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POLSKA

HEATING-COOLING UNIT UGCH



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Before starting any works, read the manuals carefully.

I. ORIGINAL MANUALS

**HEATING-COOLING UNITS UGCH
size 1÷2**

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PURPOSE

Heating-cooling units UGCH size 1 and 2 are intended to heat and cool such facilities as commercial pavilions, shops, supermarkets and all others where there is a need to heat the space in the heating period and cooling during the summer.



Units may not be used in areas with absolute humidity higher than 95% and air dusting above 3 mg/m³.

MARKINGS

Heating-cooling unit

UGCH-

Size 1; 2

Number of rows of a heater II, III

DESCRIPTION OF THE DEVICE

The unit consists of:

- axial fans (1) mounted on the lower wall of the unit with a rotor's safety device in a form of a mesh;

- plate heat exchangers (2) (2 pcs. for each unit) in the frame made of galvanized steel sheet.

Plate heat exchangers are performed from copper tubes with an external diameter $D=10$ mm and aluminum plates with a spacing of $=2,0$ mm.

Exchangers of the units are connected parallel with each other.

Stub connections of the units have internal screw threads.



For the plate exchangers, max temperature of a heating agent amounts to 110/70°C and working pressure up to 1MPa.

Note: There is a danger that a heating agent may freeze in exchangers placed in the rooms with the temperature below 0°C.

A danger may be limited by means of using anti-freeze thermostat (provided at the request), application of non-freezing heating agents or emptying water from the unit.

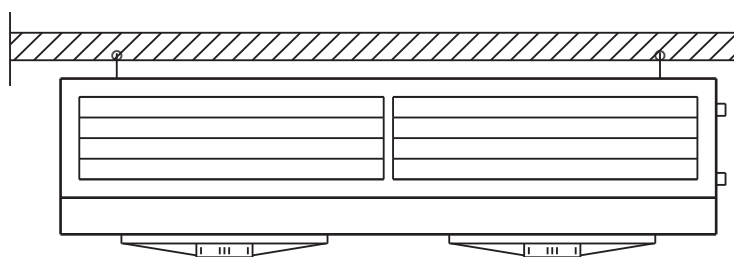
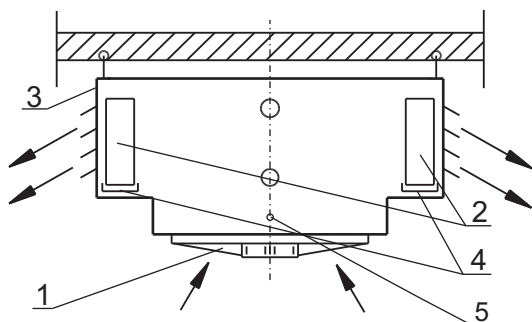
- housing (3) made of steel sheet powder painted with one-row air grates.

The blades of air grates allow for setting a direction of air ventilated. A construction of blades secures against self-redirection thereof.

- condensate-collecting drain pans (4) (2 pcs. for each unit), to which the polyethylene tubes discharging the condensate to the sewage system are attached.

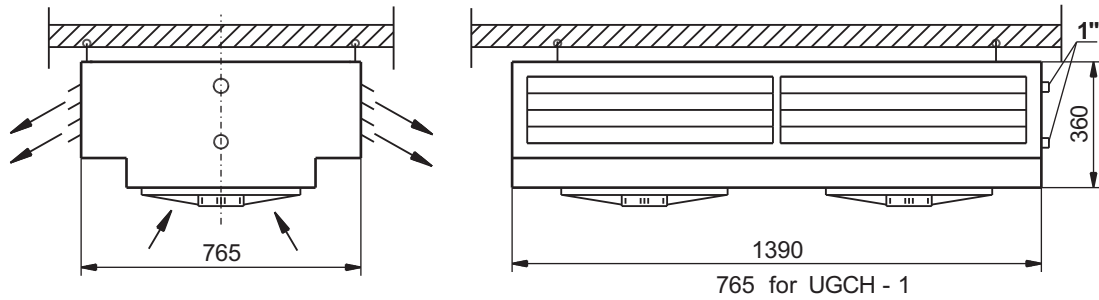
- outflow of condensate (5).

The manufacturer reserves the right to introduce changes.



