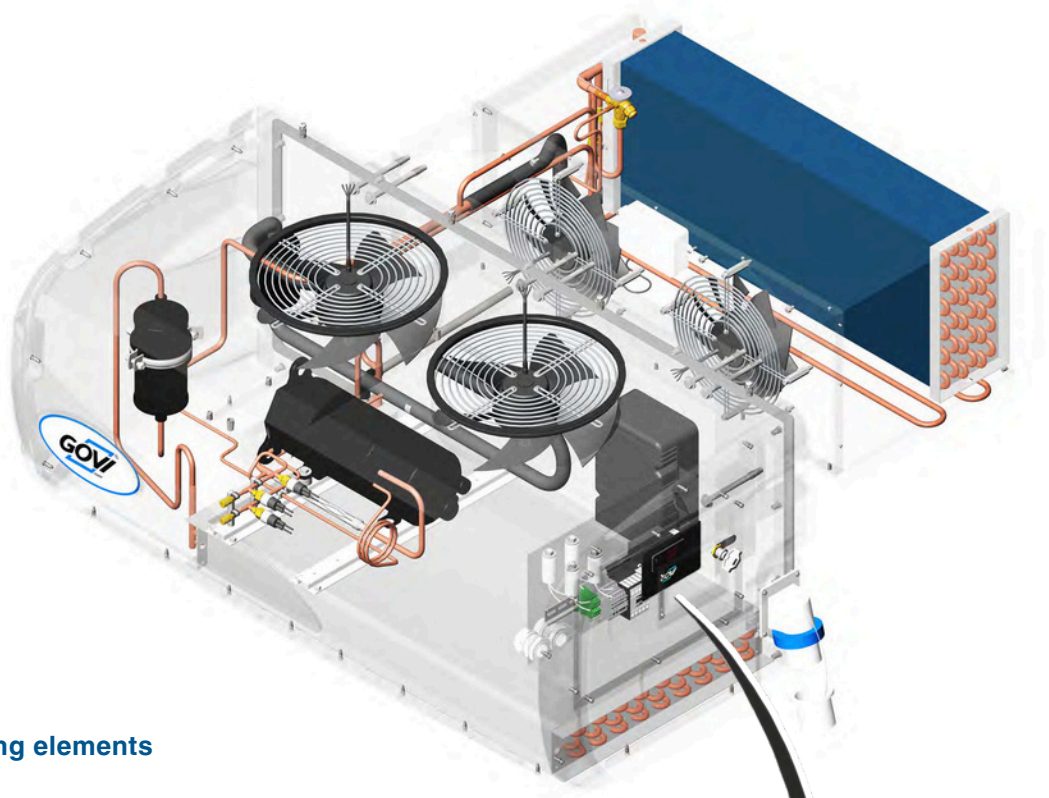


Fig. 7. 1. Operating elements

- 1. Display
- 2. SET switch
- 3. Light switch



- 1. Display**
- 2. SET switch**
- 3. Light switch**

The display (1) serves to choose and to show the nominal temperature.

Setting nominal temperature.

The lamp switch (3) enables to switch on and off the light inside the refrigeration unit.

