

# Installation Manual

## Monoblock Refrigerator System

Type: KT XXX  
TKT XXX

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## 1 General Information

### 1.1 Symbols in the Instruction Manual

The following symbols are used in the instruction manual:



#### **Warning, Caution**

Failure to follow these instructions can lead to personal injuries, property damages and, at worst, death.



Additional information

### 1.2 Important Safety Instructions

Thank you for choosing Uniblock. Please read these instructions carefully. They provide details and advice on the correct method of installing, using and maintaining this unit, in order to obtain maximum reliability, efficiency and long life.

When installing and using the unit please follow the recommendations listed here below:

- Installation shall be carried out in strict compliance with the diagrams and instructions supplied by the manufacturer.
- Damages due to improper connections are excluded.
- The electric system available where the unit is installed shall meet the relevant standards in force.
- Maintenance shall be effected by trained personnel or by the manufacturer according to the provisions supplied by EN378.



**Use safety gloves to protect your hands from possible cuts.**

The user is strongly recommended to contact the manufacturer before attempting any intervention on the unit and any use not corresponding to the manufacturer's indications (in particular as for the field of application) and to enquire about the possible dangers and contra-indications connected with an improper use of the machine.

- The unit shall be used following these instructions and sticking to the destination of use indicated by the supplier. Any incorrect use can result in damages to the unit and represents a serious danger for people's health.



**The unit is not suitable for working in explosive environments.  
Therefore the use of the unit in an explosion-dangerous atmosphere is absolutely forbidden.**

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The unit is not suitable for working in salty environments. In such a case protect condenser and evaporator with appropriate means.



When maintenance involves operations on the refrigerating circuit, empty the system and let it reach the atmospheric pressure.



Do not discharge the refrigerant in the atmosphere. It must be recovered by specialized technicians using suitable equipment.

- Quantity and quality of the refrigerant to be charged are indicated on the data plate.
- Do not use refrigerants of different kind (especially inflammable fluids, for example hydrocarbons) or air.
- Do not modify or alter the refrigerating circuit or its components (for example: welding on compressor body)
- The final user shall protect the system from external fire dangers.

## 2 Table of Warning and Attention Plates

|  |   |
|--|---|
| Modello<br>Model   | <input type="text"/>  |
|  ZANOTTI s.p.A.<br>Via Martin L. King, nr. 30<br>46020 PEGOGNAGA<br>(Mantova) - Italy |  |
| Modello<br>Model   | <input type="text"/>  |
| Matricola<br>Serial Number   | <input type="text"/>  |
| Tensione<br>Voltage  | <input type="text"/> V/Ph/Hz  |
| Assorbimento Marcia<br>Run Absorption  | <input type="text"/> A <input type="text"/> Kw                                      |
| Assorbimento Max<br>Max Absorption   | <input type="text"/>  |
| Assorbimento di spunto<br>Starting Absorption  | <input type="text"/> A  |
| Potenza nom. compressore<br>Nominal Horsepower   | <input type="text"/> Kw   |
| Refrigerante<br>Refrigerant  | <input type="text"/> Kg   |
| Massa<br>Mass  | <input type="text"/> Kg   |
| Schema nr.<br>Diagram nr.  | <input type="text"/>  |

- 1) Year of manufacture
- 2) ZANOTTI unit code
- 3) Serial number
- 4) Voltage
- 5) Run Absorption
- 6) Max Absorption
- 7) Starting Absorption
- 8) Compressor's nominal power
- 9) Refrigerant : Type; Quantity
- 10) Mass of the unit
- 11) Electric diagram number

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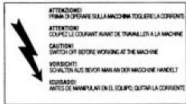
Refrigerant



Condensate drain line



Attention: hot or cold parts



Attention: Switch off before operation on the unit



Attention: danger of electrocution



Connect this cable to a circuit breaker, never to the main line directly.

