INSTRUCTIONS FOR USE H-UNI



C.I.C.Jan Hřebec s.r.o.
Na zlaté stezce 1075
CZ-263 01 Dobříš
Česká republika
T +420 326 531 311
F +420 326 531 312
E info@cic.cz
www.cic.cz

CONTENT

1. General Provisions....3
2. Use and operating conditions....3
3. Transport to the assembly site and handling on the building site....3
4. Storage on the building site....3
5. Unit installation....4
5.1 Checking before commencing the installation....4
5.2 Unit installation....4
5.3 Operator's area....4
5.4 Connection to the air-conditioning conduit....5
5.5 Connection to the heating media....5
5.6 Pool technology....6
5.7 Protection against contacting dead parts....6
5.8 Power supply cables....6
5.9 Connection of condensate drain....6
5.10 Mounting accessories....7
5.11 Cleanup unit....7
6. Putting into operation....7
6.1 Putting into operation....7
6.2 Before putting into operation....7
6.3 During first operation....7
6.4 Trial operation....8
6.5 Air output adjustment and testing equipment....8
6.6 User training....8
7. Operation, service and maintenance....8
7.1 Checking the unit during operation....9
7.2 Checking the operation of files (MAR)....9
7.3 The frequency of inspections....9
7.4 Activity during operation and maintenance of individual sections....9
7.5 Measurement and regulation....10
8. Disassembly and disposal....10
8.1 Disassembly procedure....10
8.2 Recycling....11
8.3 Environmental damage....11
9. Spare parts....11
10. Supplier service....11

1. GENERAL PROVISIONS

This manual includes instructions for assembly, putting into operation, operation itself and maintenance of air conditioning units of H-UNI series.

Prior to commencing each of the stated below activities it is necessary to study carefully the instructions and adhere to them afterwards. Adherence to the instructions is the condition of the warranty validity.

2. USE AND OPERATING CONDITIONS

Air-conditioning units of the H-UNI series are designed for use in regular spaces pursuant to CSN 33 2000 "Low-Voltage Electrical Installations - Part 1: Basic Terms, Establishment of Essential Characteristics and Definition."

The units are designed to transport and treat air at normal temperatures (- 30°C to + 40°C). Maximum allowed temperature of air flowing through the fan is + 40 ° C.

The nominal range of air flow is from 1,500 to 4,500 m3 per hour.

Air conditioning units H-UNI are designed as compact devices. The units are intended to be installed in inner spaces (machine room) on the floor, and are supplied together with base frame.

Connecting flanges are located on top of the unit and are equipped with flexible attachments allowing connection to the piping system.

3. TRANSPORT TO THE ASSEMBLY SITE AND HANDLING ON THE BUILDING SITE

The transport of all parts must be carried out in working position. During the transport and handling with individual sections or with the compact unit it is permissible to lift them up only by bottom reinforced frame.

There are holes in the base frames and supports which serve for gripping rope hooks at a vertical transport or for clamping to a conveyance loading area.

The units, their components and eventual assemblies must be sufficiently secured against any movement and overturning on the conveyance.

During loading and unloading by means of a fork-lift truck the transported parts must be hoisted by the transport pallet or holes in the frame.

Careful handling is required. During lifting by a crane pass the ropes through the transportation pallet and balance the transported/lifted part. Use the holes in base frames to attach hooks or slide rods through these holes and use them to pick up the unit. In both cases the ropes above the section must be braced so that they cannot compress the section itself. The spacers can also be created as a crate on the section edges.

4. STORAGE ON THE BUILDING SITE

The units are stored depending on the package type in warehouses according to the standard CSN EN 60721-3-1: „Classification of environment conditions – Part 3: Classification of the environment parameter groups and their strictness rates – Section 1: Storage."The units packed into the PE foil must be stored in the warehouses of the IE11 type".

The stored units must be protected against mechanical damage and humidity.

This requirement is based on the assumption of possible precipitation from air humidity under the PE film with subsequent oxidisation of the galvanised components. To prevent oxidisation of the galvanised components remove the PE film.

For storage under a shed, in the warehouses of the IE13 type, but fauna and flora negligible, it is necessary to make an advanced agreement about the packaging into the PE-foil, cardboard, crate on the edges and taping.

For a possible storage in the open area in the warehouses of the IE14 type, but fauna and flora negligible, it is possible to make an agreement on wooden packing.

5. UNIT INSTALLATION

The equipment installation may be executed exclusively by a specialized installation company with a licence pursuant to the Trade Licensing Act.

