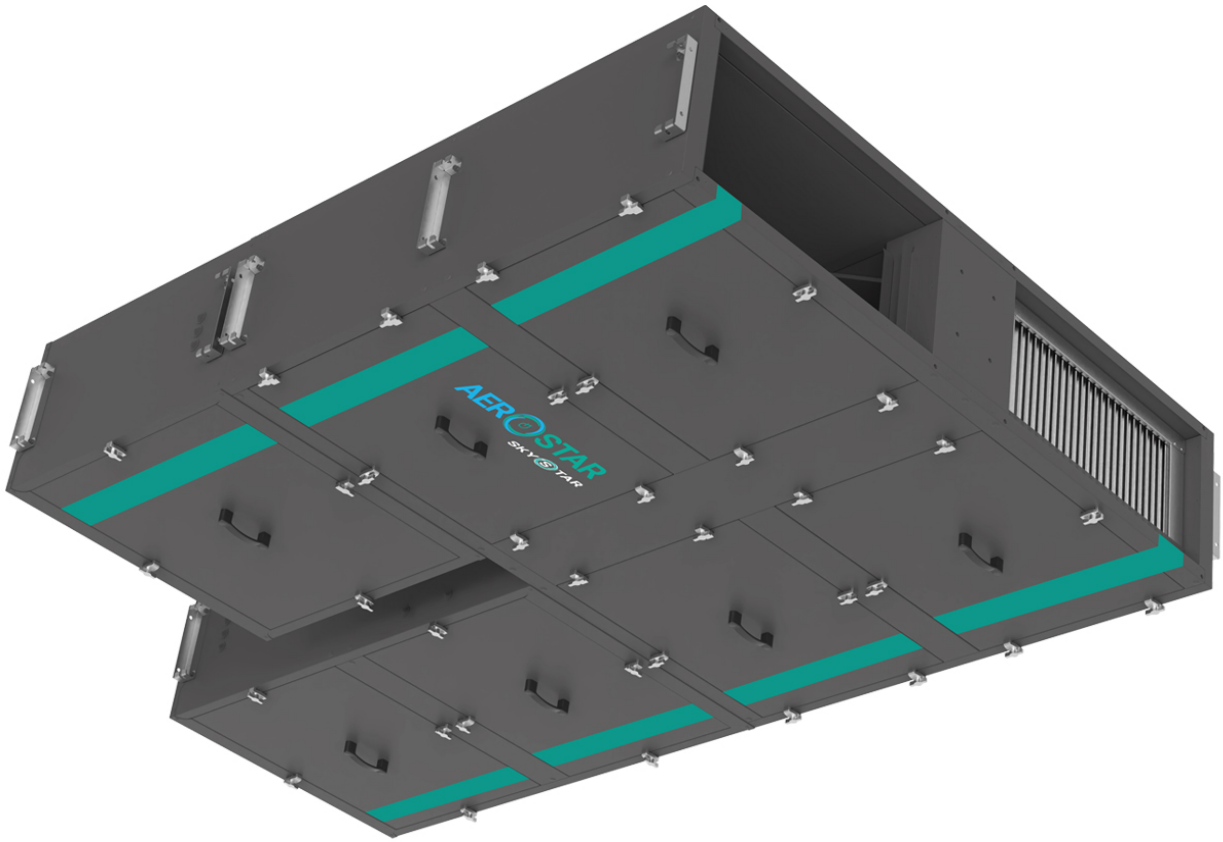
Ventservice

Installation
and operation manual

SkyStar



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Safety Rules

Do not switch the air handling unit without grounding.

Before turning the ventilation unit all panels must be closed, and the cover are in place and secured.

Before turning the ventilation unit its sections must be connected in accordance with the installation instructions.

Before carrying out an internal inspection unit, make sure the power supply of ventilation unit is turned off, there are no rotating parts.

Before opening the panel by turning off the unit and main switch, wait (1-2 min.), Until the fans stop.

Air handling unit can only switch on and switch off in ways specified in the device data sheet.

Be careful when performing installation or repair of water heater - the coolant temperature can reach 130 ° C!

If the unit is operated with the automation system is not coherent with the plant manufacturer for the functionality, reliability and safety protection devices responsible company that installed automation.

The moving parts in the units - a fan impeller, the lock of the bypass valve and plate heat exchanger (if any). The removable service panels are locked and protected from direct contact with moving parts. If the outputs of the fan section is not connected to the air ducts or other sections, these outputs must be covered with a protective mesh.