8. Commissioning

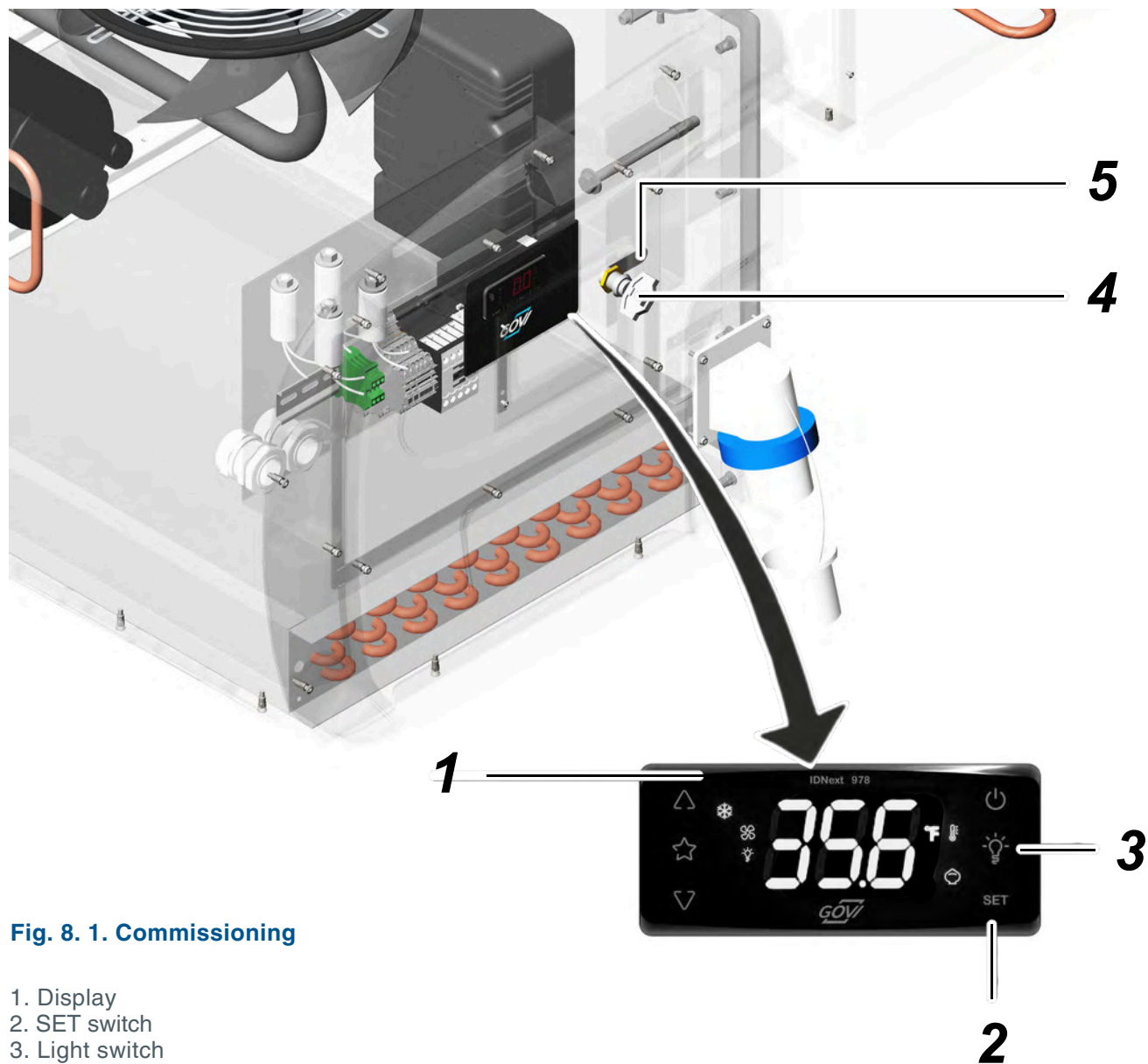


Fig. 8. 1. Commissioning

1. Remove protective cover from the power connector.
2. Connect the container refrigeration unit by means of a suitable cable (not supplied) to the electric power system.
3. Use spanner (4) to unlock latch (5) and open the protection cover.



CAUTION!

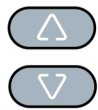
**You shall immediately unplug the container refrigeration unit at the power supply if you detect smoke, unusual smells or strange noises around the container refrigeration unit.
Call for service before operating the container refrigeration unit again.**

4. Setting target temperature (set point).

1. Use spanner (4) to unlock latch (5). Press the button ON/OFF to activate the container refrigeration unit. The symbol ON/OFF blinks until the controller is on. The current temperature is displayed.



2. If "LoC" is displayed, it means the buttons are locked. In order to unlock them, keep any button pressed until "UnL" is displayed.



3. Press SET once shortly.
The display now shows the current setting of the nominal temperature.

4. Adjust the nominal temperature by pressing UP for a higher temperature or DOWN for a lower temperature.



5. To confirm the nominal value, press the button SET.

5. Make sure that

- the wall opening of the container/trailer and the bore holes are sealed firmly to prevent moisture or air leakage,
- neither the air outlets nor the air intakes of both the condenser and the evaporator are obstructed by any material or object,
- the main cover is installed securely on the container refrigeration unit and the four screws are firmly fastened,
- the drain hose is firmly attached to the drain outlet,
- all bolts and screws are securely fastened,
- the system operates correctly.

9. Operating



CAUTION!

You shall immediately unplug the container refrigeration unit at the power supply if you detect smoke, unusual smells or strange noises around the container refrigeration unit.

Call for service before operating the container refrigeration unit again!

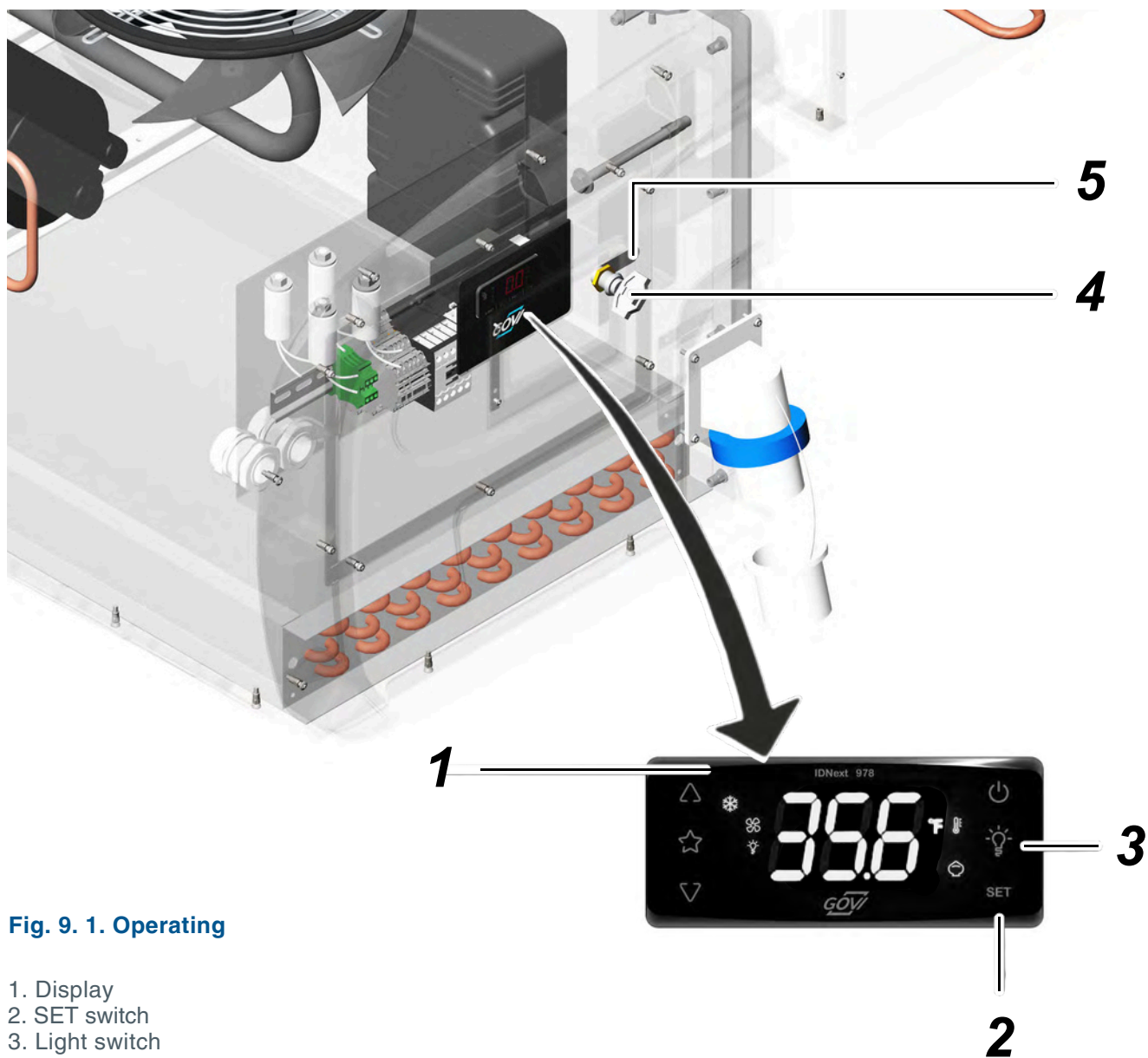


Fig. 9. 1. Operating

1. Display
2. SET switch
3. Light switch
4. Spanner (included in delivery)
5. Latch

9.1 Switching on/off container refrigeration unit

1. Use spanner (4) to unlock latch (5). Press the button ON/OFF to activate the container refrigeration unit.
2. The symbol ON/OFF blinks until the controller is on. The current temperature is displayed.