TECHNICAL DATA

Basic dimensions



Size of the unit	UGCH-1		UGCH-2	
Type of the fan	FE 031 (1 fan)		FE 031 (2 fans)	
Air capacity [m ³ /h]	2000		4000	
Row number of a heater	II	III	II	III
Weight [kg]	54	68	102	115
Parameters of the unit surrounding and an motor of the fan				
Scope of air temp. [oC]	0-70		0-70	
Max air humidity [%]	95		95	
Max contents of dust [mg/m ³]	3		3	
IP Group	54		54	
Insulation class	F		F	
Noise [dB(A)]				
From the distance of 1m*	54		56	
From the distance of 3m*	51		52	

*Loudness - level of acoustic pressure taking into account an absorption ability of the room A=50m² and slope Q=2.

TRANSPORT

The units are delivered fully assembled, secured externally with polyethylene foil against contamination and atmospheric conditions.

The Product Handbook is delivered with the unit.



The units should be transported in on layer in the manner which prevents from mechanical damages.

SECURITY RECOMMENDATIONS



Heating-cooling units should be used in accordance with the operation manuals.



Start-up, assembly, connection, overhauls and repairs of the unit should be performed by a skilled fitter and in case of electrical works by the person with the required qualifications to perform electrical works. All maintenance and repair works should be performed with the voltage switched off.



In case of a failure of the unit, the electricity to the electrical motor of the fan should be immediately turned off and the water supply to the exchangers should be turned off.



The unit may operate only with properly functioning electrical safety devices.

It must be permanently connected to the electrical system equipped with a protective clamp, differential-current fuse and service switch. Be careful not to swap the protective lead with supplying ones.



Only original spare parts should be used.



It is forbidden to operate the unit with a fan without a protective mesh.

Due to the structure, the device does not emit harmful radiation.

Note for the user !

Installing or exploiting the heating-cooling device in the manner which is inconsistent with the operation manuals may cause a damage to the unit and the loss of guarantee.

Despite the fact that the device was designed and performed in accordance with the requirements of the standard, in accordance with its condition upon being started, a likelihood of an injury or the loss of health in exploitation is unavoidable. This likelihood is related with a frequency of an access to the device during its exploitation, cleaning or repair, presence of the persons in a hazardous zone, conduct which is inconsistent with the safety principles described in the manuals.

A degree of the body's seriousness or deterioration in health condition depends on many factors which may be foreseen only to a certain extent, taken into account in the structure of the device, describing and warning in the manuals.

Therefore there is a residual risk in case of non-compliance with the guidelines and recommendations contained in the manuals by the user.

ASSEMBLY

Hanging the unit

In the Upper part of the housing, there are four rivet-nuts for screwing in screwed bars M8 for suspending the unit to the ceiling or the roof structure.



Screwed bars must be screwed in rivet-nuts of the housing at the depth of min.15 mm and must be secured with counter-nuts preventing the bars from screwing out from the housing.

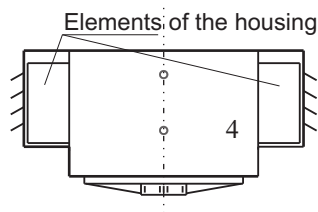


The units must be leveled in order to enable the discharge of condensate from drain pan.



Minimum necessary distance of the unit from the wall in order to assure the possibility to take out heat exchangers and drain pan collecting condensate for cleaning amounts to: - 150 cm for UGCH-2 - 80 cm for UGCH-1

The access to exchangers and drain pan is obtained by means of unscrewing elements of the housing marked on the figure from both side walls of the unit housing.



Minimum distance of the unit from the ceiling amounts to 10 cm.



The ceiling or the roof structure must be adjusted to load with the weight of units.

Water system

It is planned to supply the units from two-pipe system with so called „cold“ in summer or with „hot“ water in the heating season.

It is recommended to:

- connect the unit to the network with a lower connection of exchangers and the return of the agent with the upper one;
- use a cut-off valve in front of and behind the unit in order to enable its disassembly without the need to empty the supplying system;

Electrical valves should be connected on the return of the heating agent from the device.

The venting and dewatering of the exchangers of the units are forecast to be performed central in the network. Vents and discharge valves placed in the system behind the unit should be used.

