



COLDCRATE
Cooler Products™

Mobile Cold Storage Unit **DKB750F**

Technical Description & Parts Manual



Forward

To meet the needs of fresh and organic food, refrigerated transportation is very important. There is always potential risk in the last step of transportation. Generally, a logistics company plays an important role in distribution. They use ice bags or thermal insulated boxes to protect the goods, and do their best to ensure food safety. But this is often not enough to keep a consistent temperature and will influence the quality and expiration period of food. That's what makes ColdCrate different. Our mobile cold storage units offer you a green logistics management mode with environmentally friendly features, energy-efficient function, and zero emissions. To avoid inconveniences caused by freight vehicle restrictions of city road rules, ColdCrate not only solves the problem, but also supplies a more economic, more practical, and highly beneficial solution.

All-electric driven system, zero emission, environmentally friendly, energy-efficient.

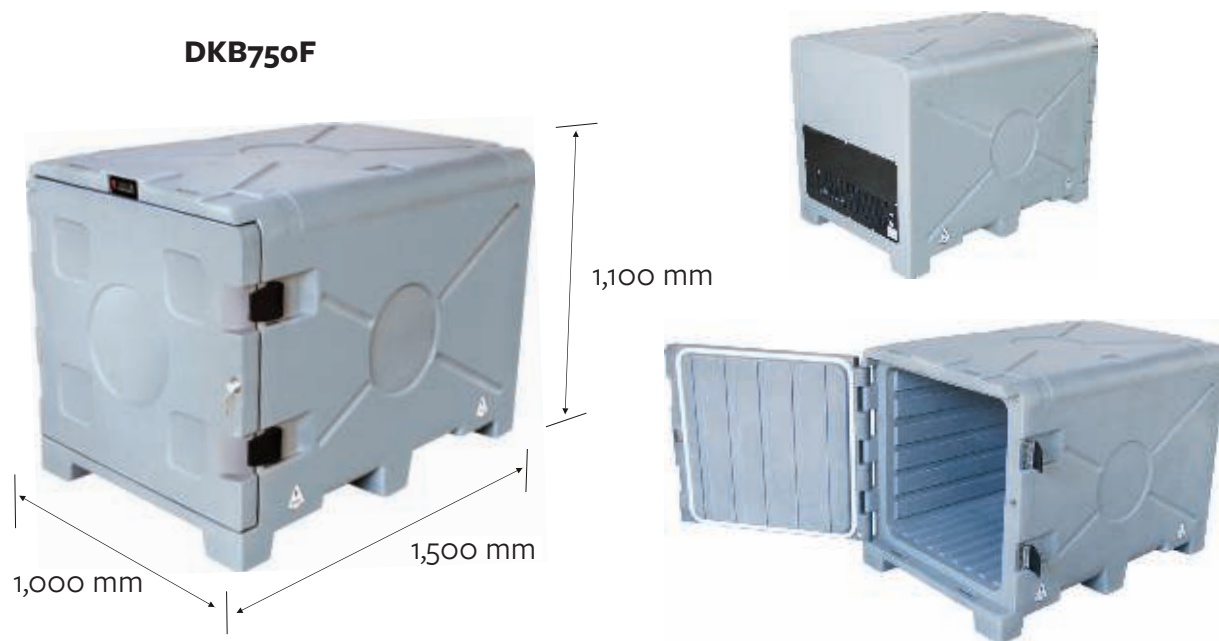
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Features & Benefits

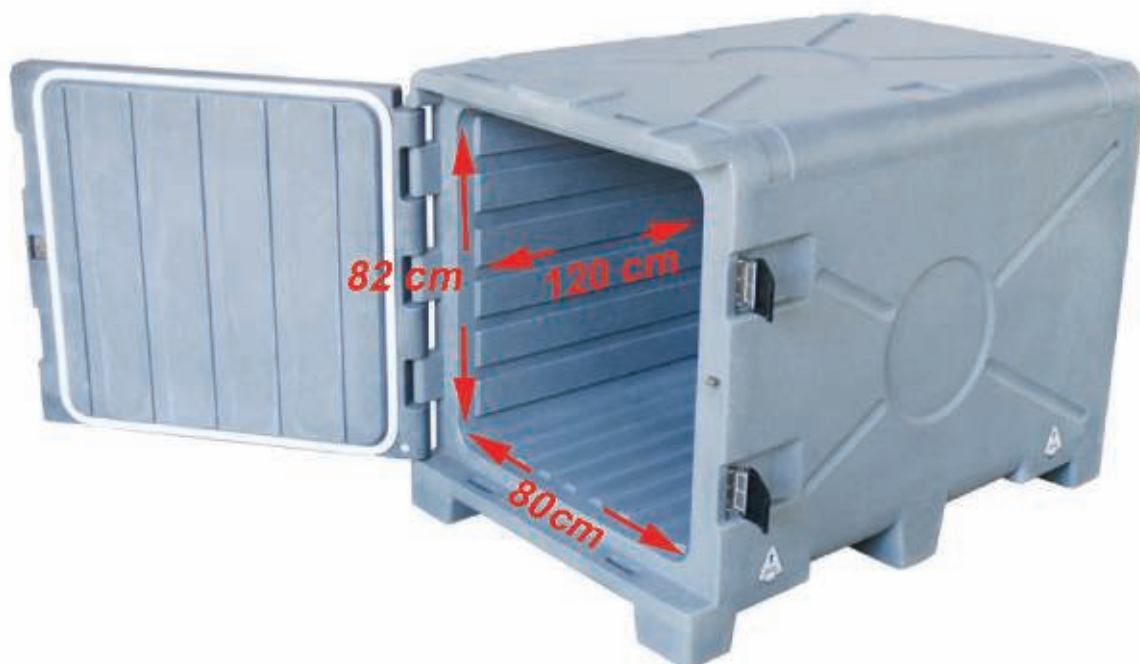
- Removable, free in and out from the compartment
- Placing in a fixed area, the unit can be used as a fridge
- Low power consumption
- Used for cold storage and transportation of fresh, frozen, or room temperature foods
- Free from cooling failure caused by vehicle engine failure
- Easy operation and maintenance
- Cold chain logistics companies can purchase general vans directly without refitting the vans.
- Constant cooling even when the vehicle engine stops. Powered by vehicle battery or 115V AC shore power