9.2 Setting target temperature (set point)

1. Use spanner (4) to unlock latch (5). Press the button ON/OFF to activate the container refrigeration unit. The symbol ON/OFF blinks until the controller is on. The current temperature is displayed.
2. If "LoC" is displayed, it means the buttons are locked. In order to unlock them, keep any button pressed until "UnL" is displayed.
3. Press SET once shortly. The display now shows the current setting of the nominal temperature.
4. Adjust the nominal temperature by pressing UP for a higher temperature or down for a lower temperature.
5. To confirm the nominal value, press the button SET.

9.3 Switching on/off lamp in the container

1. Use spanner (4) to unlock latch (5).
2. Open the protection cover.
3. **Briefly press the button ON/OFF. "AUX" lights up.**

9.4 Manual Defrost

During operation icing will occur bit by bit on the evaporator coil of the container refrigeration unit inside the refrigeration container. Icing must be defrosted regularly, in order to avoid losses in the cooling capacity and the air flow. The defrosting is carried out by hot refrigerant gas that is passed through the evaporator and so the ice melts. The melted ice runs off through the drain pipes of the unit. During the defrost procedure the evaporator fans are stopped.

1. Use spanner (4) to unlock latch (5) and open the protection cover.
2. Press "UP" for more than five seconds. The manual defrost routine will start.

10. Maintenance



Maintain the container refrigeration unit

- every six month or
 - after a longer period out of operation or
 - immediately after operation in a dusty and moist environment.
- Deferred maintenance can lead to malfunction and damage the container refrigeration unit.

10.1 Manual Defrost during maintenance

See section 9.4 Manual Defrost.

10.2 Cleaning

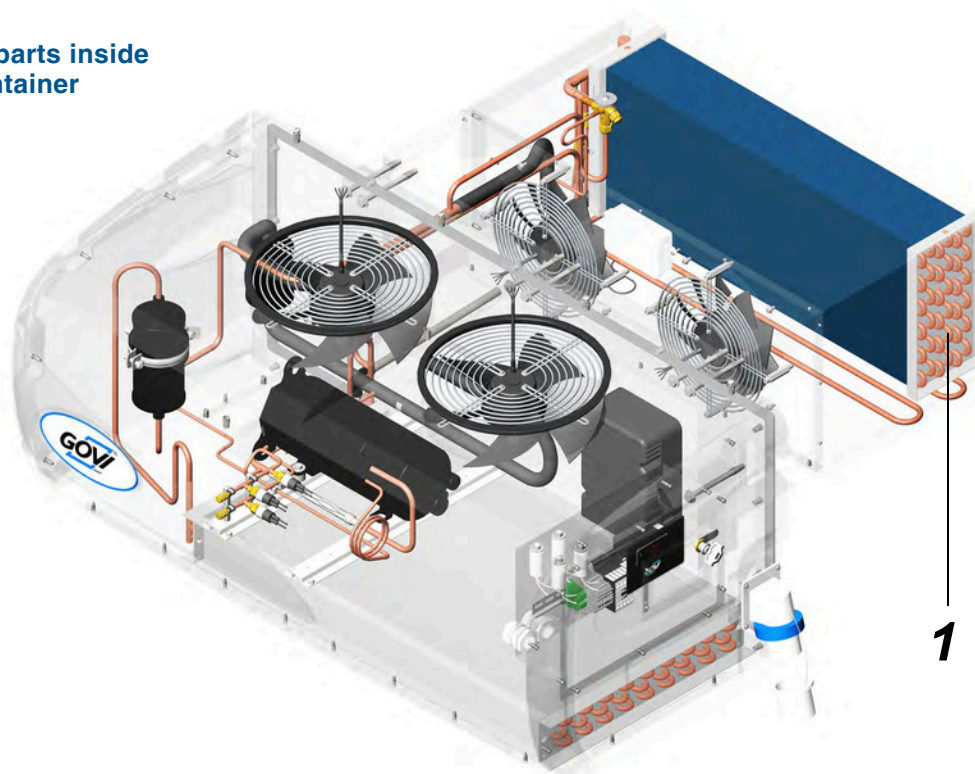
10.2.1 Cleaning parts inside the refrigeration container



WARNING!

Fire and explosion hazard!
Never use flammable solvents such as alcohol, benzene or thinners for cleaning.