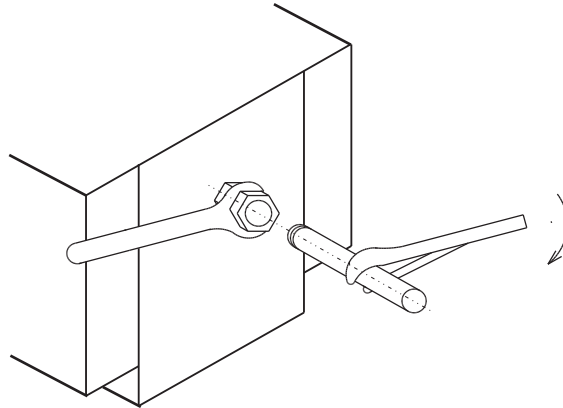


Careless venting of exchangers may be the reason for not achieving assumed parameters by the unit.



The stub connectors of exchangers must not bear the load of system cables.

While connecting the exchangers to the network, stub connectors of exchangers should be protected from being twisted off in the manner presented in the figure.



Note: Damages of the exchangers caused for the above reason are not covered with the guarantee.

The discharge of condensate from the unit is planned to be gravitation type and with minimum drop of ~2% to the properly performed sewage system.

The manufacturer does not bear any responsibility for the losses resulting from improper installation of condensate discharge.

ELECTRICAL SYSTEM

The performance of the electrical system and connection of supply to the unit must be performed in accordance with proper requirements of standards and construction provisions.



Electrical connections to the unit may be performed only by the authorized electrician, acquainted with the operation manuals.

Before starting the connection, make sure that the voltage values or supplying network frequency are consistent with the data provided on the data plates of the units. In case of inconsistency, do not connect the device.

The units are equipped with tri-phase fans (3~400V/50 Hz) with internal thermal contacts (Tc). Electrical connection of fans should be performed while taking into account both the disconnecting device (in which the distance between the contacts of all poles amounts to no less than 3mm) as well as overload and circuit protection devices.

The circuits supplying fans should be placed into the clamp box and mounted to the protective mesh or brackets of fans with clamp belts. Thermal contacts (Tc) of fans should be connected to the circuits steering the supply of fans.

Electrical connection of the motor must be consistent with electrical diagrams in a clamp box. An exemplary diagram of connections and steering of the unit is provided on the figure 1.

Note! The lack of factory connection of thermal protection (Tc) or (PT) of the motor results in the loss of guarantee.

AUTOMATICS

We can provide the following with the units:

- rotational velocity regulators;
- two-way or three-way valves with an electrical servo-motor;
- room thermostats;
- anti-freezing thermostats;
- supply-control boxes (equipped with: main switch, overcurrent switchers, short-circuit switchers, signaling lamps) intended for cooperation and steering elements of automatics as above.

It is possible to control a set of units from the control box with one thermostat.

The supply of the supply-control box 3x400V/50Hz should be performed from the main switchboard equipped with the main switch and differential protection.

In case of ordering the automatics with the unit, the company delivers also an electrical diagram of the unit and automatics.

START-UP OF THE DEVICE

Before the start-up:

- check the condition of the unit mounting (check also the leveling of the unit)
- check tightness of water connections
- check supplying voltage in accordance with electrical plate
- check additional protection of a fan and housing of the unit
- check correctness of the electrical motor connection
- check rotating direction of the fan.

In order to switch the unit on:

- open valves of a cooling and heating agent
- switch on the supply of current to the electrical motor
- adjust direction and scope of the stream of ventilated air by means of venting grate blades

In order to switch the unit off:

- close the valves of a cooling or heating agent to the exchangers of the unit
- switch off the supply of the currency to the electrical motor of the fan



With long-term start-up of the unit or in case of break in the operation of heating network, exchangers should be dewatered and, alternatively, cut off valves should be closed.

REPAIR, MAINTENANCE AND WITHDRAWAL FROM EXPLOITATION

The rolling bearings of the fan do not require periodical lubricating. However, it is recommended to conduct periodical checks of the bearings' conditions (a rotor of the fan should revolve freely, without excessive clearance and slapping).

With an increase in noise of the unit's operation, check the correctness of mounting of the fan and the whole unit.

Blades of the rotor should be cleaned with a wet cloth, after the protective mesh has been removed in order to prevent from balancing the rotor.

High-pressure washers must not be used for cleaning the fan.