5.1 CHECKING BEFORE COMMENCING THE INSTALLATION

In particular, the following must be checked:

- delivery completeness
- if there is no damage from transport and storage
- if the fan set can be freely turned (by hand)
- movability of damper flaps
- voltage supply system
- construction readiness
- pressure and temperature of the heating and cooling media
- integrity and completeness of the electrical distribution cabinet, electrical wiring
- integrity and completeness of the cooling circuit

All defects found must be unconditionally removed before assembly.

5.2 UNIT INSTALLATION

The units can be freely seated on a horizontal base (floor, landing); there is no need to anchor them but it is recommended to place a strip of riffled rubber under the unit to compensate small unevenness of the base.

The evenness and horizontal position of the unit seating are conditions of the correct unit function. Units that contain water heat exchangers or chambers with condensate drain shall be positioned in a certain way so if any accident occurs (e.g. heat exchanger freezing or malfunction of condensate drain) it does not cause any damage.

We recommend placing the unit in a machine room with a waterproof floor and siphon.

Handle units with care, avoid crossings in the construction structure.

Pay attention and exercise caution when handling the pipeline.

Exercise extra caution when handling plastic parts at temperatures below 5 °C.

5.3 OPERATOR'S AREA

All connections used for heating, cooling, electrical couplings, MaR connections and other structures shall not prevent full door opening, entry to the unit through removable panels, filters ejection/removal, or operation and maintenance of the unit.

When the unit is placed on a ground make sure that a distance of at least 1.15 times the width of the unit is available at the operating side. The distance cannot be less than 800 mm. On the side where the service panel and switchboard is installed keep a minimum distance of 800 mm.

Area used for operation and access roads must be safe and well lit. The area used for service and the access road must offer sufficient space necessary for transport and spare parts handling.

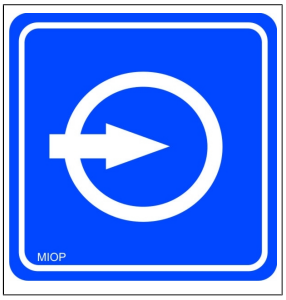
5.4 CONNECTION TO THE AIR-CONDITIONING CONDUIT

The connection of the air-conditioning conduit to flexible adapters of the unit shall be executed in such a way that the weight of the conduit does not act on the adapters and does not deform them.

5.5 CONNECTION TO THE HEATING MEDIA

Before installation, check the status of active surfaces and collectors and make sure that no mechanical damage occurred during transport. Connect heating water in accordance with outlet markings.

Pic. 1 Inlet



Pic. 2 Outlet



Dilatation forces and the weight of fittings which supply the medium into the heat exchangers may not exert load on the unit. The connecting pipeline of the heater must be insulated in such a way that the surface temperature is lower than 60 °C.

We recommend installing a ball valve and a filter on the input branch and a ball valve on the outlet branch.

Piping pressure must not exceed 0.6 MPa.

The manufacturer is not liable for damage caused by leaking joints.

Connected pipes must not prevent the door from opening, operation or maintenance of the unit.

WARNING

During joining fittings to the heat exchangers it is necessary to tighten the connection by means of two spanners in order to prevent any damage of the exchanger branch.

5.6 POOL TECHNOLOGY

If heat dissipation system into the pool water is installed, check the connection of the heat exchanger and functionality of the circulating pump of the heat exchanger.

5.7 PROTECTION AGAINST CONTACTING DEAD PARTS

You will achieve protection by connecting conductive air piping sections and other conductive dead parts with the unit. The rivet nut marked with the grounding symbol is used for this purpose.

5.8 POWER SUPPLY CABLES

Air conditioning units of the H-UNI series are equipped with an integrated measuring and control distributor which is installed and connected during the manufacturing process.

The unit requires AC power 3x400V TN-S. Superior protection and the recommended type of the supply cable is specified in the wiring diagram of the distribution cabinet of the unit.

5.9 CONNECTION OF CONDENSATE DRAIN

Condensate drains must be connected through a siphon to sewerage. The siphon must be placed directly at the unit.

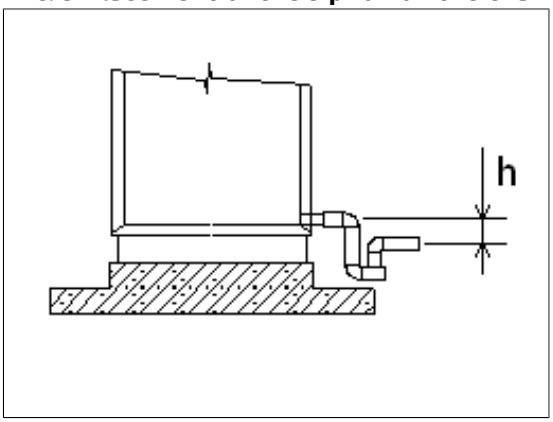
Each capacitor discharge must have its own sifon. It is imperative to adhere to the specified height of the sifon.