Fig. 10. 1. Cleaning parts inside the refrigeration container

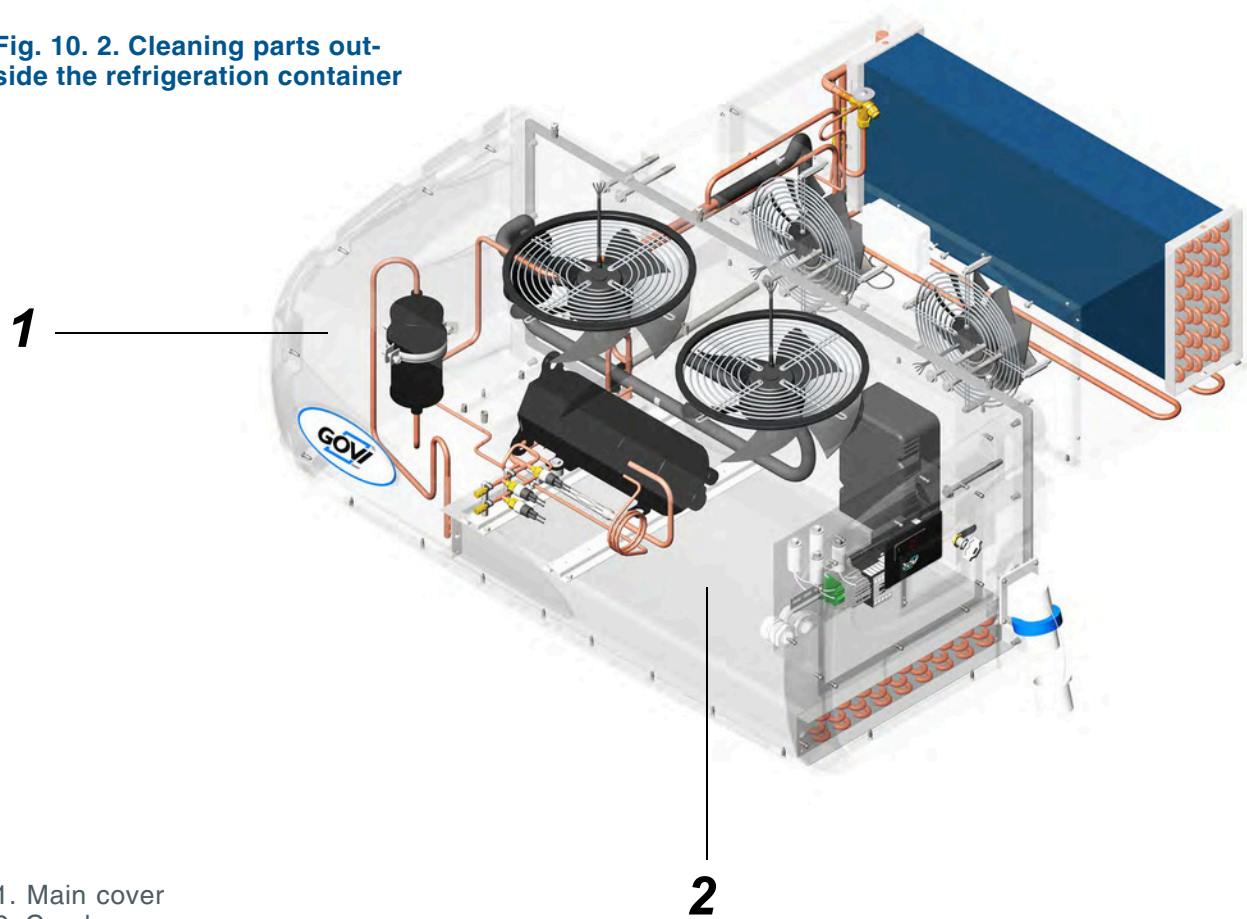


1. Evaporator

1. Clear the refrigeration container of all goods and merchandise.
2. Disconnect the container refrigeration unit from electricity by pulling the main plug.
3. Clean evaporator by applying compressed air from an appropriate distance.
4. Connect the container refrigeration unit from electricity by pulling the main plug.

10.2.2 Cleaning parts outside the refrigeration container

Fig. 10. 2. Cleaning parts outside the refrigeration container



- 1. Main cover
- 2. Condenser

1. Disconnect the container refrigeration unit from electricity by pulling the main plug.
2. Loosen and remove the five hexagon head screws on the upper side of the container refrigeration unit and take off the main cover (1).
3. Clean the condenser (2) by blowing compressed air from top to bottom through the cooling fins from an appropriate distance. If necessary, align fins after the cleaning procedure.
4. Fasten main cover (1) using the five hexagon head screws.
5. Connect the container refrigeration unit from electricity by pulling the main plug.

11. Troubleshooting

Table 11. 1. Troubleshooting

Symptoms	Problem	Action
The container refrigeration unit does not start	No power.	1. Make sure that the power switch is set to position "I". 2. Check connection to the power supply.
	The fuses of the power line are blown.	Call for GOVI service.
The container refrigeration unit does not cool; the fan inside the refrigeration container does not turn.	No power.	1. Make sure that the power switch is set to position "I". 2. Check connection to the power supply.
The container refrigeration unit does not cool the fan inside the refrigeration container works.	The nominal temperature is set too high.	Set nominal temperature to the recommended temperature.
	Malfunction of thermostat.	Call for GOVI service.
	The high pressure switch is tripped.	1. Make sure that the condenser is clean and that the outer fan is turning. 2. Make sure that the main cover is mounted correctly. 3. Call for GOVI service.
The container refrigeration unit cools insufficiently.	The ambient temperature exceeds is too high.	1. Check refrigeration container for cold air leaks. 2. Choose a colder location for the refrigeration container.
	Refrigerant is leaking.	Call for GOVI service.
	Condenser is obstructed.	Clean condenser.
	Malfunction of fans.	Call for GOVI service.
	Air circulation of condenser section is blocked.	1. Ensure sufficient space for air circulation at the container refrigeration unit. 2. Remove any obstructing objects from the air circulation area.
	Circulation of air inside the refrigeration container is impaired.	Check objects in the refrigeration container. Position the objects so that the air circulation is not obstructed.
The container refrigeration unit switches on and off automatically.	Nominal temperature is not set.	Set nominal temperature.
	Defective temperature sensor.	Call for GOVI service.
Water leaks out of the container refrigeration unit.	The drain hose is obstructed.	Remove objects that obstruct the drain hose by using compressed air.
Icing of the evaporator.	The door of the refrigeration container is open.	Close the door of the refrigeration container.
	Defective fan inside the refrigeration container.	Call for GOVI service.
	Malfunction of defrost heating.	Call for GOVI service.
No light in the carrier.	No power.	1. Make sure that lamp switch is set to "I". 2. Make sure that power switch is set to "I". 3. Check function of the lamp in the refrigeration container. 4. Check power supply. 5. Call for GOVI service.

12. Summary

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13. Appendix

13.1 Operation manual

The operation manual is attached below the control unit at the outside of the container refrigeration unit.