General information

1. Suspended air handling units are manufactured in accordance with the Ukrainian and European technical standards and regulations.
2. Skystar units must be installed and used only in accordance with this documentation.
3. For damage caused by improper use of the equipment, the manufacturer is not responsible, the entire risk of the equipment accepts the buyer.
4. The installation and operating documentation must be available to maintenance personnel and service organization. It is recommended to place it near the installation of ventilation and air-conditioning.
5. When handling, installation, electrical connection, commissioning, and repair and maintenance of equipment, you must follow applicable safety rules, regulations and generally accepted technical rules. First of all, it is necessary to use personal protective equipment (gloves) because the installation contains sharp edges and corners. All connected equipment must comply with current standards and safety regulations.
6. Replacement and repair of individual system components, which could affect the safety and proper operation of the equipment is strictly prohibited.
7. It is strongly recommended to read and strictly observe the instructions and recommendations provided in the following sections before installation and use .
8. Installation and commissioning of the equipment in operation can only be carried out staff specialized firm having approval from the manufacturer according to the applicable rules and regulations.
9. Properly designed and installed ventilation system will not give effect, if it is not for the proper care.
10. After the installation , ventilation system must be checked, adjusted in accordance with the project and in a totally proper and prepared for the operation of state commissioned to service personnel.
11. When checking must verify that the actual performance of the fan, heat output heaters specified in the project

    Note!

    -The design of installations may be amended, without impairing its consumer properties and not addressed in this guide.

Application and operating conditions

SkyStar units are designed for comfort ventilation and air conditioning in small spaces. Available in various sizes in the flow range from 500 to 4700 m3/h,maximum fan pressure up to 1000 Pa. The design is identical to the settings at their internal and external use. SkyStar units are designed to supply air without solid, fibrous, sticky, aggressive, respectively explosive impurities. The air must not contain substances that contribute to corrosion or decomposition of zinc, steel or aluminum. Operating temperature range in the standard version from -30 ° C to + 40 ° C.

Transportation and lifting

SkyStar units are delivered to the customer or at the installation site in an assembled form, or as separate units (sections and sectional modules). Installation / blocks placed on transport pallets. When transporting the equipment needed to comply with the requirements laid down in the passport of the air handling unit. It is necessary to monitor the installation protruding elements (intake and discharge energy, electrical components, sensors) during transportation. Be careful and cautious when lifting and laying.

Warehousing

Plants are placed on standard pallets are packed in a PE film and have a protective foam insert. Storage is permitted on the premises:

- A maximum relative humidity not exceeding 85% non-condensing
- With ambient temperatures ranging from -30 ° C to + 40 ° C
- Prevent the entry of dust, gases and corrosive materials evaporation or other chemicals that promote corrosion of structural parts and optional equipment.

Plant design

The installation consists of independent sections, joined together during assembly. Sections are selected depending on the purpose and scope of the installation.

The design of installation is modular, panel, frameless. The housing consists of two steel sheets between which is laid a layer of non-combustible mineral wool. The outer side of the body is painted with Polyester coating. Along the perimeter of the compound body panels insulated with silicone sealant. Bottom installation closes a removable service panel.

Inspection side

SkyStar design allows to choose the direction of connection to an external power source and service accesses. Side is determined relative to the air flow direction, right or left.

Information and safety

SkyStar Plants and separate sections are equipped with identification icons that indicate the function of equipment, wiring diagrams, energy supply and drainage. Warning of the danger of touching the rotating parts placed on removable service panels, which are equipped with a sticker warning symbol. Separate junction boxes and service panels covering electric, fitted with label with warning symbol.

Information about the place of supply:

-heat transfer fluids in the heat exchanger;

-refrigerant in the evaporator;

Contents of delivery

SkyStar unit included:

-Maintenance

-Pasport

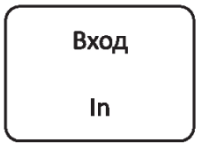
-Connecting kit (if the installation is delivered unassembled)

-Automation kit(optional)

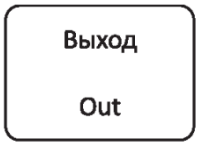
-Accessories according to invoice.

Identification of SkyStar components

Each section is equipped with an identification label and icon (located on the outer part of the service section).



Information about the place of supply:
-heat transfer agent
-refrigerant(evaporator).