The minimum height (h) of the siphon is 100 mm.

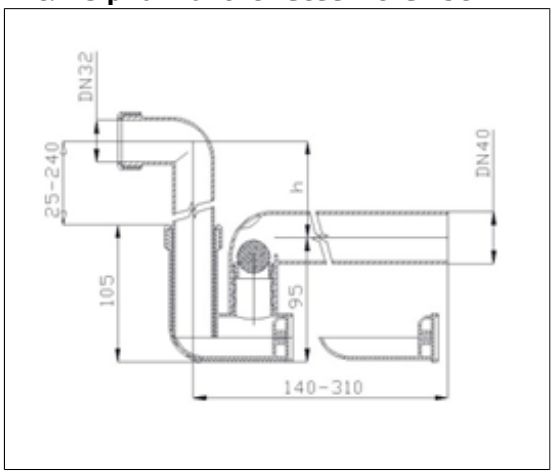
If the total pressure of the fan is dPt> 1000 Pa, the minimum height of the siphon is h [mm] = dPt [Pa]/10

Siphon connection to the chamber:

Pic. 3 Placement of the siphon on the chamber



Pic. 4 Siphon for the vacuum chamber



5.10 MOUNTING ACCESSORIES

Assembly of any potential accessories shall be executed in accordance with the unit specification and assembly instruction of the accessories manufacturer.

5.11 CLEANUP UNIT

Dust and impurities occurred as a result of assembly shall be removed from the unit.

6. PUTTING INTO OPERATION

6.1 PUTTING INTO OPERATION

The service technician having the required qualification shall be the only person entitled to put the unit into operation for the first time.

6.2 BEFORE PUTTING INTO OPERATION

Before the first putting of the unit into operation it is necessary to check:

- completeness, unit cleanness and assembly quality
- if the fans and electric motors can be freely turned
- control and operating voltage on the servo drives
- supply voltage and current of the motors according to the rating plates
- connection of heat exchangers to heat source with max. pressure of 0.6MPa
- deaeration of the heat exchangers
- functionality of the condensate drain and siphons
- cleanness of the filtration inserts
- movability of the damper flaps
- tightness of the unit connection to the pipeline system
- if the doors and service openings are closed
- emergency thermostats function

All defects must be removed before the first start of the unit.

Before first operation and in accordance with CSN EN 33 1500 "Electrical Regulations". Revision of Electrical Equipment "perform an initial revision of the electrical equipment in line with CSN EN 33 2000 "Electrical Low-Voltage Installations - Part 6: Revision".

6.3 DURING FIRST OPERATION

After the first start-up check the following:

- installation of piping routes
- correct direction of rotation of the fan - according to the arrow on the fan
- correct direction of rotation of the three-way valve regulation node
- correct direction of rotation of the circulation pump regulation node
- water heater circuit tightness
- proper rotation of flaps servo drives
- current consumption drawn by connected devices (must not exceed the value indicated on the label)
- check the tightness and functionality of all components of the unit
- functionality and integrity of the measuring and control assembly

WARNING

The regulator values and fan frequency inventer are preset. To maintain safe and proper functioning of the unit it is prohibited to make software changes in the frequency inventer, regulator and in the internal distribution unit without notifying the manufacturer.

6.4 TRIAL OPERATION

After meeting the above prerequisites you can bring the unit into trial operation.

6.5 AIR OUTPUT ADJUSTMENT AND TESTING EQUIPMENT

During the trial operation, the distribution elements on the pipeline system shall be adjusted, and complex tests of the equipment shall be executed, including measuring of the output parameters of the unit and testing the control and measuring system. The results of the testing shall be executed in writing.

6.6 USER TRAINING

A specialized firm, putting the unit into operation, or trial operation, respectively, shall be obligated to provide special training for operational personnel of the user and to execute a protocol thereof in writing.

Without the protocol the warranty shall not become effective and the equipment shall not be set into a permanent operation.

7. OPERATION, SERVICE AND MAINTENANCE

To secure safe operation and maintenance of the air conditioning system we recommend to elaborate an internal operation instruction according to the volume and equipment of the air conditioning system and local conditions, including fitting of individual units with safety labels and/or warnings. The internal operation instruction must contain among others also provisions from this article.

WARNING

If activities are carried out with opening the unit, it is unconditionally necessary to disconnect the unit from voltage supply and to realize such measures that would prevent any unintentional switching on during the work. It is forbidden to operate the unit with the doors or service opening opened.