With all interruptions in the units' operation, contact the fitter or the service.



All repair and maintenance works should be performed with the voltage switched off. The unit should also be protected against accidentally being switched on by other persons.

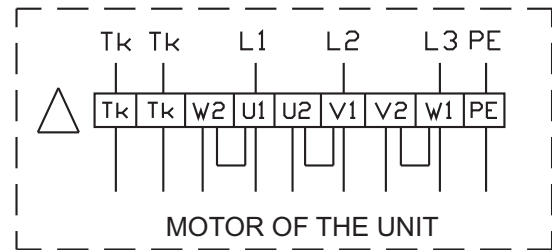
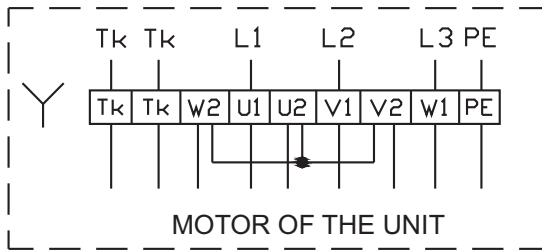
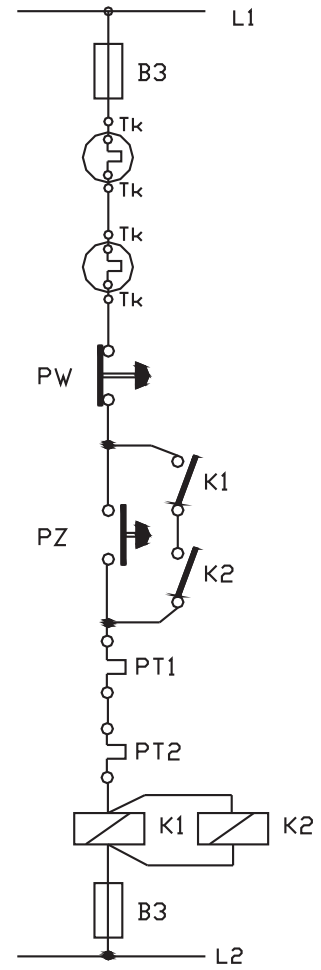
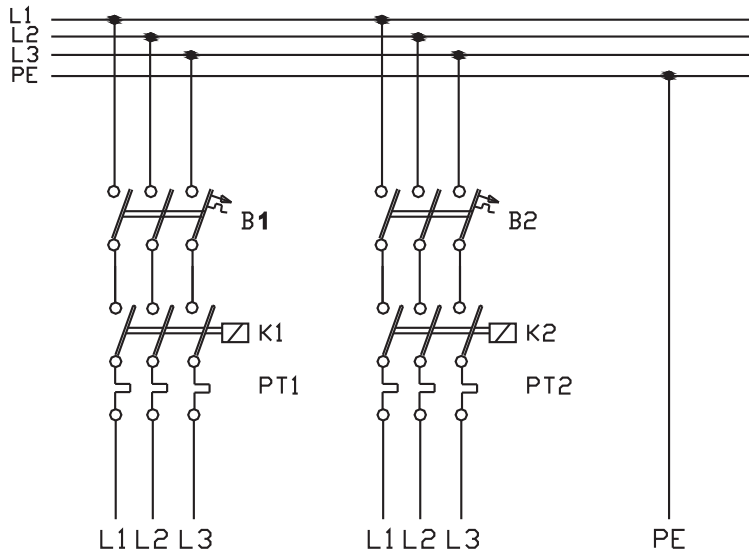
Check the condition of the exchangers contamination periodically. Contaminated exchangers should be blown with compressed air.



Contamination of exchangers reduces the air efficiency and cooling or heating power of the unit.

Before summer, clean the condensate collecting drain pans and check the patency of condensate discharging tubes to the sewage system.