Information about the place of the output:
-heat transfer agent
-refrigerant(evaporator)

Information about the direction of airflow in the installation

Service panel electrical heating section, separate junction boxes and service panels covering electric, equipped with a warning sticker

Warning of the danger of touching the rotating parts placed on removable service panels, which are equipped with a sticker warning symbol

Installation

Before installing the wiring is carried out as follows:

- Contents of delivery
- Delivery condition
- Free running of the rotating parts
- Control of the electrical network parameters
- Control of temperature and pressure of connected energy carriers, and their compliance with the specified parameters of the unit.

Connection

A rubber seal is attached to the contact surface of the connecting walls. Sections are connected with each other via corners and are fixed by bolts or studs and secured with nuts M8 appropriate size.

It is necessary to ensure free access to the removable side panel

Heating and Cooling Media Feeds

All media feeds are connected to the outer side of the air-handling unit. The internal interconnection is made during production in the factory. The corresponding connection points are marked with labels

Water Connected Air-handling Component Installation

Recommendations on water quality for heat exchangers that operate using low pressure hot water and chilled water:

A good water quality – e.g. salt and lime-free drinking water – increases the lifetime and efficiency of the heat exchanger.

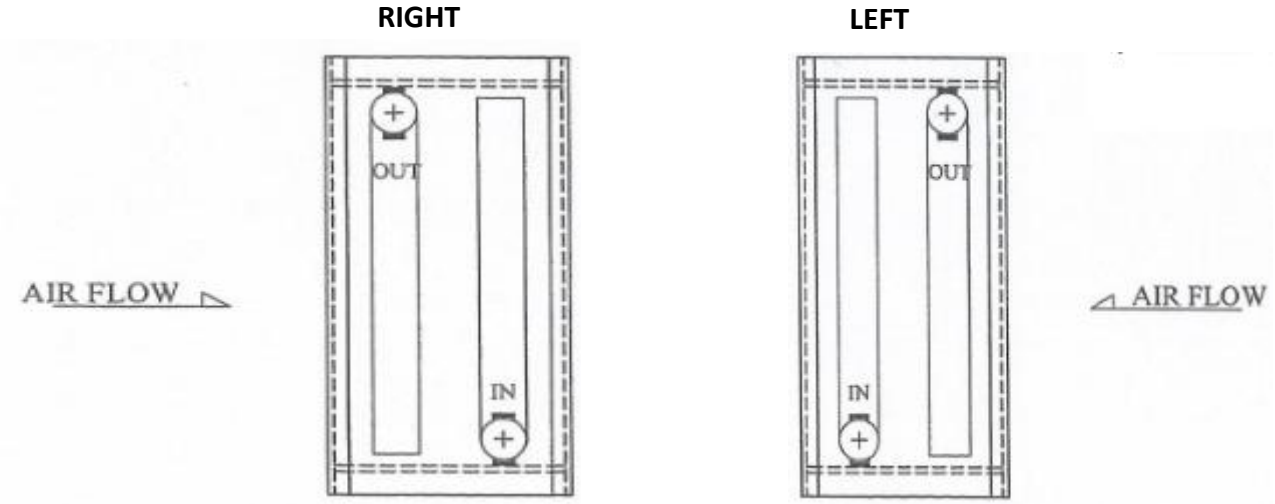
Check the limiting values shown in the table annually to prevent damage to the hydraulic system and its components.

If necessary inhibitors must be added.

Note: These limiting values are only basic information about the water quality and do not form any basis for a guarantee!

Water and Glycol Heat Exchangers

The connections of heating and cooling media feeds must be performed so that no forces arising from the dilatation and weight of feeding pipes and fittings will be transferred to the air-handling unit. The corresponding connection points are marked with labels on the unit side panel (heating water inlet, heating water outlet, coolant inlet, coolant outlet). As standard, water heater exchangers are equipped with air selfventing 1/2“ TACO valves, which are situated on top sides of both headers. Connecting fittings of sections with covered feeds must be insulated and suitable grommets or sealing must be used to seal the passages through the unit‘s casing. Heating or cooling media can be led to the heat exchanger through the lower panel (universal) or through removable side panels (depending on the air-handling assembly, respectively if it is enabled by the adjacent sections and service access



The lay-out of the openings can be selected according to the mixing set version and overall dimensions. After connecting the water heat exchangers (heaters and coolers, including mixing sets) to the distributing piping, it is necessary to pressurize (flush with water) and vent the entire circuit, including the heat exchanger, and then to perform leak-tightness checks of all pipe joints and of the exchanger itself (including checking the interior of the water exchanger section). The manufacturer does not provide any guarantee covering any damage resulting from liquid leakage from leaky joints or damaged exchangers.

