

# REFRIGERATED REFRIGERATED SHELVINGSS

RCh-1, RCh-1-1  
RCh-1/B, RCh-1-1/B  
RCh-2

User's Manual



OBR CEBEA ZAKŁAD PRODUKCJI DOŚWIADCZALNEJ

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## 1. Use.

The refrigerated shelvings is a universal device used to presentations or short-term storages of varied groceries in decreased temperature.

## 2. Technical description.

2.1. The device is made of stainless sheet metal and painted sheet metal and it is placed on the base made of steel-section. The insulating layer is formed of polyurethane. The sides screwed down from outside are made of ABS.

2.2. Technical data	RCh-1		
Dimensions:			
- length A mm:	1040	1470	1970
- width B (depth) mm:	970	970	970
- height: C mm:	2000	2000	2000
Exposition area m <sup>2</sup> :	2.0	3.0	4.0
Temperature range:	+4°C to +10°C		
Refrigeration set:	UT 2168 GK	UNJ 9232 GK	UNJ 9238 GK
Refrigerant:	R 507 A		
Refrigerant mass kg:	0.70	1.30	1.50
Refrigeration set cooling effect [W]	1142 (at t <sub>0</sub> = -15°C)	2280	2845
Rated current [A]	4	4	5
Rated power [W]:	1500	2000	
Fluorescent lamp rated power [W]	30	2 x 36	2 x 58
Power supply voltage:	230 V, ~ 50 Hz		
Temperature class:	S		
Climatic class:	3		
Weight kg:	170	260	350
	RCh-1/B		
Dimensions:			
- length A mm:	1040	1570	1970
- width B (depth) mm:	755	755	755
- height: C mm:	1990	1990	1990
Exposition area m <sup>2</sup> :	1.50	2.4	3.0
Temperature range:	+4°C to +10°C		
Refrigeration set:	UT 2168 GK	UNEK2150GK x 2	UT 2168 GK x 2
Refrigerant:	R507 A		
Refrigerant mass kg:	0.80	0.60 x 2	0.80 x 2
Refrigeration set cooling effect [W]	1142 (at t <sub>0</sub> = -15°C)	817 x 2	1142 x 2
Rated current [A]:	4	4	5
Rated power [W]:	1150	1340	
Fluorescent lamp rated power [W]	30	2 x 36	2 x 58
Power supply voltage:	230 V, ~ 50 Hz		
Temperature class:	S		
Climatic class:	N		
Weight kg:	120	170	220

Refrigerated shelvings RCh-1-1, RCh-1-1/B are with outside refrigerated set

## RCh-2

### Dimensions:

- length A mm:	1570	2000
- width B (depth) mm:	870	870
- height: C mm:	2110-2130	2110-2130
Exposition area m <sup>2</sup> :	3.0	4.0
Temperature range:		+4°C to +10°C
Refrigeration set:		
Refrigerant:		R 507
Refrigerant mass kg:		
Refrigeration set cooling effect [W]		
Rated power W:	1086	1560
Power supply voltage:		230 V, ~ 50 Hz
Weight kg:	-	332

### 2.3 Refrigeration system.

The one-stage, compressor assisted refrigeration cycle is realized in the equipment under consideration (figure 2). The refrigeration system is filled with R507 refrigerant.

### 2.4. Wiring system (rys. 3)

Attention should be drawn to the installation of the proper 20 A fuse, which should be installed before the plug-in socket equipped with protective pin, in accordance with the wiring diagram. The system should be completed by an authorized electrician. Following performing the repairs or renovation, the electrical connections must be completed in accordance with the wiring diagram. The equipment is equipped with the automatic switch, accommodating the thermal relay, protecting the compressor motor.

## 3. Operation.

### 3.1. Placing and installing.

The refrigerated shelvings should be placed so that the connection cable plug is made accessible.

The refrigerated shelvings should be installed where the air draughts do not occur or where these are minimized. The refrigerated shelvings should not be installed in the direct vicinity of the door, near the air outlets from the air conditioning, ventilation or heating equipment – near the sources of heat and near places exposed to strong sunlight.