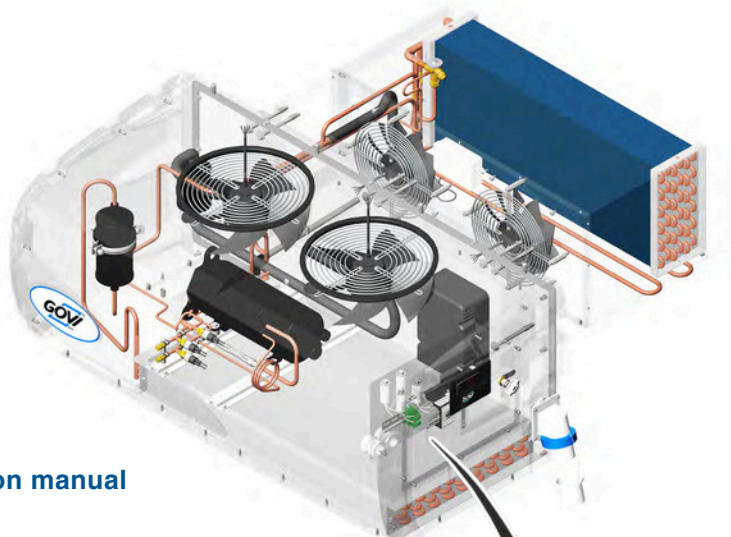


Fig. 13. 1. Operation manual

Bedienungsanleitung DE



Entsperren der Bedienoberfläche:
Halten Sie die AB-Taste für 3 Sekunden gedrückt.

Ein/Ausschalten der Lampe:
Drücken Sie kurz die LICHT-Taste.

Ein/Ausschalten des Geräts:
Halten Sie die ON/OFF-Taste für 5 Sekunden gedrückt.

Einleitung der manuellen Abtauung:
Halten Sie die AUF-Taste für 5 Sekunden gedrückt.

Einstellung der Raumtemperatur:
Drücken Sie 2x kurz die SET-Taste.
Im Display erscheint der bereits eingestellte Sollwert.
Zum Ändern des Sollwerts drücken Sie die AUF- oder AB-Taste. Bestätigen Sie den Sollwert mit der SET-Taste.

User Manual EN

SET Set-Taste / SET-button

ON/OFF ON/OFF-Taste / ON/OFF-button

AUF AUF-Taste / UP-button

AB AB-Taste / DOWN-button

LICHT Licht-Taste / LIGHT-button

Unlocking the user interface:
Press and hold the button DOWN for 3 seconds.

Turning on/off the light:
Briefly press the LIGHT button.

Turning on/off the device:
Press and hold the ON/OFF button for 5 seconds.

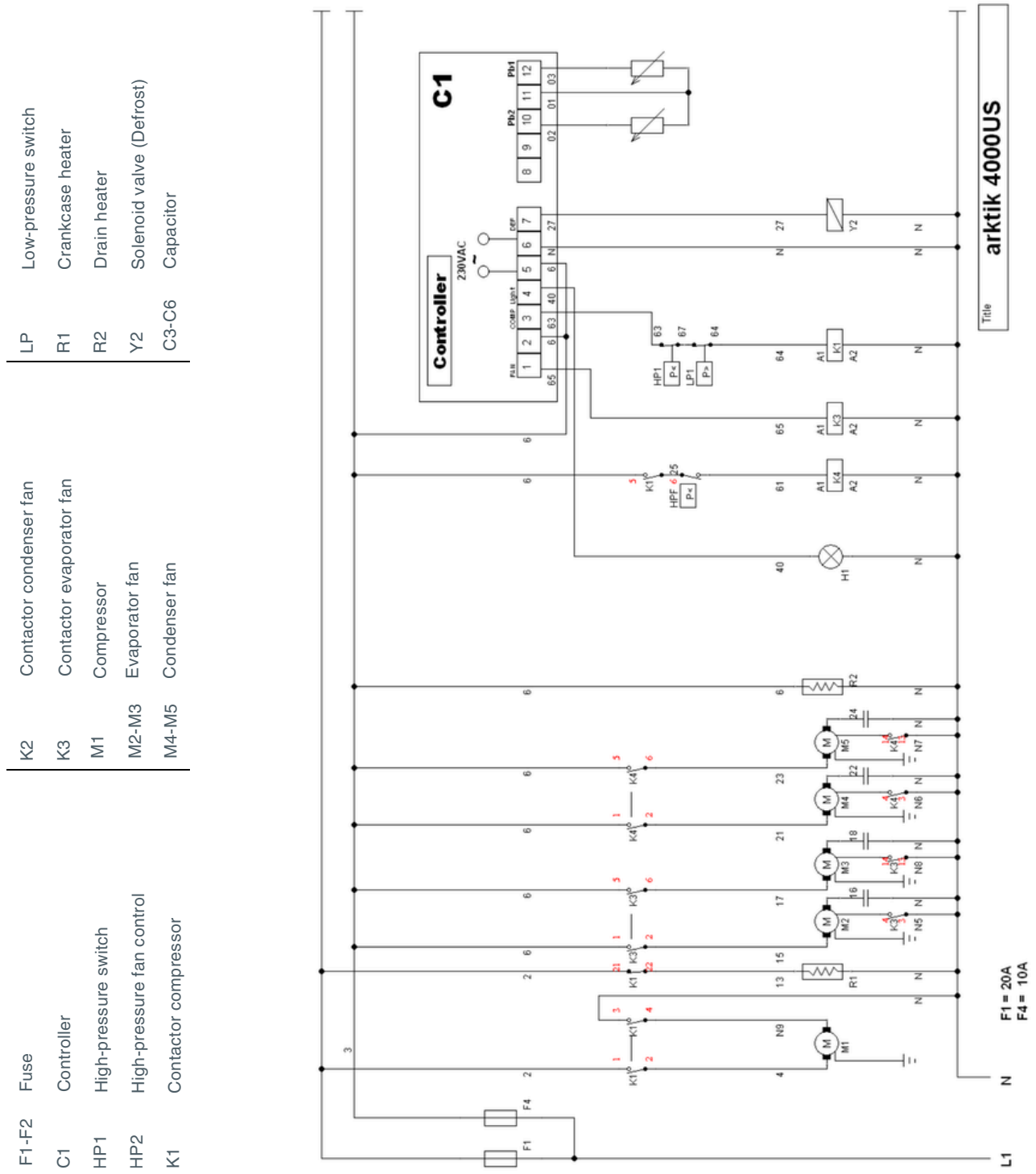
Initiating manual defrosting:
Press and hold the UP button for 5 seconds.