Overall Dimensions

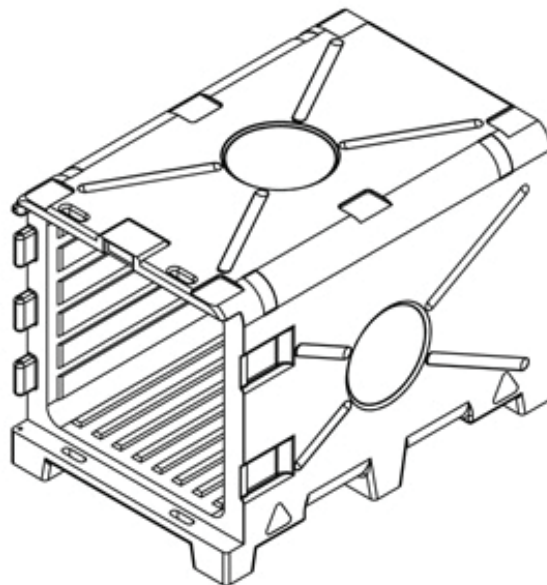
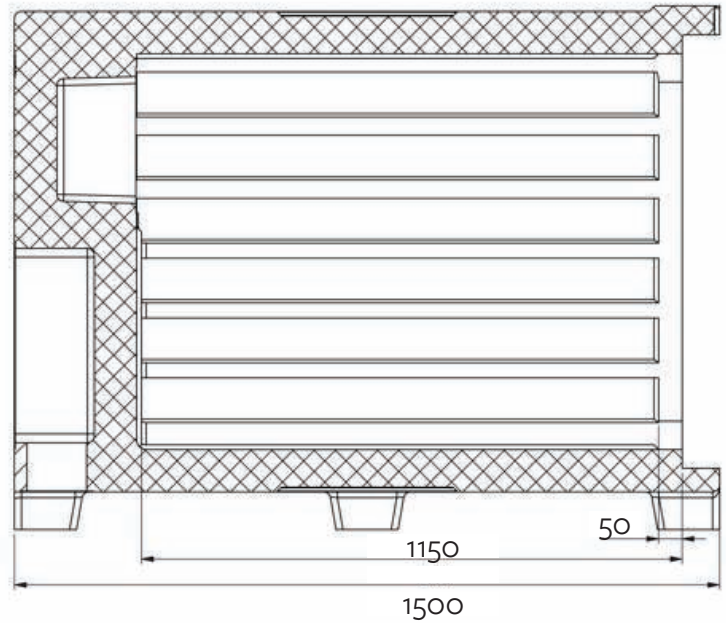
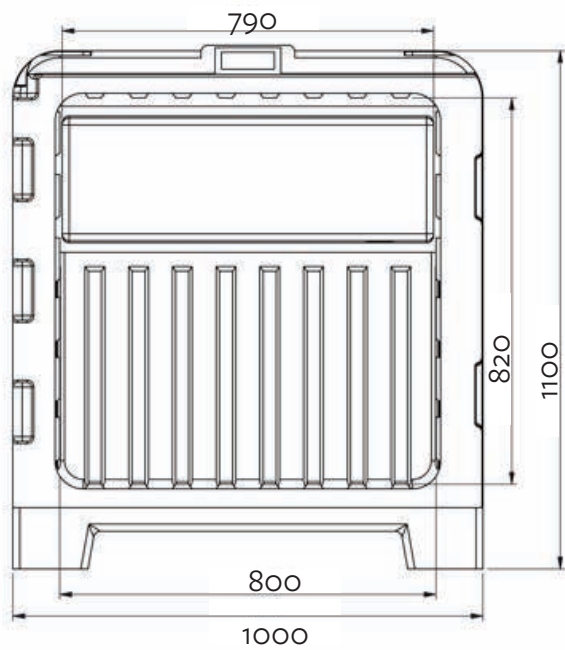