**The refrigerated shelvings should be placed about 15 to 20 cm away from the wall to secure suitable circulation of the air cooling the condensing unit**

The refrigerated shelvings is dedicated for operation at the ambient temperature from +16 ° to +25°C and air relative humidity 60% ± 5%.

It could be necessary the application of air conditioning to ensure proper ambient air

parameters. The inlet and outlet openings arranged in the condensing unit chamber are not allowed to be covered, as these serve realizing the circulation of air cooling set. The careful levelling of the refrigerated shelvings is required (by means of the adjusting legs), in order to provide for the proper discharge of condensate and prevention of the compressor's noisy operation. The equipment should be connected to the power supply system in accordance with item 2.4.

**WARNING:** The improper completion of the connections to the power supply system may result in electrical shock.

3.2. Following the completion of electrical connections and switching it on the refrigerated shelvings should be left untouched until the proper operation temperature is achieved, which will be signalled by means of the deactivation of the refrigerated shelvings by the thermostat. Then, the refrigerated shelvings is ready for collecting the goods. **Maximum load of the shelf is 30 kg.**

Do not overload the refrigerated shelvings and not block up the ventilation openings of the rear cover used to cooling airflow. Also, the foodstuffs should be moved during replenishment of the goods so that the earlier loaded and cooled products are placed as close to the customer as possible, and sold in the first sequence.

**The night cover following the completion of the sales should be pulled.** The application of the cover improves the temperature conditions for the stored goods. The cover is released when slightly pulled down.

3.3. Maintenance of the thermostat ERT-10-2-122C (Figure below)

Parameters of regulator

Power supply of regulator	- 230 V 50/60 Hz
Ambient temperature	- from +5°C to +40°C
Humidity	- from 20% to 80% RH
Degree of protection - regulator	- IP20
Degree of protection - front panel	- IP65 - for assembly on the panel with using a gasket

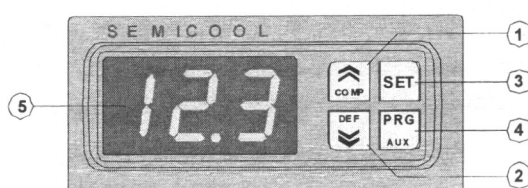
Maximum loading:

compressor - 1,5 HP

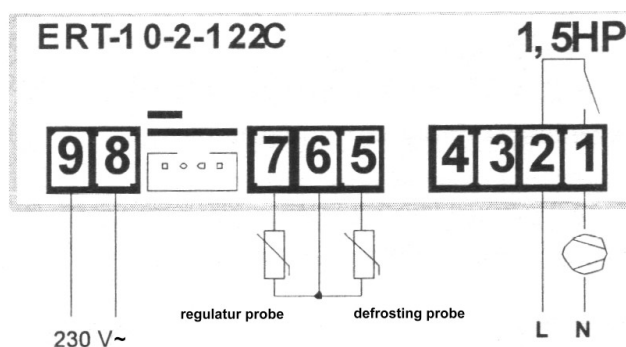
Maximum current flowing by attaches - 12 A

After built in the regulator fulfils IEC protection class II against electric shock.

The regulator is designed for building in to devices of class 0, I and II.



## Connecting and attaches



1. Button COMP / UP - Highlighting the button COMP defines the work state of the compressor: the lack of highlight - compressor is off, the button is highlighted - the compressor is on.

At setting up mode (SET button highlighted) pressing the button causes increase of setting temperature.

In modification mode pressing the button causes displaying the next symbol of parameter or increasing its value.

2. Button DEF / DOWN - Pressing longer than 5 seconds activates manual defrosting. It is signalled by flashing highlighting. Automatic defrosting for distinction is signalled by continuous highlighting. In setting changing mode (SET button highlighted) pressing the button causes decrease of setting temperature. In parameter modification mode pressing the button causes displaying the previous symbol of parameter or decreasing its value.