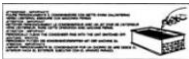


Direction of rotation

Senso di rotazione elettroventilatori



Colours of supply cable wires



Attention: clean the condenser periodically by blowing air from the inside outwards. Stop the unit before cleaning.



Room light cable



Microdoor cable



Door heater cable

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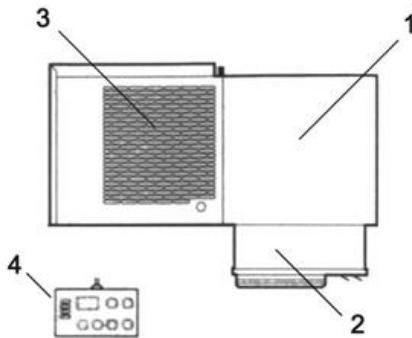
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## 3 Description of the Unit

The SB series includes air-cooled or water-cooled (optional) condensing units built on the basis of the single-block principle. They consist of:



1. A condensing unit placed outside the cold room
2. An evaporator placed in an insulated box and installed outside the cold room;
3. An electric control panel placed on the condensing unit
4. A wall-mounted remote control panel

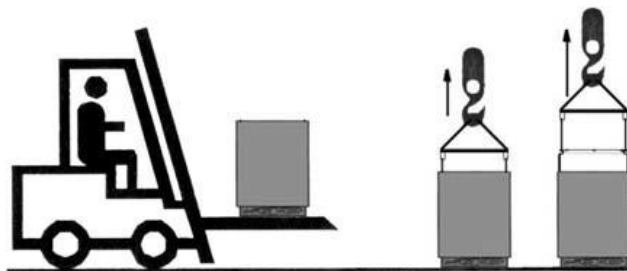
## 4 Operation

SB single blocks are compression units where cold is produced by vaporizing a liquid refrigerant (HFC type) at low pressure in a heat exchanger (evaporator). The resulting vapour is brought again into the liquid state by mechanical compression at a higher pressure, followed by cooling in another heat exchanger (condenser). The compressor is hermetic, with reciprocating motion, supplied with single-phase or three-phase power.

Defrost takes place automatically in pre-set cycles; manual defrost is also possible.

## 5 Handling

The unit can be handled by lifting and transport means.



**Make sure that no one is in transit in the operating area of the lifting/transport means to prevent any possible accidents to people.**