Setting the room temperature:
Briefly press twice the SET button.
The display shows the preset nominal temperature value already set. To change the nominal value, press the UP or DOWN buttons. To confirm the nominal value, press the SET button.

13.2 Wiring diagram

Fig. 13. 2. Wiring diagram

The wiring diagram is attached on the inside of the main cover of the refrigeration container unit.



13.3 Safety data sheet

Safety Data Sheet



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This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Opteon™ XP44 (R-452A) Refrigerant
Tradename/Synonym : Opteon (TM) 452A
R-452A
452A
XP44

Product Grade/Type : ASHRAE Refrigerant Number Designation: R-452A
Refrigerant, For professional users only.

Product Use : Consumer use

Restrictions on use : The Chemours Company FC, LLC
1007 Market Street
Wilmington, DE 19899
United States of America

Manufacturer/Supplier : 1-844-773-CHEM (outside the U.S. 1-302-773-1000)
1-866-595-1473 (outside the U.S. 1-302-773-2000)
CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

Product Information :
Medical Emergency :
Transport Emergency :

SECTION 2. HAZARDS IDENTIFICATION

Product hazard category : Gases under pressure Liquefied gas

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Label content
Pictogram : 

Signal word : Warning

Hazardous warnings : Contains gas under pressure; may explode if heated.

Hazardous prevention measures : Protect from sunlight. Store in a well-ventilated place.

Other hazards : Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Rapid evaporation of the liquid may cause frostbite. Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. May cause cardiac arrhythmia.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Pentafluoroethane (HFC-125)	354-33-6	59 %
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	754-12-1	30 %

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Difluoromethane (HFC-32)	75-10-5	11 %
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SECTION 4. FIRST AID MEASURES

General advice : When symptoms persist or in all cases of doubt seek medical advice.

Inhalation : Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.

Skin contact : Take off contaminated clothing and shoes immediately. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.

Eye contact : Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Ingestion : Is not considered a potential route of exposure.

Most important symptoms/effects, acute and delayed : Anaesthetic effects Light-headedness irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness

Protection of first-aiders : If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to physician : Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

SECTION 5. FIREFIGHTING MEASURES

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Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : No applicable data available.

Specific hazards : The product is not flammable.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire.

Further information : Cool containers/tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Evacuate personnel to safe areas. Ventilate area, especially low or enclosed places where heavy vapours might collect. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Should not be released into the environment.

Spill Cleanup : Evaporates.

Accidental Release Measures : Avoid open flames and high temperatures. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel) : Avoid breathing vapours or mist. Avoid contact with skin, eyes and clothing.

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13.3 Safety data sheet

Safety Data Sheet  Opteon™ XP44 (R-452A) Refrigerant Version 3.1 Revision Date 08/31/2015 Ref. 130000132272 Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8. Handle in accordance with good industrial hygiene and safety practice. Handling (Physical Aspects) : The product should not be mixed with air for leak testing or used with air for any other purpose above atmospheric pressure. Contact with chlorine or other strong oxidizing agents should also be avoided. Dust explosion class : Not applicable Storage : Do not drag, slide or roll cylinders. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Keep at temperature not exceeding 52°C. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from contamination. Protect cylinders from damage. Keep away from direct sunlight. Store only in approved containers. The product has an indefinite shelf life when stored properly. Storage period : > 10 yr Storage temperature : < 52 °C (< 126 °F) SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION Engineering controls : Ensure adequate ventilation, especially in confined areas. Personal protective equipment Respiratory protection : For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Hand protection : Additional protection: Impervious gloves Eye protection : Wear safety glasses or coverall chemical splash goggles. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material. Skin and body protection : Where there is potential for skin contact have available and wear as appropriate impervious gloves, apron, pants, and jacket. 5 / 15	Safety Data Sheet  Opteon™ XP44 (R-452A) Refrigerant Version 3.1 Revision Date 08/31/2015 Ref. 130000132272 Exposure Guidelines Exposure Limit Values no data available This product does not contain any exposure limits that require disclosure according to OSHA Hazard Communication Standard 2012. SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES Appearance Physical state : gaseous Form : Liquefied gas Color : clear, colourless Odor : slight, ether-like Odor threshold : No applicable data available. pH : neutral Melting point/range : No applicable data available. Boiling point/boiling range : Boiling point < -47.00 °C (-52.60 °F) Flash point : does not flash Evaporation rate : > 1 (CCL4=1.0) Flammability (solid, gas) : The product is not flammable. Upper explosion limit : Method: None per ASTM E681 Lower explosion limit : Method: None per ASTM E681 Vapor pressure : 13,159 hPa at 25 °C (77 °F) 6 / 15
Safety Data Sheet  Opteon™ XP44 (R-452A) Refrigerant Version 3.1 Revision Date 08/31/2015 Ref. 130000132272 Vapor density : 3.64 at 25 °C (77 °F) (Air = 1.0) Specific gravity (Relative density) : 1.13 at 25 °C (77 °F) Water solubility : No applicable data available. Solubility(ies) : No applicable data available. Partition coefficient n-octanol/water : No applicable data available. Auto-ignition temperature : No applicable data available. Decomposition temperature : No applicable data available. Viscosity, kinematic : No applicable data available. Viscosity, dynamic : No applicable data available. % Volatile : 100 % SECTION 10. STABILITY AND REACTIVITY Reactivity : Decomposes on heating. Chemical stability : The product is chemically stable under recommended conditions of storage, use and temperature. Polymerization : Polymerization will not occur. Possibility of hazardous reactions : Avoid open flames and high temperatures. Conditions to avoid : Strong bases Incompatible materials : Alkaline earth metals finely divided metal powders such as, Aluminium, Magnesium, Zinc, or strong oxidizers 7 / 15	Safety Data Sheet  Opteon™ XP44 (R-452A) Refrigerant Version 3.1 Revision Date 08/31/2015 Ref. 130000132272 Hazardous decomposition products : Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and possibly carbonyl fluoride. These materials are toxic and irritating. Avoid contact with decomposition products SECTION 11. TOXICOLOGICAL INFORMATION Opteon™ XP44 (R-452A) Refrigerant Further information : Avoid skin contact with leaking liquid (danger of frostbite). May cause cardiac arrhythmia. Pentafluoroethane (HFC-125) Inhalation 4 h LC50 : > 800000 ppm, Rat Inhalation: No Observed Adverse Effect Concentration : 75000 ppm, Dog Inhalation Low Observed Adverse Effect Concentration (LOAEC) : Cardiac sensitization 100000 ppm, Dog : Cardiac sensitization Skin sensitization : Does not cause respiratory sensitisation, human Inhalation Rat : No toxicologically significant effects were found. Repeated dose toxicity : Not classifiable as a human carcinogen. Overall weight of evidence indicates that the substance is not carcinogenic. Carcinogenicity : No toxicologically significant effects were found. Mutagenicity : Animal testing did not show any mutagenic effects. Evidence suggests this substance does not cause genetic damage in cultured mammalian cells. Did not cause genetic damage in cultured bacterial cells. Reproductive toxicity : No toxicity to reproduction. Animal testing showed no reproductive toxicity. 8 / 15