Specifications	
MODEL	DKB750F
Overall Dimensions (Length x Width x Height)	1.5m x 1.0m x 1.1m
Storage Capacity	750L
Internal Air flow	2.7 m ³ /min
Power Supply	DC - 12 VDC AC - 115 VAC / 60 Hz
Refrigerant	R134a
Temperature Regulation Range	-18°C ~ +15°C
Allowable Ambient Operating Temperature	-30°C ~ +40°C
Max. Current At 12 VDC	26A
Average Current At 12 VDC	11A
Weight	135 kg

Note Power requirements of DKB750F unit:
 AC: 115V / 60Hz single-phase two wires + grounding (L+N+PE ground)
 DC: 12VDC wire diameter ≥ 2.5mm (AWG 10)



Detailed Dimensions



Working Principle and System Circulation Diagram

Refrigeration Principle:

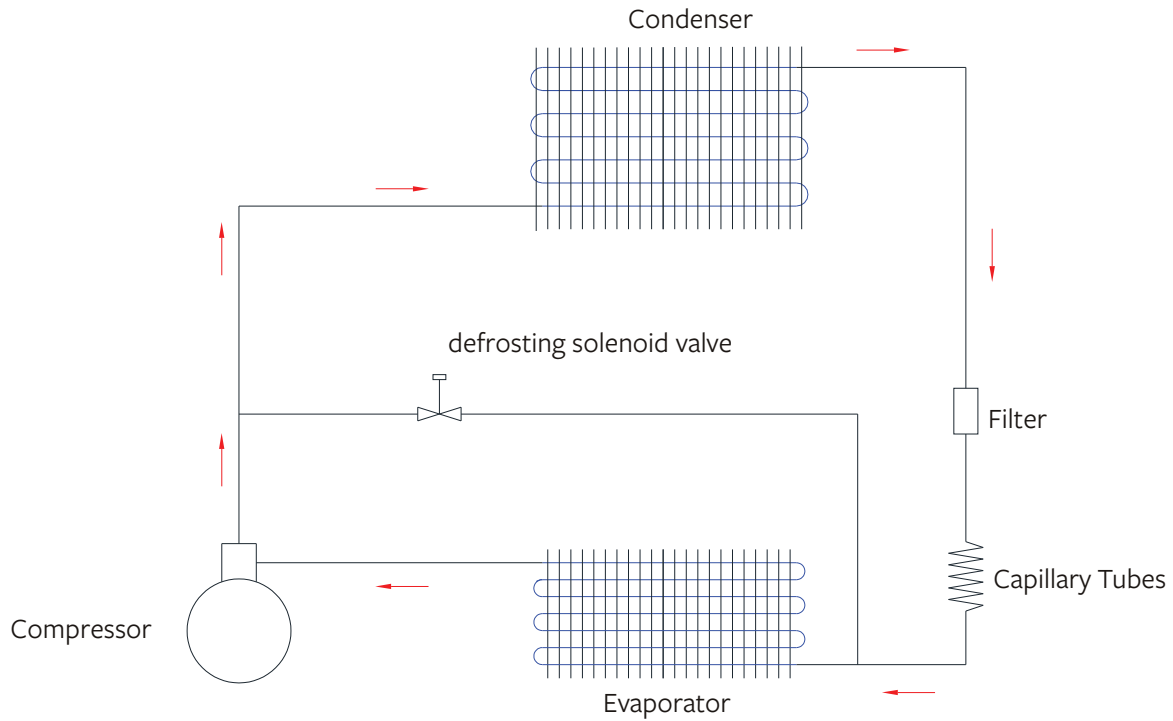
High temperature and high pressure refrigerant gas goes into the air-cooled condenser after compressed. The gas then condenses in the air-cooled condenser, changes to liquid, and passes through a filter which removes water and impurity, then passes through capillary tubes which reduces pressure. Later, the low-temperature, low pressure liquid flows through evaporator and evaporates, then absorbs heat and reduces the temperature of air inside the box. Finally, the liquid becomes low-temperature and low-pressure gas, and gets sucked back by the compressor to complete the refrigeration cycle. The refrigeration system continuously cycles in this way and therefore reduces the box inside air temperature. When the inside temperature reaches the setting temperature, the compressor stops working. If the air temperature inside the box is higher than the setting temperature, the compressor starts to work.

Defrost Principle:

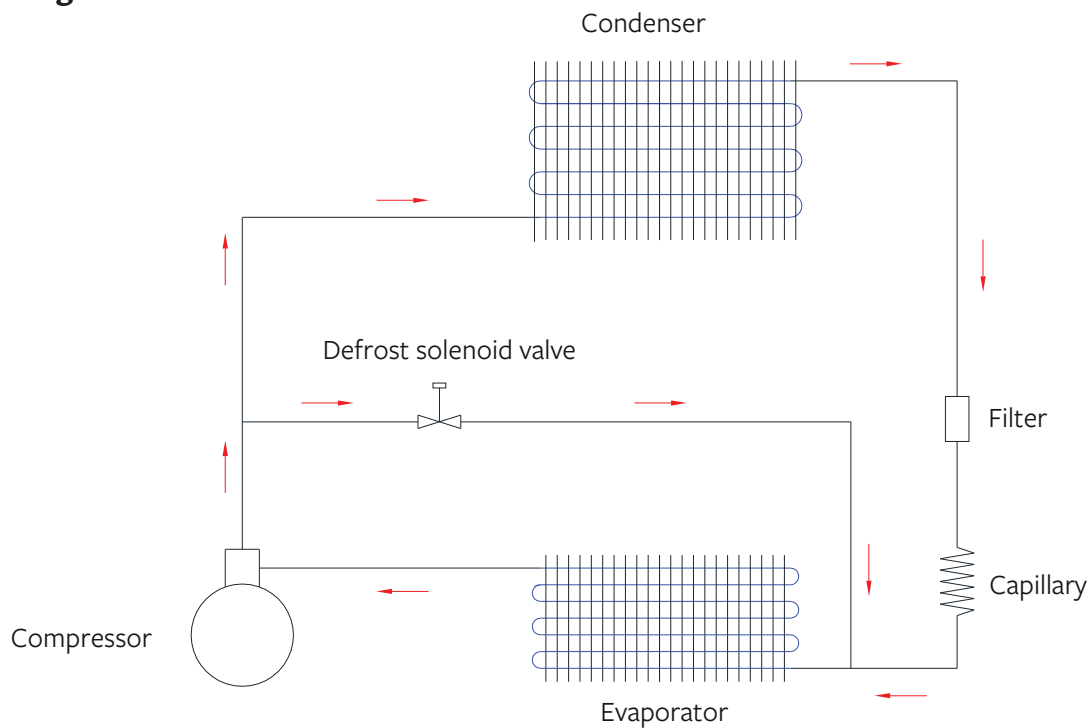
During defrosting, the defrost solenoid valve is open, and most of the high temperature gas flows into evaporator coils to melt frost. Refrigerant flows back to the compressor by a suction line. After defrosting, the defrost solenoid valve closes, and the system starts the refrigeration cycle.

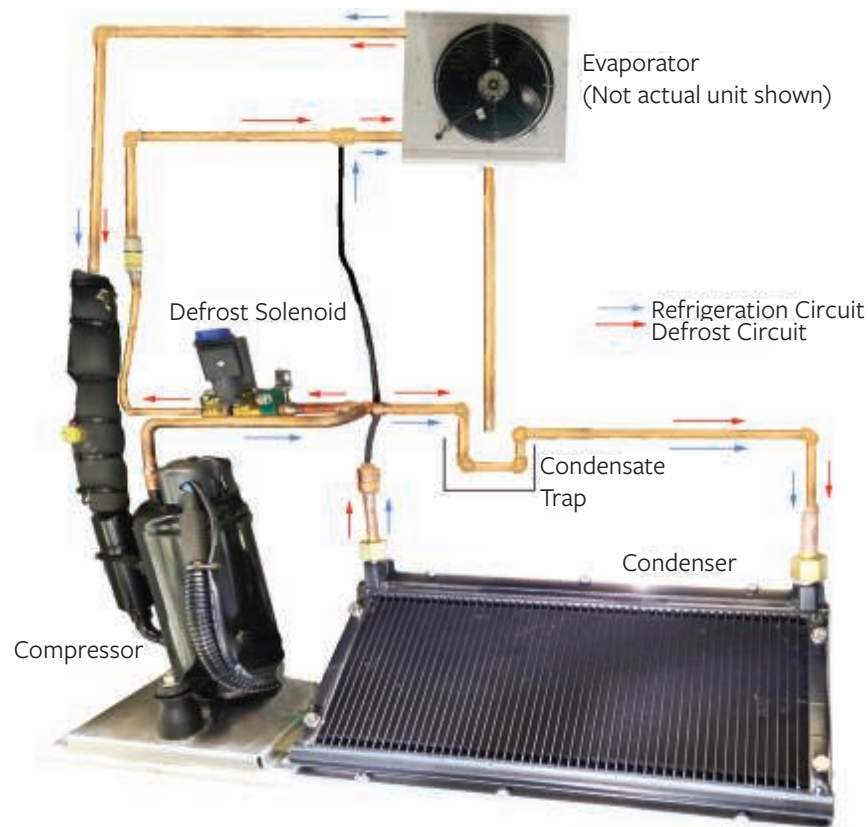
System Refrigeration & Defrosting, Circulation Diagrams

Refrigeration Circulation



Cycle Defrosting





Operation Considerations

Before Loading Cargo:

- Review installation including power connections.
- Make sure the unit runs normally before loading.
- Pre-cool the storage cabinet according to the nature of your cargo.

During Operation;

- Don't forget to close the door
- Minimize the door-open time to avoid the outside heat and moisture entering the cabinet.
- Set the desired temperature using the thermostat controller to fit the needs of cargo.
- Periodically check the internal temperature of the storage cabinet.
- Be careful not to block the air outlet and air return of the evaporator (retain proper gap on top and bottom of the box for ventilation).
- Park the vehicle in the shade to minimize power consumption.
- Operate your ColdCrate at least once per month.