**If the unit is in a wooden case or crate, sling the packing properly before handling it.**

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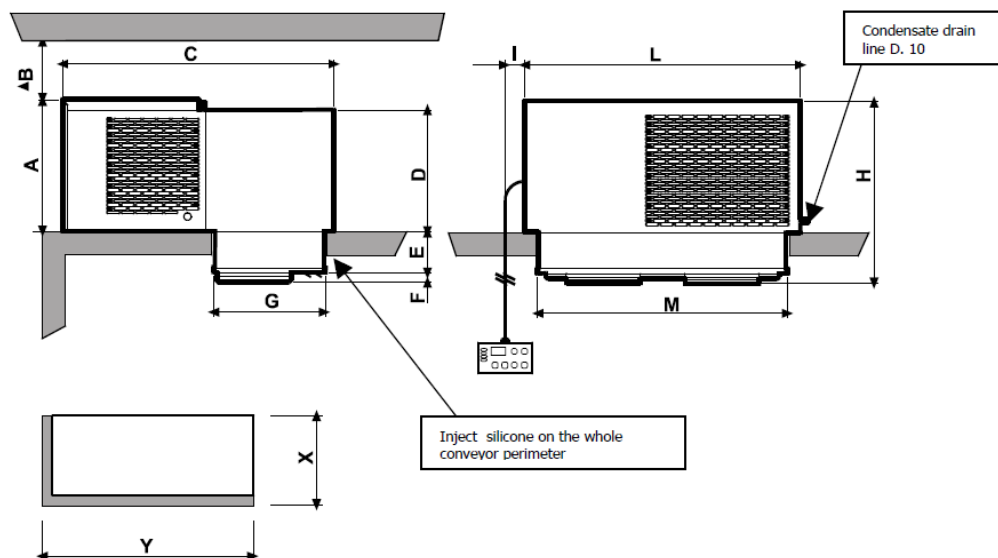
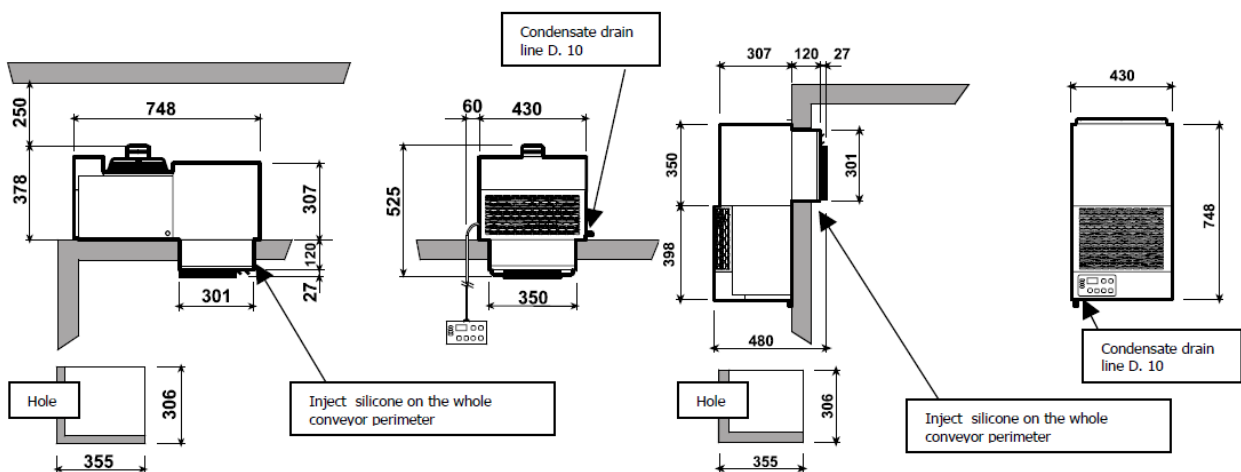
Lifting speed shall be such as not to make the packed unit oscillate dangerously and possibly fall.

## 6 Installation

### 6.1 Plates

The unit is supplied with warning and attention plates as listed in the relevant table.

### 6.2 Dimensions



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| Mod.  | A   | B   | C    | D   | E   | F  | G   | H   | I  | L    | M    | X   | Y    |
|-------|-----|-----|------|-----|-----|----|-----|-----|----|------|------|-----|------|
| 120-O | 378 | 250 | 784  | 307 | 120 | 27 | 301 | 525 | 60 | 430  | 350  | 306 | 355  |
| 125   | 357 | 250 | 719  | 340 | 122 | 28 | 332 | 506 | 60 | 620  | 525  | 337 | 550  |
| 225   | 390 | 250 | 809  | 360 | 122 | 28 | 332 | 540 | 60 | 820  | 745  | 337 | 750  |
| 135   | 427 | 250 | 929  | 410 | 122 | 98 | 452 | 645 | 60 | 820  | 745  | 456 | 750  |
| 235   | 542 | 250 | 1046 | 520 | 122 | 98 | 452 | 785 | 60 | 1075 | 1000 | 458 | 1005 |