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Teratogenicity	: Animal testing showed no developmental toxicity.
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	
Inhalation 4 h LC50	: > 405000 ppm, Rat
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	: > 120000 ppm, Dog
Inhalation No Observed Adverse Effect Concentration	: 120000 ppm, Dog
Skin irritation	: Cardiac sensitization
	No skin irritation, Not tested on animals
Eye irritation	: Not expected to cause skin irritation based on expert review of the properties of the substance.
	No eye irritation, Not tested on animals
Skin sensitization	: Not expected to cause eye irritation based on expert review of the properties of the substance.
	Not tested on animals
	Not expected to cause sensitization based on expert review of the properties of the substance.
	There are no reports of human respiratory sensitization.
Repeated dose toxicity	: Inhalation
	Rat
	-
	gas
	NOAEL: 233 mg/l, 50,000 ppm.
	No toxicologically significant effects were found.
	Inhalation
	Rabbit
	-
	gas
	NOAEL: 2.33 mg/l, 500 ppm.
	No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for
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	classification.
	Inhalation
	Mini-pig
	-
	gas
	NOAEL: 50 mg/l, 10,000 ppm.
	No toxicologically significant effects were found.
Carcinogenicity	: Not classifiable as a human carcinogen.
	Sufficient data are available to conclude that the substance is not expected to be carcinogenic.
Mutagenicity	: Animal testing did not show any mutagenic effects.
	Did not cause genetic damage in cultured mammalian cells.
	Experiments showed mutagenic effects in cultured bacterial cells.
Reproductive toxicity	: No toxicity to reproduction
	Animal testing showed no reproductive toxicity.
Teratogenicity	: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
Difluoromethane (HFC-32)	
Inhalation 4 h LC50	: > 520000 ppm, Rat
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	: > 350000 ppm, Dog
Inhalation No Observed Adverse Effect Concentration	: 350000 ppm, Dog
Skin irritation	: Cardiac sensitization
	No skin irritation, Not tested on animals
	Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	: No eye irritation, Not tested on animals
	Not expected to cause eye irritation based on expert review of the properties of the substance.
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Skin sensitization	: Does not cause skin sensitization. Not tested on animals
	Not expected to cause sensitization based on expert review of the properties of the substance.
	There are no reports of human respiratory sensitization.
Repeated dose toxicity	: Inhalation
	Rat
	-
	No toxicologically significant effects were found.
Mutagenicity	: Animal testing did not show any mutagenic effects.
	Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Reproductive toxicity	: No toxicity to reproduction
	Animal testing showed no reproductive toxicity.
	Information given is based on data obtained from similar substances.
Teratogenicity	: Animal testing showed no developmental toxicity.
Carcinogenicity	
The carcinogenicity classifications for this product and/or its ingredients have been determined according to IARC, NTP, or OSHA, as a carcinogen.	
None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.	
SECTION 12. ECOLOGICAL INFORMATION	
Aquatic Toxicity	
Pentafluoroethane (HFC-125)	
96 h LC50	: Oncorhynchus mykiss (rainbow trout) 450 mg/l
	Information given is based on data obtained from similar substances.
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96 h ErC50	: Algae 142 mg/l
	Information given is based on data obtained from similar substances.
72 h NOEC	: Pseudokirchneriella subcapitata (green algae) 13.2 mg/l
	Information given is based on data obtained from similar substances.
48 h EC50	: Daphnia magna (Water flea) 980 mg/l
	Information given is based on data obtained from similar substances.
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	
96 h LC50	: Cyprinus carpio (Carp) > 197 mg/l
72 h NOEC	: Algae > 100 mg/l
48 h EC50	: Daphnia magna (Water flea) > 100 mg/l
Difluoromethane (HFC-32)	
96 h LC50	: Fish 1,507 mg/l
96 h EC50	: Algae 142 mg/l
48 h EC50	: Daphnia (water flea) 652 mg/l
30 d	: NOEC Fish (unspecified species) 65.8 mg/l
Environmental Fate	
Difluoromethane (HFC-32)	
Biodegradability	: 5 % OECD Test Guideline 301D
	Not readily biodegradable.
Additional ecological information	: IPCC - AR4 (Fourth Assessment Report of the Intergovernmental Panel on Climate Change) - 2007
SECTION 13. DISPOSAL CONSIDERATIONS	
Waste disposal methods - Product	: Can be used after re-conditioning. If re-conditioning is not practicable, dispose of in compliance with local regulations.
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Contaminated packaging : Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	: 1078
	Proper shipping name	: Refrigerant gases, n.o.s. (Pentafluoroethane, 2,3,3,3-Tetrafluoropropene)
	Class	: 2.2
	Labelling No.	: 2.2
	UN number	: 1078
IAT A_C	Proper shipping name	: Refrigerant gas, n.o.s. (Pentafluoroethane, 2,3,3,3-Tetrafluoropropene)
	Class	: 2.2
	Labelling No.	: 2.2
	UN number	: 2.2
	Proper shipping name	: 1078
IMDG	Class	: REFRIGERANT GAS, N.O.S. (Pentafluoroethane, 2,3,3,3-Tetrafluoropropene)
	Labelling No.	: 2.2
		: 2.2

SECTION 15. REGULATORY INFORMATION

TSCA SE	: This material contains one or more substances which are subject to a TSCA Section 5 Consent Order or Significant New Use Rule (SNUR).
	: 2,3,3,3-Tetrafluoropropene PMN Number P-07-0601 (Honeywell)
TSCA 12B	: This material contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D.