7.1 CHECKING THE UNIT DURING OPERATION

During the operation the operator checks:

- the function and work of all parts of the unit
- tightness of connections, doors, fastenings and removable panels
- the temperature of media and transported air
- filters clogging by means of sensors

7.2 CHECKING THE OPERATION OF FILES (MAR)

The operator checks in the same time the state and function of other systems, to which the unit is connected and with which the correct function of the unit coheres, but they are not a part of the unit. These are according to unit type especially:

- air ducts and pipe elements
- electrical installation
- superior measuring and control system (if used)
- heating system
- sanitary (hygienic) installation – condensate drain

7.3 THE FREQUENCY OF INSPECTIONS

According to the operational conditions the user determines the intervals between thorough inspections, however, not less than once every three months.

7.4 ACTIVITY DURING OPERATION AND MAINTENANCE OF INDIVIDUAL SECTIONS

The operator shall always make sure that the unit is clean. If not, the unit must be cleaned.

FAN

Check impeller for impurities, clean it if necessary. If the impurities cause impeller unbalance and excessive vibrations, contact the producer.

Bearings of lower output fans are fitted with permanent grease filling and do not need lubrication. They are filled with plastic grease of the lithium type and their theoretical durability is 20,000 hours.

DAMPER AND DAMPER SECTIONS

Check proper movement and correct flap closing.

FILTERS

Regularly and often check filters clogging and filters based in their type.

Intervals of filter changes:

- based on trial operation, at least once a year
- if the filters are clogged (MaR sensors)

All used filters shall be disposed of ecologically (see chapter 8).

HEATER

Before the beginning and during the winter season it is necessary to secure antifreeze protection of the heat exchangers MaR.

If the exchanger is discharged for the winter season, completely drain water from it, e.g. by compressed air. During discharging of the heater, the temperature of water must be below 60°C.

If the heat exchanger is dirty, clean it with compressed air, steam or high pressure cleaner. Cleaning should be done with care to avoid mechanical damage to the lamellas.

CONDENSATE DRAIN

Check the correct function of the condensate drain and siphon.

Disassemble the siphon with the ball and clean it.

Before the winter season, make sure to apply measures preventing the water in the siphon from freezing.

Make sure that the condensate drain pipe works flawlessly including proper tilt of the condensate piping to make sure that no condensate remains in the piping when not in operation.

PLATE HEAT EXCHANGER

In case of contamination clean heat transfer surfaces with compressed air, steam or high pressure cleaner. Cleaning should be done with care to avoid mechanical damage to the lamellas.

7.5 MEASUREMENT AND REGULATION

DEVICE DESCRIPTION

Air conditioning units of the H-UNI series are equipped with an integrated measuring and regulation system installed by the manufacturer.

The measuring and regulation system includes a distribution box with microprocessor controller and power supply section on the outside of the unit.

Active components and measuring devices are installed inside the unit.

The control unit (programmable regulator) together with active components and sensors ensure optimal operation including the following main functions:

- optimum supply of fresh air during operation of the unit
- maintaining the desired temperature during winter and summer
- maintaining the relative air humidity
- protection of the water heat exchanger against freezing

For detail information refer to TP 12109N_EN Measurement and H-Control regulation system operation manual.

8. DISASSEMBLY AND DISPOSAL

After the service life of the unit is over the unit must be disassembled and disposed of properly.

Disassembly of the unit may be done only by a specialized company.

8.1 DISASSEMBLY PROCEDURE

First, disconnect the unit from the power supply to avoid injuries by electric current.

Disconnect the unit from the hot water supply pipe, ventilation air ducts and pool water heat disposal pipe (if equipped).

Remove (drain) all coolant from the heat pump.

Make sure to avoid leakage of operating fluids (coolant, oil, water-glycol mixture).

Disassemble the unit down to individual components.

When disassembling the unit observe occupational safety requirements.

Tools needed to disassemble the unit:

- flat and Phillips screwdriver
- a set of side wrenches
- a set of Allen keys

- hacksaw
- power drill and set of drill bits

8.2 RECYCLING

Make sure that operational fluids, chemicals, packaging units and replacement parts are disposed of in environment-friendly manner and that local recycling options and requirements are observed.

To ensure proper recycling process, components of the unit shall be separated and sorted by material type.

8.3 ENVIRONMENTAL DAMAGE

All parts and operational fluids (oil, coolant and water-glycol mixture) must be disposed of properly and in environment-friendly manner and in accordance with local laws and regulations.

9. SPARE PARTS

Spare parts are not delivered with the unit. It is possible to order spare parts needed at the producer. The following data are to be specified in the order: unit type and production number, production year, specification of the parts needed.

10. SUPPLIER SERVICE

Supplier service can be arranged contractually by the user directly with the producer. The producer can assign trained service firms to carry out the supplier service.

The manufacturer reserves the right to modify the installation and operating instructions without prior notice.

In case of questions and uncertainties, please contact us.