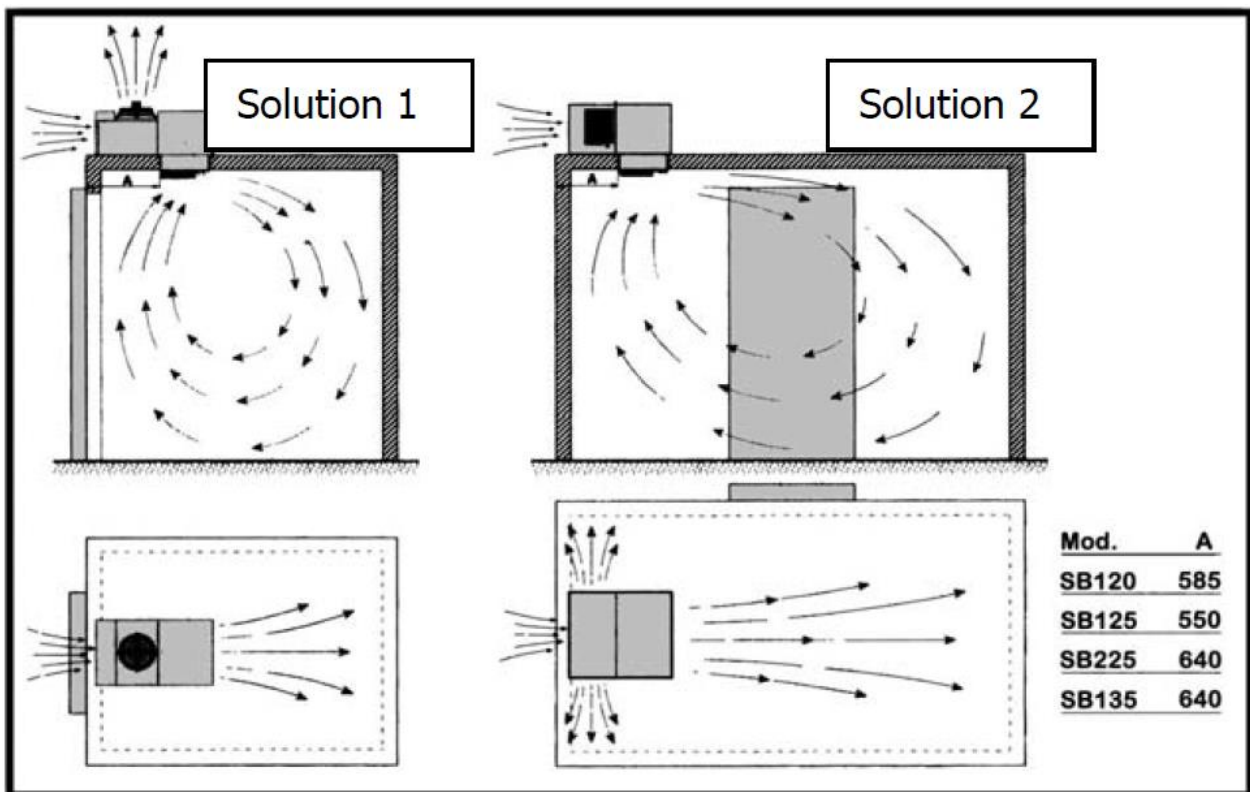
## 6.3 Location

To obtain optimal operation of the unit act as follows:

- Place the unit in a well ventilated room, far from heat sources.
- Limit the number of door openings.
- Make sure that the unit has good air supply and discharge.
- Fit a drain line to the defrost water drain connection in the lower part of the unit.



SB units are equipped with automatic evaporation of defrost water; drain is just a precaution in case of troubles.