Direct Evaporators

Direct evaporators must be connected by a specialized contractor authorized to install refrigerating equipments. The direct evaporators are filled with nitrogen in the production factory.

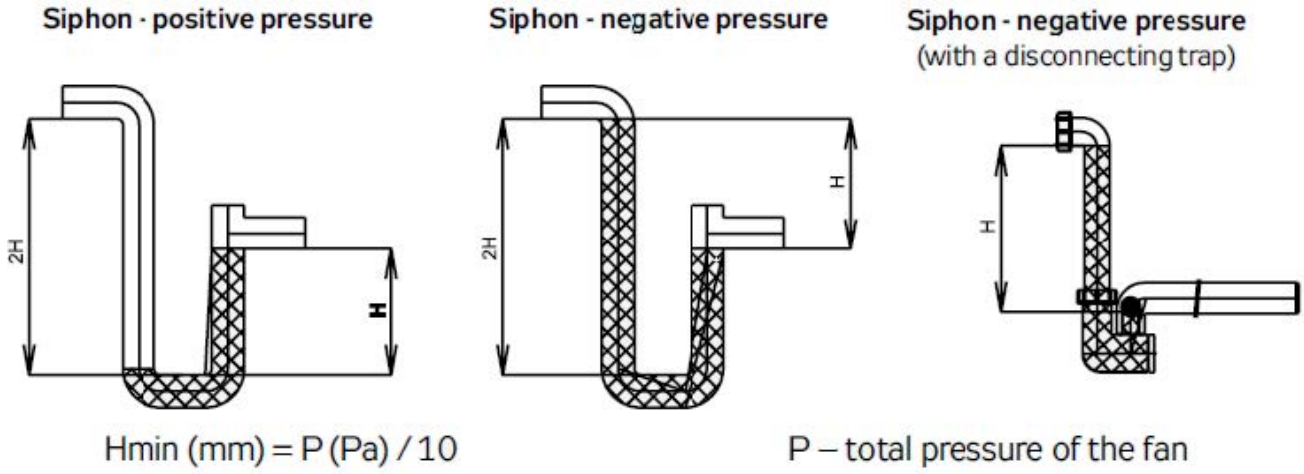
Steam humidification

For a detailed description of the installation, commissioning and prescribed inspections of the steam humidification section, refer to the separate manual which is a part of the accompanying documentation of the GlobalStar air-handling unit. When installing the steam humidification section, observe the following recommendations:

Air ducts led through cold areas must be insulated to avoid condensation. The steam humidification assembly must be situated in a non-freezing area. The steam generator can be noisy (switching of solenoid valves). Therefore, it is advisable to install it away from quiet areas 100 °C hot and heavily mineralized water is drained from the steam humidifier.

Condensate Drainage

Cooling, plate heat exchanger and steam humidification sections are equipped with stainless condensate draining trays which terminate in an outlet for the condensate draining kit connection. The siphon height depends on the total pressure of the fan, and ensures its proper functioning. The type of condensate draining kit must be designed in the course of the air-handling unit calculation. The condensate draining piping must end in a free atmosphere, i.e. it must not end directly in the closed sewerage system. Before operating the air-handling unit or after being out of operation for a longer period, it is necessary to fill the siphon via the plastic plug with water.



The air-handling unit can also be equipped with a siphon with a disconnecting trap and a ball valve (only negative pressure sections). This type of siphon need not be filled with water before putting it into operation. If there is a risk of freezing, it is necessary to insulate the siphon and condensate draining piping, respectively keep the ambient temperature above freezing point, e.g. with an electric heating cable!

Electrical Equipment Wiring

The external connection of the internal electrical equipment of the air-handling unit can be made via wiring the terminal boxes which are situated on the outer side of the air-handling unit (the service side according to the designer‘s specification). The internal electrical equipment of the air-handling unit has already been connected to the terminals of these wiring terminal boxes. The wiring and installation of the system elements must be performed by qualified professionals authorized to perform wiring of the given type of device. The wiring must be performed in accordance with directives and standards of the state of installation, and in accordance with the Installation and Operating Instructions of individual pieces of equipment (frequency converters, pressure and temperature sensors, etc). Before putting the air-handling unit into operation, a wiring inspection must be performed.

Before starting the wiring, check the following:

Conformity of the power supply parameters with the data on the type plate of the connected section.