Important:







User should purchase insurance for their cargo. ColdCrate will not be responsible for any special & indirect damage caused by contract or tort (including negligence), and would not be responsible for the harm to the vehicle, cargo, or person due to installation of our products or the mechanical failures.

Operating Switch





Operating Switch Layout



Display Icons






Icon	Description
	Digital Display
	Refrigeration
	Fan
	Defrosting
	Not Used
	Alarm

Keys and Function

Key	Icon	Brief Instruction
Setting		Used to establish display and setting parameters
Down		<ul style="list-style-type: none"> Toggle Down Menu Change a parameter (Lower)
Up		<ul style="list-style-type: none"> Toggle Up Menu Change a parameter (Rise)
Exit		<ul style="list-style-type: none"> Exit Setting Start / Stop






Operating Instructions

1. Storage Cabinet Temperature Setting

<p>Press the SETTING key for 0.5 seconds</p>  <p>To enter into the temperature setting mode</p>	Displays the current set point temperature value
<p>Hold the SETTING key</p>  <p>While pressing the UP or DOWN key</p>   <p>To modify the temperature setting point</p>	Displays the changing set point value
<p>Once the desired set point is achieved, release the SETTING key.</p> 	Reverts back to home screen and displays actual cabinet temperature.

2. Quick View

Quick View allows the operator to view the current operating parameter settings.

<p>Press SETTING key</p>  <p>To view the first parameter</p>	Name of the first parameter is displayed
<p>Press UP or DOWN key</p>   <p>To select the previous or next parameter</p>	Displays Name of parameter
<p>Press and hold the SETTING key</p>  <p>To view the parameter's value</p>	Displays Value of the currently selected parameter.
<p>Release the SETTING key</p>  <p>To stop showing parameter value</p>	Name of next parameter will automatically be displayed.
<p>Without operational command, the system will return to the home screen to display the temperature for the storage cabinet after 5 seconds.</p>	Reverts back to home screen and displays actual cabinet temperature.

Operating Instructions

Operating Parameter Table

Code	Function	Range	Description
T1	Return Air Temperature	-50°C to 80°C	Current Temperature inside the cabinet
T2	Defrost Temperature	-50°C to 80°C	Temperature sensor measuring defrost cycle
TH1	T1 Maximum Setting	-50°C to 80°C	Maximum temperature value that T1 has reached
TLO	T1 Minimum Setting	-50°C to 80°C	Minimum temperature value that T1 has reached
Cnd	Compressor Run Time	Infinite	This is the compressor running time (Shown in weeks)
Loc	Temperature Setting Lock	Yes / No	<p>This function allows us to lock / unlock the temperature setting function.</p> <p>To lock or unlock this we simply hold the setting button and use the UP or Down key.</p> <p>Yes = Temperature setting locked to current value No = Temperature setting can be adjusted.</p>

3. Changing Operating Parameter Settings

The factory operating settings have been optimized to best suit most operating conditions. However, in some operating environments it may be beneficial to adjust one or more operating parameters. Please consult our technical team or our on-line resources for further direction.

Maintenance

Routine maintenance

- Clean the refrigeration system cover to remove dust build up.
- Clean the coils of evaporator and condenser
- Check and secure all electrical and plumbing connections.
- Check start and end of defrost cycles
- Check the thermostat operation
- Visually inspect refrigeration system components and fittings for leaks or damage
- Check for abnormal noise coming from compressor or fan parts

Refrigeration System Repair

If refrigeration system requires service, it should be completed by a qualified refrigeration technician.

Relevant Technical Specifications for Service Technician:

Refrigerant Type	R134A
Refrigerant Capacity	300 g
Oil Type	RL68H
Oil Capacity	200ml
System Pressure	1.7Mpa

Basic Troubleshooting

Complaint / Fault	Possible Cause	Remedies
Unit Does Not Operate	Inadequate Power supply	Check and repair
	Fuse in control unit has blown	Check and replace
	Compressor is damaged	Check and replace
	Controller failure	Check and replace
Inadequate Cooling	Refrigerant leak	Leak test & fill with refrigerant
	Condenser blockage	Clean the unit
	Evaporator freezing (too much)	Adjust defrost time
	Thermo load is too heavy	Reduce cargo volume
Unit Does Not Defrost	Defrost solenoid coil damaged	Check and replace
	Solenoid valve core cannot open	Check and replace
Compressor Does Not Operate	Relay Damaged	Replace
	Circuit Damaged	Repair
	Compressor Damaged	Repair / Replace
Fan Does Not Operate	Fan failure or wiring connection	Repair / Replace
	Relay Damaged	Replace