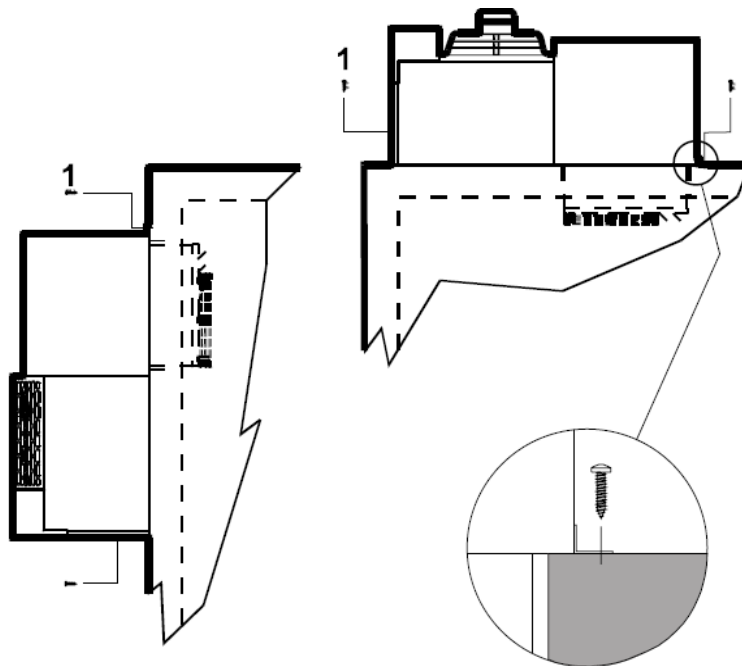
# Installation Manual

## 6.4 Free Room

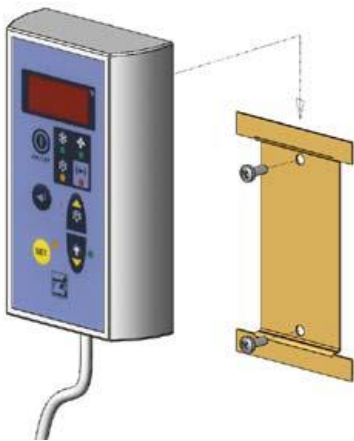
When installing the unit leave enough free room to allow opening, correct use and easy maintenance in safe conditions.

## 6.5 Installation

- Prepare a opening with suitable dimensions in the cold room wall (see pictures above). Position the unit onto the cold room wall inserting the evaporator section in the opening.
- Fix the unit using the screws supplied.



## 6.6 Fitting the Remote Panel



Fix the back plate to the wall using the pre-drilled holes; be careful the panel is kept in a vertical position.

Fit the connecting cable between panel and unit making sure not to bundle it with other cables.

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Check that the unit and its devices have suffered no damages during transport. Pay special attention to the components secured to the electric panel door and to the refrigerating circuit pipes. Mount the unit as shown in the drawings; make sure that the electric connections are carried out properly.

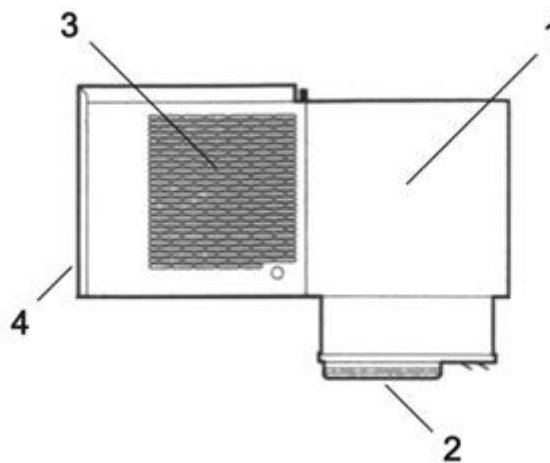
## 6.7 Safety Devices

The following mechanical safety devices are supplied:

- Fixed upper and side protections for evaporator and condensing unit, secured by locking screws.
- External fan protections placed on the evaporating and condensing units, secured with screws.

The following electrical safety devices are supplied:

- Protection of fans (belonging to motors) against high power absorption; with automatic reset.
- High pressure switch (only for special components) to protect against excessive pressure; with automatic reset.



Above devices have been developed to safeguard the operator's safety.

## 6.8 Cleaning

Clean the unit carefully. Remove any dust, foreign substances and dirt possibly deposited during handling. Use detergents and degreasers.