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2,3,3,3-Tetrafluoropropene
PMN Number: P-07-0601 (Honeywell)

The approved uses are: refrigerant in motor vehicle air conditioning systems.

Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

Contact your local Chemours sales or technical representative for more information.

SARA 313 Regulated Chemical(s) : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

PA Right to Know Regulated Chemical(s) : Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Difluoromethane

NJ Right to Know Regulated Chemical(s) : Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Difluoromethane

California Prop. 65 : Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

SECTION 16. OTHER INFORMATION

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Chemours™ and the Chemours Logo are trademarks of The Chemours Company. Before use read Chemours safety information. For further information contact the local Chemours office or nominated distributors.

Revision Date : 08/31/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.

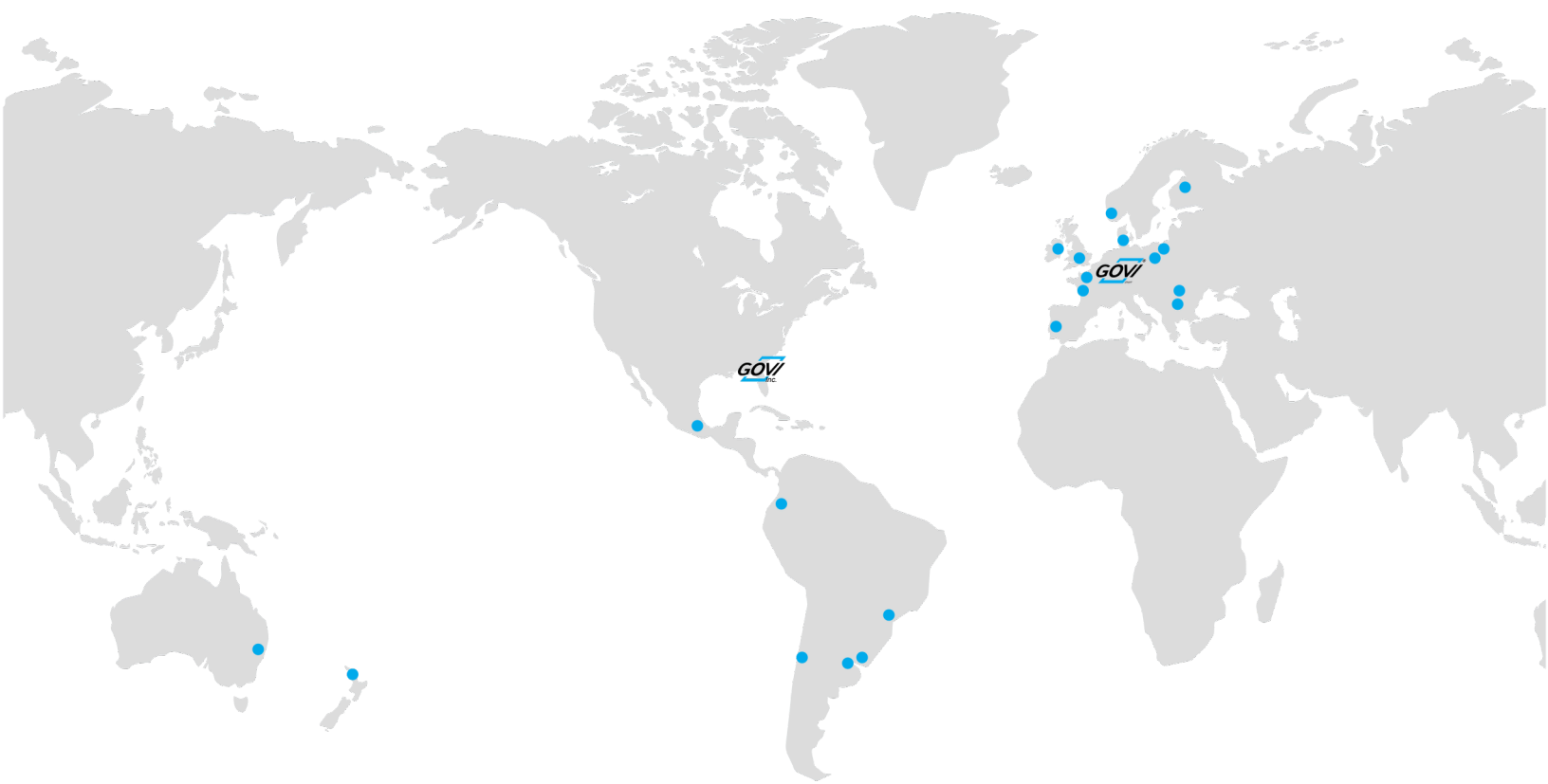
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13.4 Installation Checklist



- The wall opening of the trailer and the bore holes are sealed firmly to prevent moisture or air leakage. ☐ ☐
- Neither the air outlets nor the air intakes of both the condenser and the evaporator are obstructed by any material or object. ☐ ☐
- The main cover is installed securely on the refrigeration unit and the four screws are firmly fastened. ☐ ☐
- The drain hose is firmly attached to the drain outlet. ☐ ☐
- The eye bolts at the top of the refrigeration unit have been replaced by the plastic threaded bolts. ☐ ☐
- All bolts and screws are securely fastened. ☐ ☐
- The system was checked for leaking fluids or gas. ☐ ☐
- The system operates correctly. ☐ ☐
- Checked by: _____
- Date: _____

[illegible]



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