Self Diagnostics

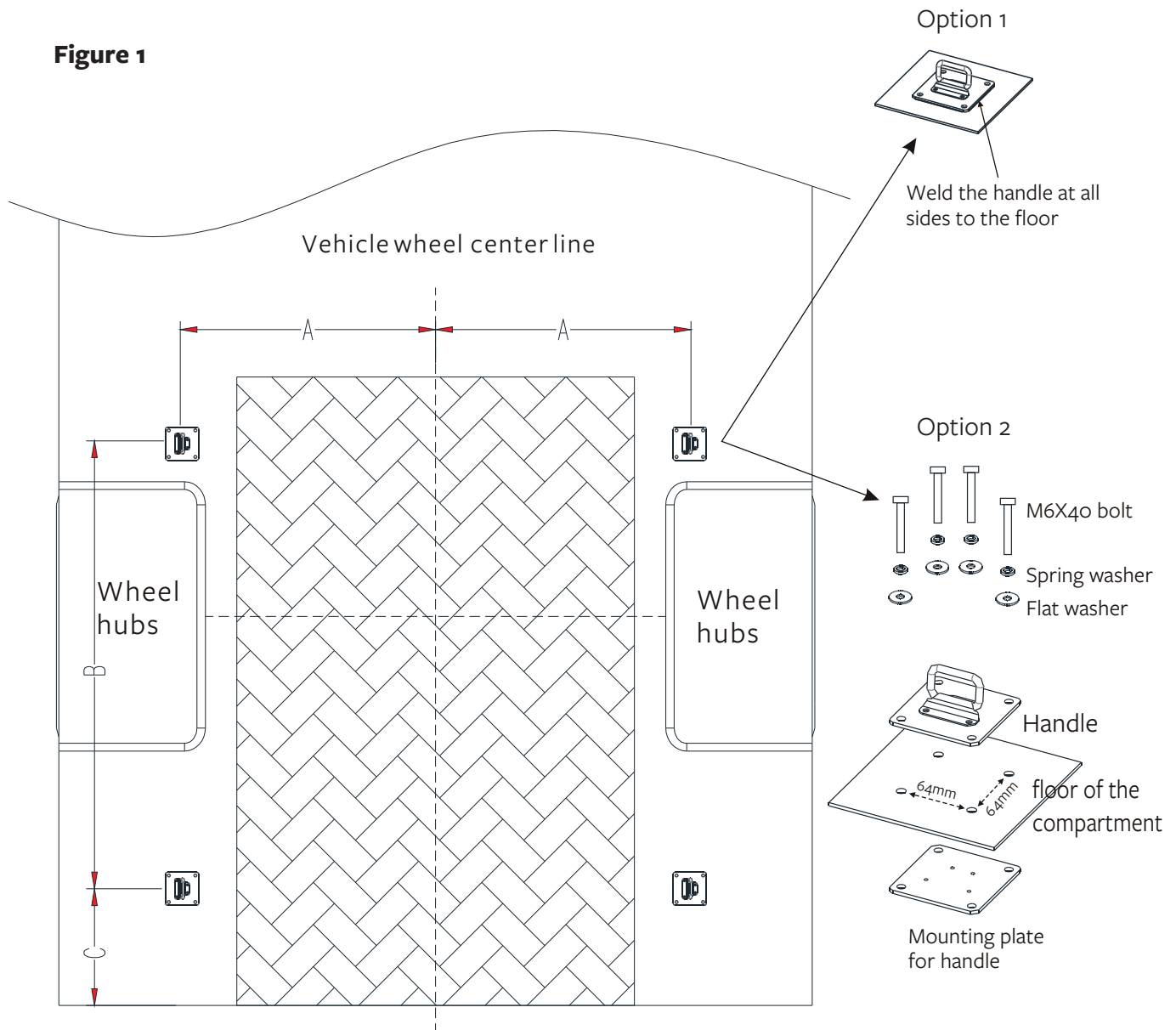
The ColdCrate is equipped with self diagnostics capabilities.
In the event of a detectable failure, the ECU will provide a fault code.

Code	Fault	Solution
DEF	Defrost Progress	Normal function (Not a failure)
REC	Reset after defrosting	Normal function (Not a failure)
E1	Sensor (probe) T1 failed	Check air outlet sensor and panel terminal connections Ensure there is good contact Replace the sensor or panel as required.
E2	Sensor (probe) T2 failure	Check the defrost sensor and panel terminal connections. Ensure there is good contact Replace the sensor or panel as required.