**Solvents are not allowed.**

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**Above microswitch is not supplied with the unit. If the microdoor cable is disconnected or damaged, the same conditions will occur as in case of open door and connected microdoor.**

“B” RANGE units (B = low temperature) are supplied with a cable for door heater connection, to be made using a fuse suitable for the door heater used. The unit is also equipped with a cable for cold room lamp connection (lamp voltage should be 230 V and lamp max capacity 100 Watts).



**Do not connect microdoor, cold room light or door heater cables to the 230V line. Each cable is equipped with a plate showing how it should be connected.**



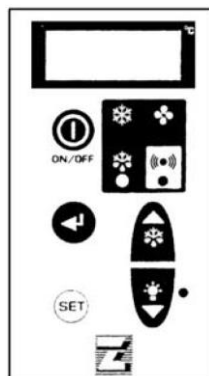
**Any defective electrical part should be replaced by trained personnel exclusively. The electric connection should be effected by qualified personnel.**

## 7.2 Connection to Water System

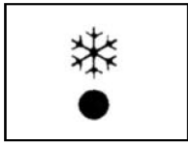
This connection is only necessary if the unit has a water-cooled condenser. It is effected by following the indications of the tags positioned by the inlet and outlet pipes. Connection pipes should never be smaller in diameter than those on the unit. A minimum water pressure of 1 bar is required for correct operation of the unit.

## 8 Electric Controls

### 8.1 Control Panel

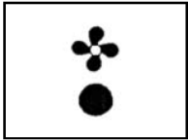


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## Control LED (Green)

ON: compressor is running, unit is refrigerating.  
Flashing: compressor is in start delay mode.  
OFF : compressor is off, room temperature is down to set value.



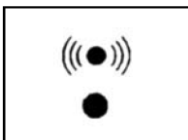
## Control LED (Green)

ON: evaporator fan is running.  
Flashing: evaporator fan is in start delay mode.  
OFF: evaporator fan is off. Defrost is in course.



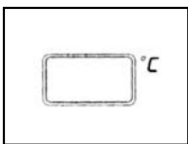
## Control LED (Yellow)

ON: automatic or manual defrost is in course.



## Alarm LED (Red)

ON: alarm has been activated because of a malfunctioning sensor, or pressure switch intervention, or cold room temperature exceeding allowed tolerances.  
OFF: unit is operating normally.



## Display:

on connection to the mains it shows OFF to indicate the condition of the unit. By pressing ON/OFF key for 3 seconds the unit is turned ON and the display shows the cold room temperature. In programming mode the parameters to be set are displayed; in alarm mode the alarm code is displayed.



"SET" key: when pressed it lights up and allows room temperature to be set. During programming it is used to pass from a submenu to an upper one.



## "DOWN/ROOM LIGHT" key:

in programming mode or when setting room temperature it is used to reduce the value displayed; otherwise it is used to switch on/off the cold room light.



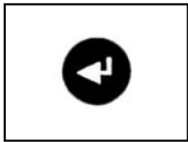
## "SB.M./UP" key:

in programming mode it is used to increase the values displayed. If pressed for more than 5 seconds it enables manual defrost to be carried out.

# Installation Manual



„ON/OFF“ key:  
when pressed for 3 seconds it turns the unit on or off.



"Enter" key: it gives access to programming menu and submenus.  
Access to the programming mode requires the installer's assistance and should be effected only if necessary.

## 9 Checks, Regulations and Adjustments

Before turning the unit on, check that:

- locking screws are tight
- electrical connections have been carried out correctly.

In the event that the unit has been opened:

- no tools were left inside
- assembly is correct
- there are no gas leaks
- front cover is secured correctly

### 9.1 Commissioning

Before starting the unit act as follows:

- Connect the unit to the mains. The display is turned on and shows OFF.
- If the unit has a preheating cycle, leave it in this condition for at least 3 hours.
- If the unit has a voltage monitor, leave it in this condition for at least 7 minutes to have the counting phase carried out
- Press ON/OFF key to switch the unit on.
- Set the required cold room temperature.