The regulator probe and defrosting probe are the same type and colours of electric wires are used only to facilitate assembly.

### Programming the temperature settings

To display or modificate the settings:

- 1) Press the SET button longer than 1 second - setting temperature will appear on the display, the button will be highlighted.
- 2) With UP or DOWN buttons suitable temperature is set.
- 3) Pressing the SET button again approved the setting temperature, the highlighting of SET button is off and current temperature is displayed.

If for 30 seconds SET button is not pressed, the previous setting is valid.

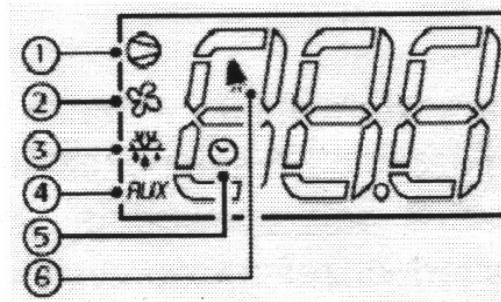
### Manual defrosting

There is a possibility of manual turning on the defrosting. The essential condition is that the defrosting probe temperature is lower than (dEt »finishing defrosting temperature« - 1 degree). To turn on defrosting one should press DOWN / DEF button for longer than 5 seconds. Turning on manual defrosting is signalled with

flashing highlighting of the DOWN / DEF button. In the case of automatic defrosting, the highlighting of the button is continuous.

### 3.4. Carel Easy thermostat handling

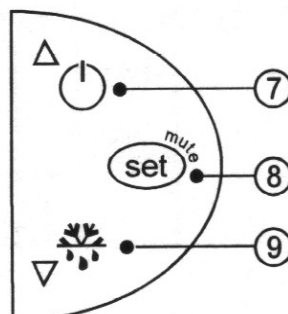
#### Description of display



Three digit display with decimal point and 6 symbols (compressor, ventilator, defrosting, AUX, alarm or clock).

1. Compressor: the symbol is visible when the compressor works. It flashes when the start of the compressor is delayed by a protective procedure. It flashes in cycle: two flashes - pause when continuous mode is on.
2. Ventilator: the symbol is visible when ventilators of evaporator are on. It flashes when the start of ventilators is delayed by external disconnection or other procedure is going on.
3. Defrosting: the symbol is visible when defrosting function is on. It flashes when defrosting is delayed by external disconnection or other procedure is going on.
4. AUX: the symbol is visible when additional output AUX is activated.
5. Clock: the symbol is visible when clock is on. Putting on by "tEn" or one of time limit is set. When put on the symbol appears for a few seconds as information about accessibility of clock function.
6. Alarm: the symbol is visible when alarm is active.

Operation - button description.



Information: short time pressing of every buttons will cause appearing the message about present active function.

7.  UP / ON OFF

During normal work of driver pressing the button for at least 3 seconds time causes the change of driver work mode – ON / OFF

During setting the temperature pressing the button increases the set temperature.

8. SET / MUTE

During normal work of driver pressing the button for at least 1 second time displays the set temperature.


After setting the temperature pressing the button causes that it is remembered.


9.  DOWN / DEFROST

During normal work of driver pressing the button for at least 3 seconds time causes on/off manual defrosting mode of evaporator.

During setting the temperature pressing the button decreases the set temperature.

10. One should press the SET / MUTE button for at least for 1 second in order to change the set temperature – the currently set temperature is displayed.

To increase the temperature one should press the  UP / ON OFF button.

To decrease the temperature one should press the  DOWN / DEFROST button.

**After setting the needed temperature one should press SET / MUTE button - it causes the set temperature is remembered.**

#### 4. Maintenance

The current maintenance of the device passes the user on his own by periodic washing the chambers with warm water with addition of the washing agent without detergents.

**Before washing and replacing of the fluorescent lamp the device should be unplugged.** The fluorescent lamp should be replace after disassembling the cover of the lamp; turning the fluorescent lamp for an angle of 90° and extracting it from the handles.