Unit Installation Instruction

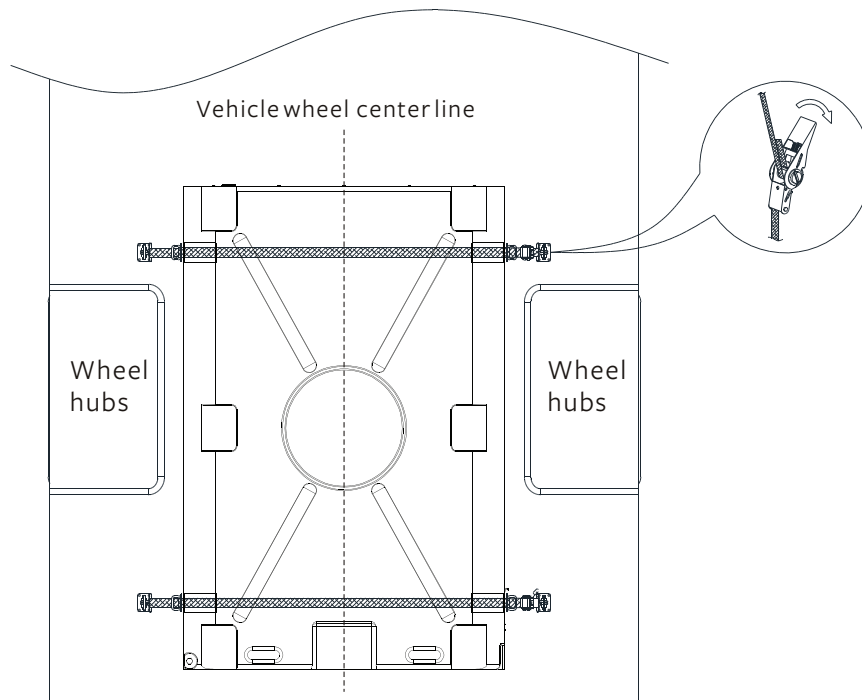
1. Fix the handle on the floor of the compartment using nuts and bolts or welding as shown in Figure 1. Install plywood flat on the floor as shown to serve as a mounting surface.

Figure 1



A	B	C
610mm	1100-1200mm	>150mm

Use a forklift to insert the ColdCrate unit into the compartment, position as required and secure with appropriate cargo strap.



3. Connect the power

DC Power

The ColdCrate is supplied with a power harness to provide a connection to the vehicle's battery. When connected, the vehicle's battery system will provide electrical power to operate the ColdCrate.

Installation: (Figure 2)

Route the 5m long power harness from the ColdCrate

Connect directly to the battery.

Ensure the proper 40 amp fuse is installed.

Connect to the DC port on the ColdCrate unit.



Attention:

To avoid depletion of the vehicle's battery, it is recommended to operate the vehicle's engine whenever the ColdCrate is in operation.

AC Power

In addition to DC Power operation, The ColdCrate is equipped with an AC to DC Power Converter to allow the operator to use 115 VAC power when the vehicle is stationary.

This allows operation of the ColdCrate without the need to run the vehicle's engine.

Installation: (Figure 3)

Connect the 2m long power cord to the AC Outlet on the ColdCrate.

Route the harness and connect to a suitable AC circuit.