**Medium temperature range : +10 -5°C**

**Low temperature range : -15 -25°C**

Setting room temperature:

- Connect the unit to the mains. OFF is displayed.
- Press ON/OFF key, for 3 seconds, to switch the unit on.
- Press SET key. The yellow led lights up and the previously set temperature is displayed.



To change this value press following keys:  
UP to increase temperature

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DOWN to decrease temperature.

Press SET key to confirm the set value or wait 15 seconds.



Now the unit is operating and does not require any further programming. The refrigerating cycle is fully automatic according to the factory-set parameters, which can be modified by authorized personnel only.



**24 hours after starting check evaporator state. If ice has formed, defrost frequency should be increased. In low temperature units the evaporator condition should be checked every week during the first month of operation.**

## 9.2 How to Lock / Unlock the Keyboard

### 9.2.1 Lock

Keep pressed for more than 3"  and  keys. The (POF) message will be displayed and the keyboard will be locked. At this point, it will be possible only to see the set point or the Max o Min temperature stored. If a key is pressed more than 3" the (POF) message will be displayed.

### 9.2.2 Unlock

Keep pressed together for more than 3"  and  keys, till the (Pon) message will be displayed.

## 10 Wiring

A wiring diagram, specific for the units of the SB series, is enclosed with these use and maintenance instructions.

## 11 Maintenance and Repairs

Suitable maintenance is crucial for obtaining longer life, perfect working conditions and high efficiency of the unit as well as for ensuring the safety features provided by the manufacturer.

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## 12 Routine Maintenance

Good operation of the unit requires the condenser to be cleaned periodically (frequency of cleaning depends on the environment where the unit is installed). Turn off the unit and clean it by blowing air from the inside outwards. Should no air jet be available, use a long-haired brush and work on the outside of the condenser. In case of water-cooled condensers have the unit cleaned by a plumber with special descaling agents.



**Use safety gloves to protect your hands from possible cuts.**



**Disconnect the unit before working on it.**

### 12.1 Periodical Maintenance

Periodically check wear condition of electrical contacts and remote switches; if necessary replace them.

### 12.2 Service Operation to be Carried Out by Qualified Technicians or by the Manufacturer

Following operations shall be carried out by qualified technicians or by the manufacturer exclusively. Under no circumstances the user is allowed to:

- replace electrical components
- work on the electric equipment
- repair mechanical parts
- work on the refrigerating system
- work on the control panel, ON/OFF and emergency switches
- work on protection and safety devices.

### 12.3 Troubleshooting

During operation following troubles may occur:

1. Compressor stops. The unit is equipped with an overtemperature device which stops the compressor every time the max. allowable temperature of motor windings is exceeded. Possible causes are:
  - insufficient ventilation of the room where the unit is installed;
  - anomaly in mains voltage;
  - faulty operation of condenser fan.

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Device reset is automatic.

2. Ice forms on the evaporator preventing air from flowing regularly. Possible causes are:
  - the door is opened too frequently;
  - faulty operation of evaporator fan;
  - faulty solenoid valve (in models with hot gas defrost);
  - faulty defrost heater (in models with electric defrost);
  - faulty defrost process.
  - Faulty door seal
  - Collecting pan of condenser full

In this case some measures can be taken:

- increase defrost termination temperature by some degrees,
- increase number of defrosts.
- Check if the door seal is faulty by placing a paper between the door and door frame. Then, close the door and try to pull the paper out on various positions. If you can pull out the paper, the door seal is faulty
- Check if the collecting pan of the condenser is full. There is a security overflow function (pin coming out) laterally at the condenser. If the pan is full, empty it.