After withdrawal from exploitation, the device should be transferred to a **specialized collection points of recyclable minerals.**



MARKING TO THE DIAGRAM:

- PT1,PT2 - Overcurrent circuit breaker the motor
- K1,K2 - Contactor
- PZ - Steering connecting button
- PW - Steering switching button
- B1,B2,B3 - Fuses
- PE- Protective clamp
- Tk - Thermal protection

MARKING OF MOTOR'S CABLES:

- U1 - brown
- U2 - red
- V1 - blue
- V2 - grey
- W1 - black
- W2 - orange
- Tk - white

Fig. 1 Exemplary diagram of connection and control of the UGCH unit

TROUBLESHOOTING

Description of the	Possible reasons for failure	Prevention/removal
Leak of heat exchanger	mechanical damage of the exchanger (likely to occur with careless connection of the device to the system)	controlling key must be absolutely used in assembly with installation
	exceeding permitted parameters of a heating agent	the device must be connected with heating system secured against excessive increase of pressure and temperature
	freezing of an exchanger	use anti-freezing thermostat, non-freezing heating liquids or empty water from the device in the shutdown period and a risk of freezing
	using the device in aggressive environment	
Too loud work of the device	failing to keep minimum distance from the wall or the ceiling	use distances recommended in the manuals
	improper direction of revolutions	perform proper electrical connection
	improper parameters of the supplying power system	use the device only in case of consistency of the parameters of the supplying network and the device
	choking the air outlet with shutters of the outlet grate	avoid significant closing the shutters of the outlet grate at high velocities
	vibrations of the fan, blades brushing fixed elements	check the correctness of mounting the fan and proper mounting of other elements of the device
	non-centric mounting of the fan in its bearing plate	
Fan does not work	incorrect or insecure electrical connections	check and alternatively correct: 1)consistency of electrical connections with diagrams from the manuals 2) certainty of connections at electrical clamps 3)parameters of supplying system
	improper parameters of the supplying electrical network (the lack of three phases in tri-phase)	
	damage to the motor of the fan	
	damage to elements of control the fan	
Regulator of revolutions ARW/RTRD does not work	correctness of electrical connections (careful tightening the leads in electrical clamps)	check and alternatively correct: 1)consistency of electrical connections with diagrams from the manuals 2) certainty of connections at electrical clamps 3)parameters of supplying system
	connection only and exclusively of 1 adjuster to 1 unit	
Servo-motor does not open the valve	correctness of the thermostat operation (characteristic "click" while switching)	check and alternatively correct: 1)consistency of electrical connections with diagrams from the manuals 2) certainty of connections at electrical clamps 3)parameters of supplying system 4) whether a servo-motor reacted to electrical impulse . If we state the damage to the servo-motor, the complaint should be lodged to the damaged element
Room thermostat	connection of more than one unit directly to the thermostat (a larger number means overloading the thermostat)	check and alternatively correct: 1)consistency of electrical connections with diagrams from the manuals 2) certainty of connections at electrical clamps 3)parameters of supplying system 4)if you do not hear characteristic "click", thermostat is mechanically damaged and it should be complained
	place of mounting the thermostat in the room	

INFORMATION

In all issues concerning the UGCH units, contact Manufacturing Plant JUWENT or our Representation Offices.