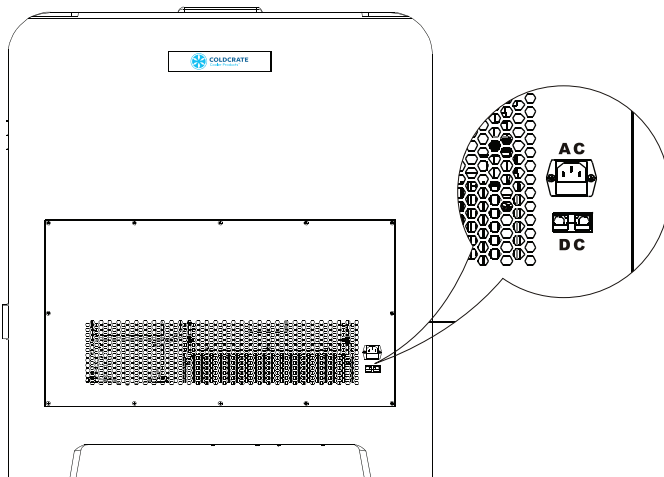


Figure 3

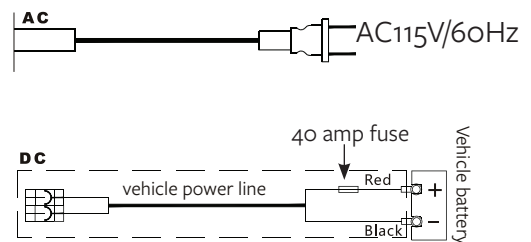
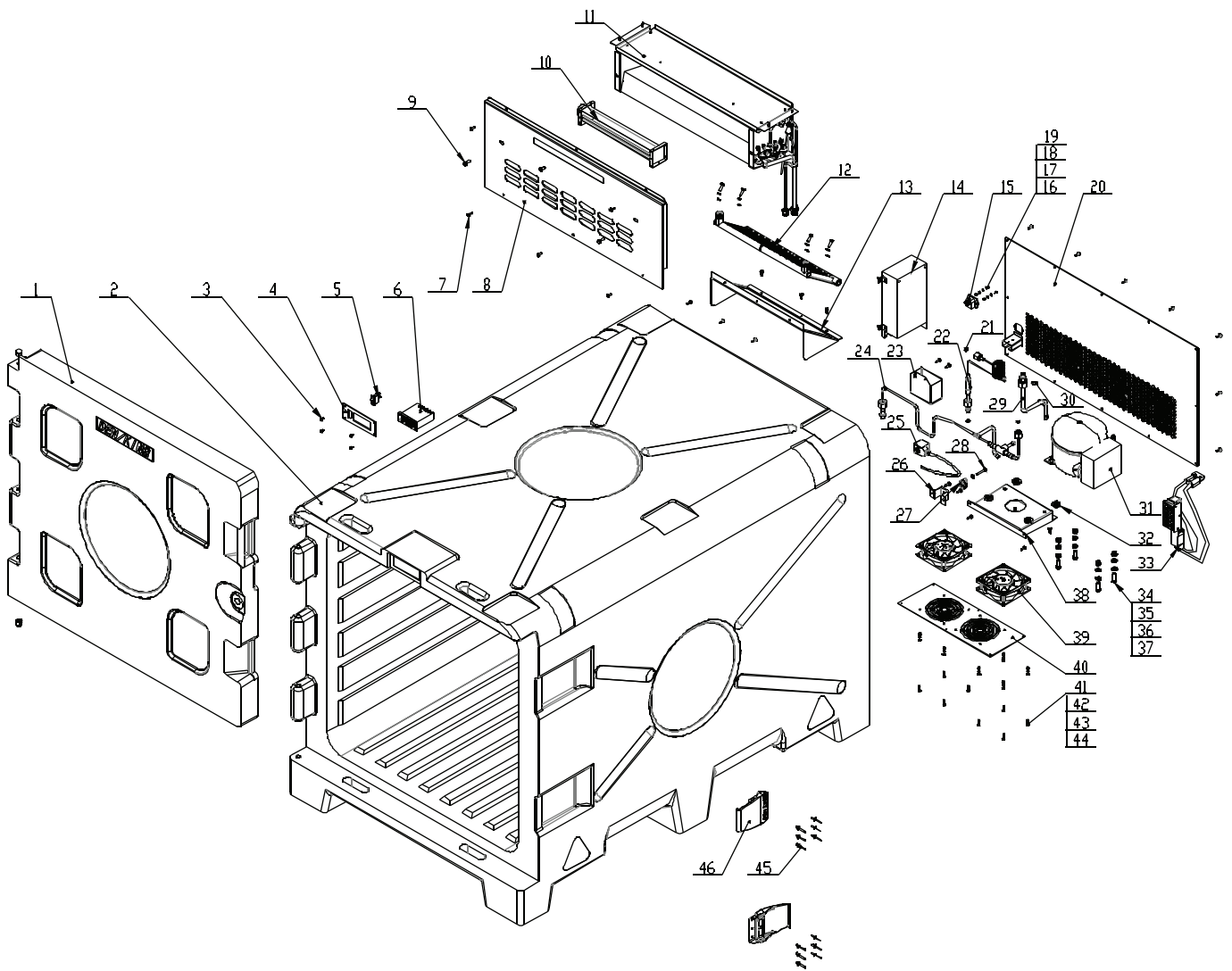


Figure 2

Replacement Parts



Item	Part No.	Description	Qty.
1	DKo14001	Door	1
2	DKo14002	Body	1
3	DKo14003	Tapping Screw	4
4	DKo10014	Controller Mounting Plate	1
5	DKo14004	Power Switch	1
6	DKo14005	Controller	1
7	DKo14006	Tapping Screw	46
8	DKo12009	Evaporator Cover Plate	1



Item	Part No.	Description	Qty.
9	DKo14007	Hexagon Bolt M6x20	6
10	DKo14008	Evaporator Fan	1
11	DKo12000	Evaporator Core	1
12	DKo11000	Condenser	1
13	DKo11200	Condenser Mounting Plate	1
14	DKo14009	Switching Power Supply	1
15	DKo14010	Power Socket	1
16	DKo14011	Cross Recessed Pan Head Screw M3x10	2
17	DKo14012	3mm Spring Washer	2
18	DKo14013	3mm Flat Washer	2
19	DKo14014	Hex Nut M3x10	2
20	DKo10003	Black Plate Kit	1
21	DKo14015	O-Ring 8x1.8 , NPR	3
22	DKo11100	Condenser Drainpipe	1
23	DKo17001	Water Tank	1
24	DKo12300	Exhaust Pipe Kit	1
25	DKo14016	Solenoid Valve Coil	1
26	DKo10008	Solenoid Valve Mounting Plate	1
27	DKo14017	Clamp	1
28	DKo14018	Hexagon Bolt M6x35	1
29	DKo12400	Air Return Pipe Kit	1
30	DKo14019	O-Ring 10x1.8 , NPR	2
31	DKo14020	Compressor	1
32	DKo14021	Cushioning	4
33	DKo14022	Wiring Harness	1
34	DKo14023	Hexagon Bolt M6x55	4
35	DKo14024	6mm Spring Washer	4
36	DKo14025	6mm Flat Washer	4
37	DKo14026	Self-Locking Nut M6	4
38	DKo10001	Compressor Mounting Plate	1
39	DKo14027	Condenser Fan	2
40	DKo11001	Condenser Fan Mounting Plate	1
41	DKo14028	Phillips Pan Head Screw M4x16	8
42	DKo14029	4mm Spring Washer	8
43	DKo14030	4mm Flat Washer	8
44	DKo14031	Hex Nut M4	8
45	DKo14032	Cross Countersunk Head Screw, M6x40	12
46	DKo12600	Door Handle Assembly	2



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DKSI.com | 877 508 3900

Toronto, ON
Dallas, TX