**Do not use either hot water or any pointed, cutting, metal objects to remove ice blocks.**

3. Display does not light up. Check:
  - if there is power to the unit;
  - if mains cable is connected properly;
  - fuses inside the electric panel
4. Unit does not start operating when pressing ON/OFF key (the display is turned on): check microdoor connection keeping in mind that the switch contact must be closed when the door is closed.
5. Unsatisfactory efficiency of the unit: If no defects are found in the unit check that: cold room doors are perfectly tight; there is no cold dispersion; the cold room is used wisely; no unfrozen liquids or foodstuffs are placed in the low temperature room; the evaporator is ice-free. We recommend installation of the machines far from the doors especially when the cold room is expected to be opened many times a day.



**Removal of protections during machine operation is absolutely forbidden. They have been developed to safeguard the operator's safety.**

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## 12.4 Alarms

When the unit is in alarm mode, the control LED lights up, the buzzer (available if installed by the customer) starts operating and the display shows an alarm code allowing the immediate identification of the alarm.

| Alarm              | Display  | Cause  | Solution   |
|--------------------|--|--|--|
| High temperature   | (HA) alternating with cold room temperature.   | Excessive door openings.<br>Too high temperature of products stored.<br>Malfunction of the unit. |  |
| Low temperature    | (LA) alternating with cold room temperature.   | Malfunction of electronic controller   | Service intervention   |
| Room sensor        | Steady (P1).   | Sensor not connected   | Replace sensor   |
| Evaporator sensor  | (P2) alternating with cold room temperature  | Sensor not connected   | Replace sensor   |
| Open door          | (dA) alternating with cold room temperature  | Door opening time exceeds max opening by parameter   | Automatic reset when the door is closed.                                   |
| High/ low pressure | (PrE) alternating with room temperature; LED (4) lights up each time the high or low pressure switch is tripped. If more than 10 trips occur in one hour, then (PAL) alternating with cold room temperature is displayed and alarm relay is activated together with LED (4). In this situation all functions are interrupted.  | Faulty operation of condenser fan. Check condenser cleaning and gas charge.                      | Switch off the refrigerating unit, wait a few seconds and switch on again. |
| Voltage monitor    | (bAL) alternating with cold room temperature. The voltage monitor is an electronic device which checks the supply voltage of the unit when voltage variations exceed +/-12%. The unit stops for about 6 minutes and restarts automatically if voltage is within the prescribed limits.<br>Warning: on first starting the monitor carries out a counting phase of 7 minutes, during which the unit should be left connected but in OFF condition. | Wrong supply voltage   |  |

# Installation Manual

## 13 How to Order Spare Parts

When ordering spare parts make reference to the number written on the unit plate.



**Worn parts should be replaced only by qualified personnel or by the manufacturer.**

## 14 Packaging Disposal

Wooden, plastic, polystyrene packing shall be disposed of according to the regulations in force in the country where the unit is used.

## 15 Cooling Unit Disposal

Do not discharge scrapped components in the environment. They should be disposed of by companies dealing with special waste collection and recovery, according to the regulations in force in the country where the unit is used.



**Do not discharge the refrigerant in the atmosphere. It should be disposed of by companies dealing with special waste collection and recovery.**



## DECLARATION OF CONFORMITY

We KUGEL medical GmbH & Co. KG  
Hermann-Köhl-Str. 2A  
DE - 93049 Regensburg / GERMANY

Explain in own responsibility, that the product:

Kind of equipment: Cooling aggregates

Type: KT 80, KT 100, KT 130, KT 180, KT 220, KT 320, KT 400,  
TKT 80, TKT 100, TKT 200, TKT 300, H 80, H 100,  
H 130, H 180, H 220, H 320, TKH 80, TKH 100, TKH 200,  
TKH 300, SP-KT 80, SP-KT 100, SP-KT 130, SP-KT 180,  
SP-KT 220, SP-TKT 80, SP-TKT 100, SP-TKT200,  
SP-TKT 300, 2023SKA, 2027HEU

Is in compliance with following standard specifications or documents

Technical regulations: DIN EN 602041-1, 89/392/CEE, 73/23/CEE

Regensburg, 13.02.2019

Authorized representative signature