**The assembly should be carried out in the inverse order.** No sharp tools should be used to remove contaminants from the external and internal surfaces of the refrigerated shelvings. The parts made of stainless steel are natural waterproof, resistant to atmospheric factors and steam, alkaline solution, thinned organic acid. **They are not resistant** to the most of inorganic acid (hydrochloric acid, sulphuric acid), concentrated organic acid (acetic acid), sour salt solutions.

Condenser of the condensing unit, in the case of contamination, should be cleaned with a brush (at least once a month). The cleaning of the condenser should be carried after unplugging the device and opening the cover of the chamber of the condensing unit.



## **5. Conditions of safety and hygiene of work.**

5.1. The assembly of the electric supply (wiring) should be made by an entitled electrician.

5.2. All repairs and regulations in electric circuit can only execute an entitled fitter. In the case of faults: breakdown, sparking, etc. the device should be unplugged and an electrician should be called on to get rid of the faults

5.3. Washing and cleaning should be done after unplugging the device.

5.4. Do not fill the refrigerated shelvings before cooling it, do not put into the refrigerated shelvings warm products.

5.5. Power cord, if damaged, may be replace by the producer, special service, or skilled person.

## **6. Transport.**

Producer sends the device completely assembled and marked with characteristic plate. The device during transport needs especially exact protections against overthrowing oneself and against damages of panes and paint coats. Do not use the sides to lift the machine.

## **7. Guarantee repairs**

Having purchased the equipment, the User receives the guarantee card with the product serial number, which should be in conformity to the refrigerated shelvings factory number.

The guarantee for the entire unit is applicable throughout the entire country of the Republic of Poland for the period as provided in the guarantee card.

The guarantee does not cover damages arising in the course of transport, loading and unloading, as well as damages due to the improper handling, or handling not in conformity to this manual, in particular:

- 1) damages arising from the User's improper power supply system,
- 2) damages arising from the improper operation: dirt of the condenser, excessive defrosting of the evaporator - see item 4 (Maintenance).

The guarantee repairs are provided by the manufacturer or the servicing station indicated by the manufacturer.

The guarantee is extended by the period of performing repairs.

### **Note:**

The manufacturer shall not be liable for any damage that may arise from the operation



## EC Declaration of Conformity

No: .....

Name of Manufacturer: **OBR "CEBEA" Zakład Produkcji Doświadczalnej**

Address of Manufacturer: **ul. Krasińskiego 29, 32-700 Bochnia, Poland**

We hereby declare that the following machinery

Name: Refrigerated shelvings

Type: (varieties): RCh-1 .....

Manufacturer No .....

complies with the essential health and safety requirements of the Machinery Directives:

- Low Voltage Directive LVD 73/23/EEC with later amendment,
- ElectroMagnetic Compatibility Directive EMC 89/336/EEC with later amendments,

and this machinery has been designed and manufactured in accordance with the following transposed harmonised European standards:

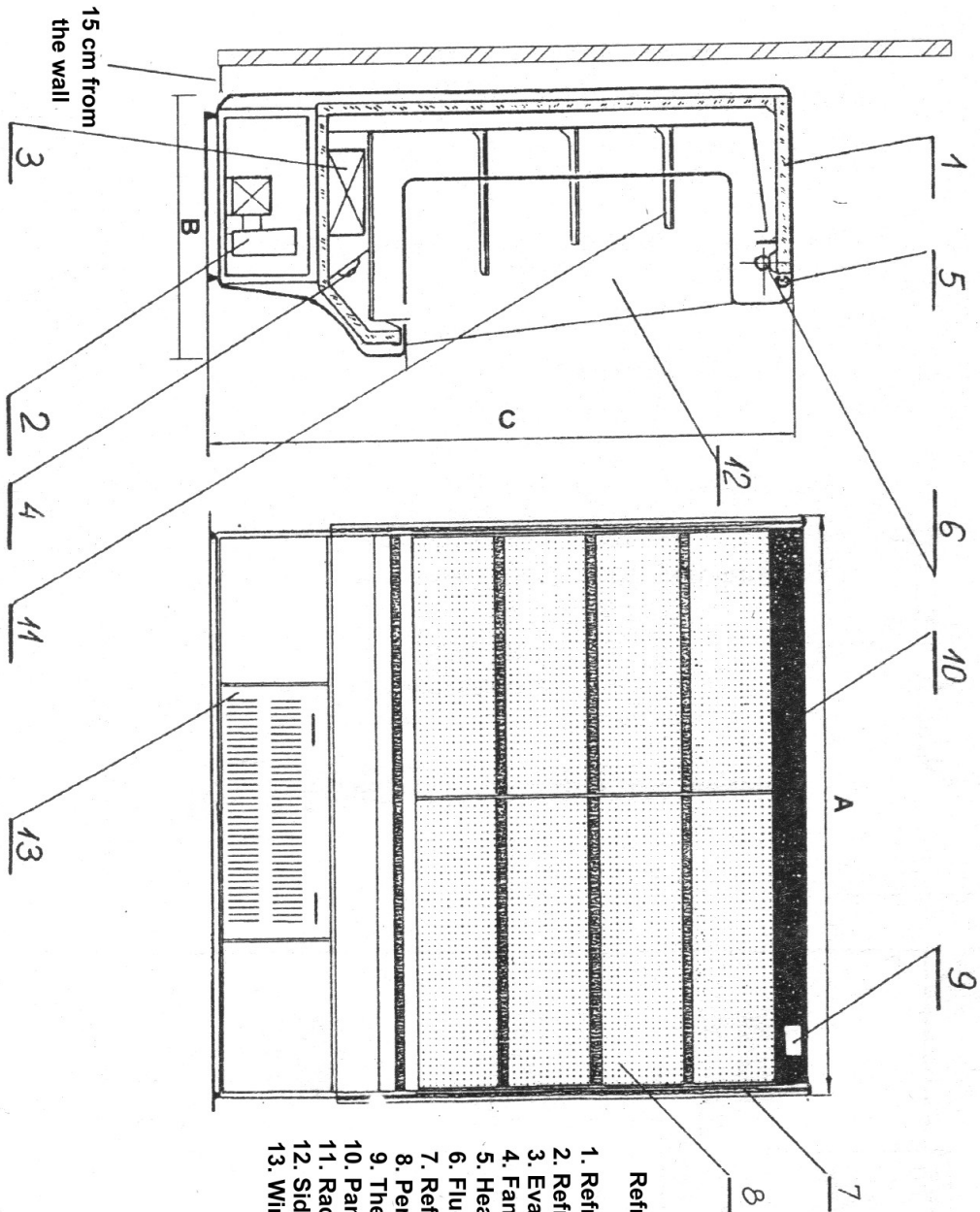
- PN-EN 60335-1:2004
- PN-EN 60335-2-89:2003
- PN-EN 50366-1:2004
- PN-EN 55014-1:2004
- PN-EN 61000-3-2:2004
- PN-EN 61000-3-3:1997+A1:2005
- PN-EN 55014-2:1999+A1:2004



Place and Date of issue: ..... Bochnia, .....

CE:04

Figure 1. Refrigerated shelvings



- Figure 1**  
**Refrigerating system diagram**
1. Refrigerated shelvings casing
  2. Refrigeration set
  3. Evaporator
  4. Fans
  5. Heat transfer preventing shutters
  6. Fluorescent lamp
  7. Refrigerated shelvings side
  8. Perforated sheet
  9. Thermostat
  10. Panels
  11. Racks
  12. Side glass panel
  13. Wind beam