II. TERMS OF GUARANTEE

1. JUWENT Szymański, Nowakowski Spółka jawna with its seat in Ryki at Lubelska street 31, hereinafter referred to as the Guarantor, hereby grants to the Purchaser, a guarantee of correct performance for the device with a reservation of the requirement that exploitation will be consistent with the terms and conditions defined in the operation manuals and under the terms and conditions provided below.
2. The guarantee shall be granted for the period of **24 months**, counting from the purchase date indicated on the guarantee card with a possibility to extend it on special terms, in accordance with a separate agreement and defined in Special Guarantee Conditions.
3. The guarantee covers the removal of technical defects of the device caused as a result of its exploitation in accordance with the operation manuals, disclosed in the guarantee period. The provisions of the guarantee shall be obligatory within the territory of the Republic of Poland.
4. For the guarantee granted, the Guarantor does not bear any responsibility for the loss of expected benefits and the costs incurred by the Purchaser resulting from temporary inability to use the device.
5. It is necessary to provide the Guarantor with a device subject to complaint with a guarantee card in order to realize the rights of the Purchaser resulting from the guarantee.
6. The complainant shall deliver the device subject to complaint in an original, factory packaging, and in case of no packaging the device subject to complaint should be delivered for repair by the Purchaser in the manner which assures proper transport. The risk of accidental damage of the device during the transport encumbers always the party which sends the shipment.
7. The defects disclosed in the guarantee periods shall be removed by the Guarantor free of charge. The selection of the realization method of liabilities resulting from the guarantee granted to the Purchaser shall be the responsibility of the Guarantor, who may remove the defect through repair or replacing a damaged subassembly or replacing the device itself, alternatively. The device or /and defective subassemblies withdrawn from exploitation shall become the property of the Guarantor.
8. The guarantee shall be extended with the period in which the Purchaser was deprived of a possibility to use the device.
9. The Guarantor shall make attempts so that the repair could be conducted without unnecessary delay, within 14 working days of delivering the device. In justified cases, which would be reported by the Guarantor to the Purchaser, the date may be extended, e.g. by the supply import duration or in the event when there is a necessity to conduct expertise or laboratory tests in specialized facilities.
10. The Guarantor shall be exclusively responsible for the defects in the device sold. They do not cover the defects caused after its sale for other reasons and in particular:
 - a) mechanical damage (including also micro-particles occurring in the working environment of the device), thermal, chemical and of accidental nature of caused by atmospheric factors,
 - b) damages caused as a result of non-compliance with typical exploitation principles of the device or those defined in the operation manuals, or concerning assembly or using the device inconsistent with the purpose and other damages caused by action or omission of the Purchaser,
 - c) damages resulting from defective operation of the system, in which the device was constructed or was exploited,
 - d) damages caused as a result of failing to perform the activities, which had to be done by the Purchaser in accordance with operation manuals e.g. periodical cleaning, maintenance, adjustment, etc.
 - e) damages resulted from using materials or parts being subject to normal, exploitation wear out other than those recommended by the Guarantor in the operation manuals.
 - f) damages being the consequence of using electrical supply of the device (or the system in which the device functions) inconsistent with the standard and in case also of supplying the device with water, the damages being the consequence of using water (supplying water and/or boiler water) with other parameters than those foreseen in the obligatory standard (PN-93/C-04607)
 - g) damages caused as a result of operation and/or maintenance in the manner which is inconsistent with the operation manuals and/or by the unauthorized persons.
11. The guarantee does not cover either :
 - a) activities performed by the Purchaser in accordance with the recommendations contained in the operation manuals of the device within normal maintenance and overhauls,
 - b) costs of trip and service of the Guarantor or the entity delegated thereby in the event when the guarantee call turns out groundless.
12. A note is prepared by the trained employee in the Card of Overhauls and Maintenance of the device is a confirmation that the dates are kept and the scope of activities foreseen for the service of the operation is performed.
13. The Guarantor does not bear any responsibility for the damages suffered by the Purchaser or other persons caused by a motion of the device as a result of failing to comply with the terms and conditions provided above by the Purchaser.
14. In case of performing the service by the Guarantor in the place of mounting the device, the Purchaser shall grant free access to the rooms, in which the devices are placed.
15. In the event of the devices mounted on the height which allows for the access from the surface of the floor, the Purchaser shall assure scaffolding or mobile lifting and vertical transport of the device, consistent with HSE provisions.
16. Disassembly of the device from the electrical and/or plumbing system shall be conducted by the Purchaser.
17. The complaints should be lodged at the Guarantor's address in writing / by fax / e-mail on the service report form.
18. The Guarantor shall refuse to perform guarantee activities (periodical service or the repair) in case of failing to pay the price to the Guarantor for the device or for an earlier service performed.

DATE OF SALE

STAMP AND SIGNATURE

Special Guarantee Terms and Conditions:

Extension of the guarantee period to months.

Others:

SIGNATURE AND STAMP

TYPE OF THE DEVICE:	
MANUFACTURING NUMBER:	
YEAR OF MANUFACTURE:	

II. DEVICE START-UP REPORT

Date of start-up	Contractor of the start-up stamp / surname and signature	Current of the motor [A]	Representative of the user stamp / surname and signature	Notes

IV. OVERHAULS AND MAINTENANCE SHEET*

Date of overhaul	Contractor of the overhaul stamp / surname and signature	Scope of service activities	Notes

* Overhaul of the device in accordance with the chapter Repair and Maintenance in the Operation Manuals

VII.LIST OF SUBASSEMBLIES INSTALLED IN THE DEVICE

No	Name of the subassembly	*)
1	Axial fan with tri-phase motor	
2	Plate II-row heat exchanger	
3	Plate III-row heat exchanger	

*) - mark proper field corresponding to the variant of equipment