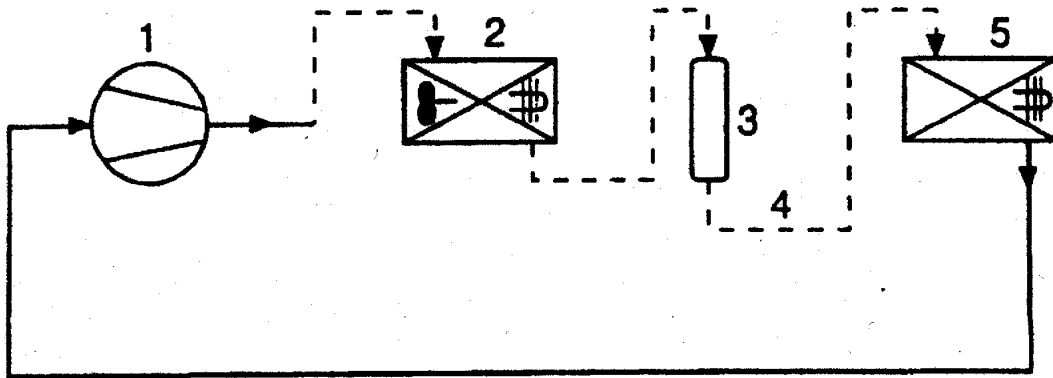


Figure 2. Schema of cooling installation

- 1 – compressor
- 2 – condenser
- 3 – chemical filter
- 4 – capillary
- 5 – evaporator

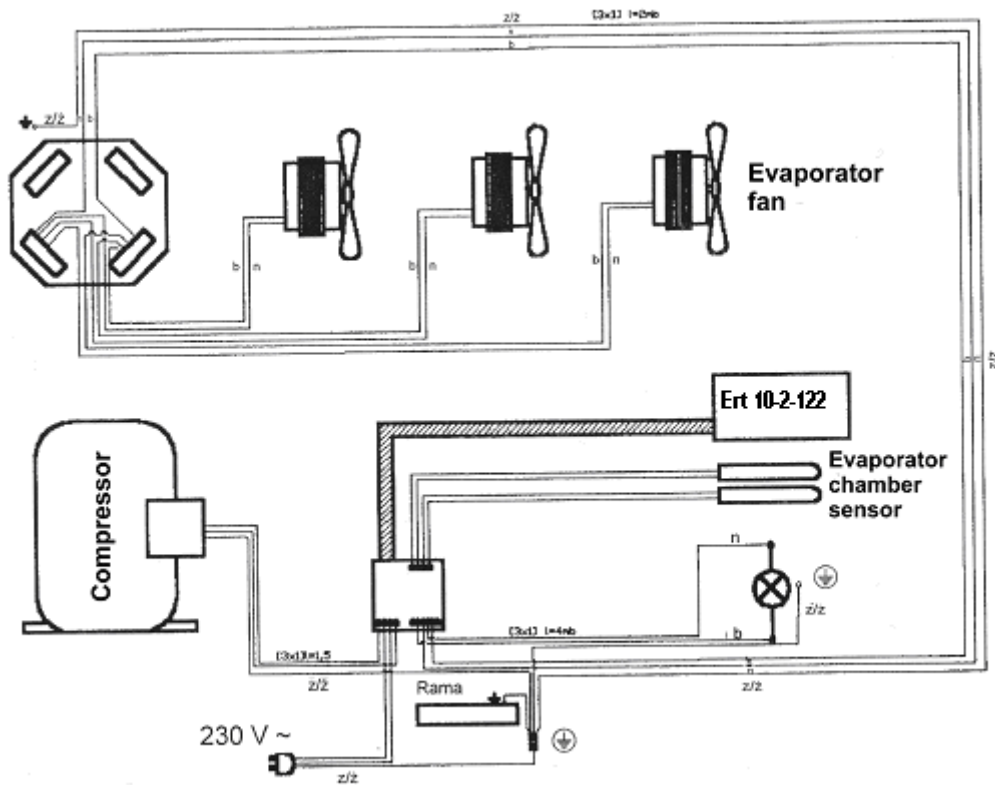


Figure 3. Schema of electric installation

Power supply circuit of compressor: OMY 3 x 1 cable

Fans supplying circuit: OMY 3 x 1 cable

Lighting supplying circuit: OMY 3 x 1 cable

Cable colours:

b – brown

n – blue

z/z – green-yellow