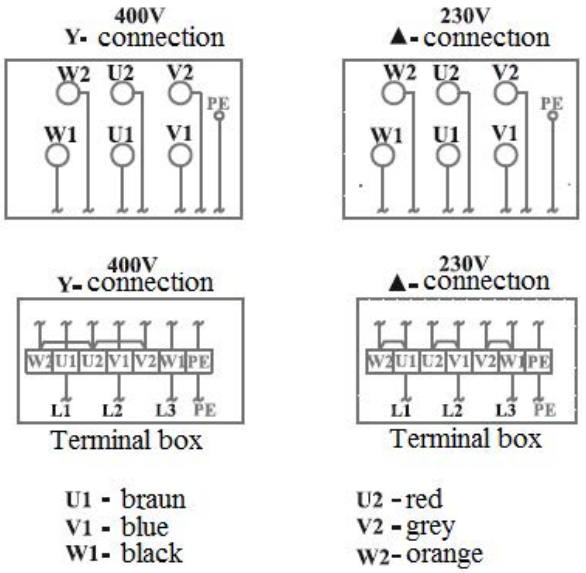
Cross-sections of connecting cables.

Wiring of motors

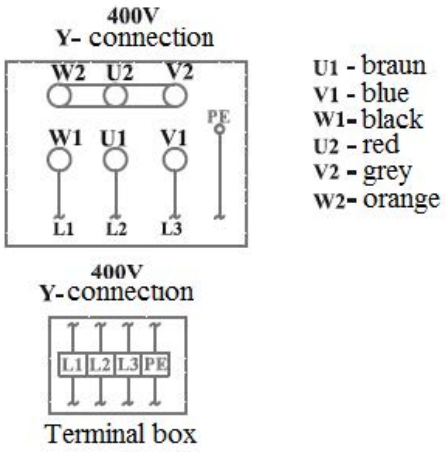
The motors connection must be performed in accordance with directives and standards of the state of installation.

Wiring diagram

Rated voltage and wiring for motors up to 2.2 kW



Rated voltage and wiring for motors above 2.2 kW



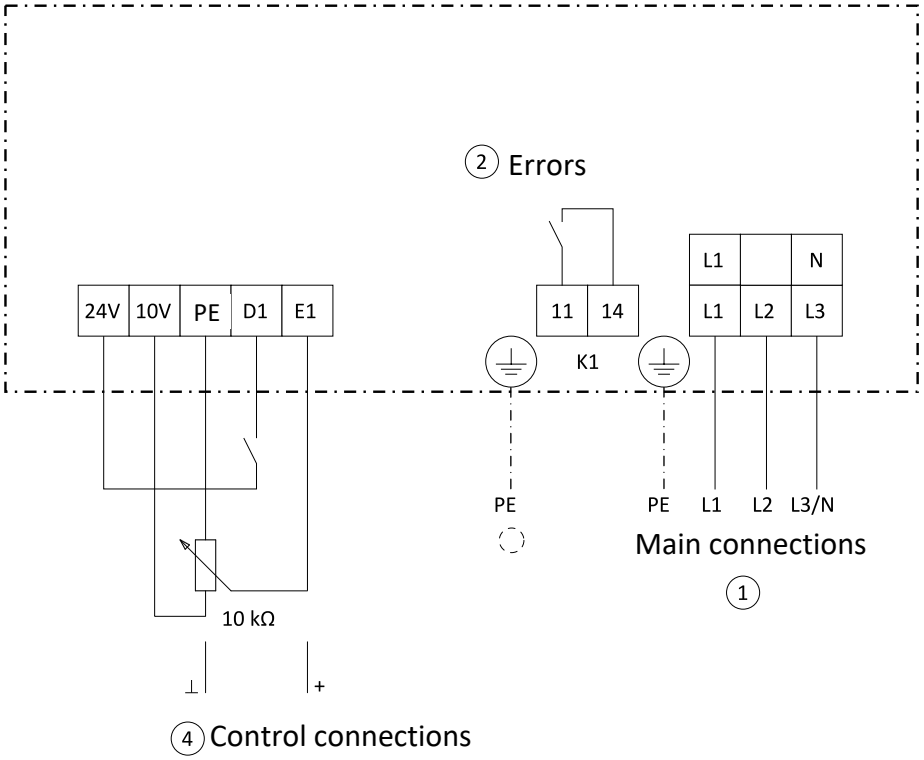
This schem provided only for 2.2 kW motors

(max. power of 1~ frequency converter 2.2 kW)

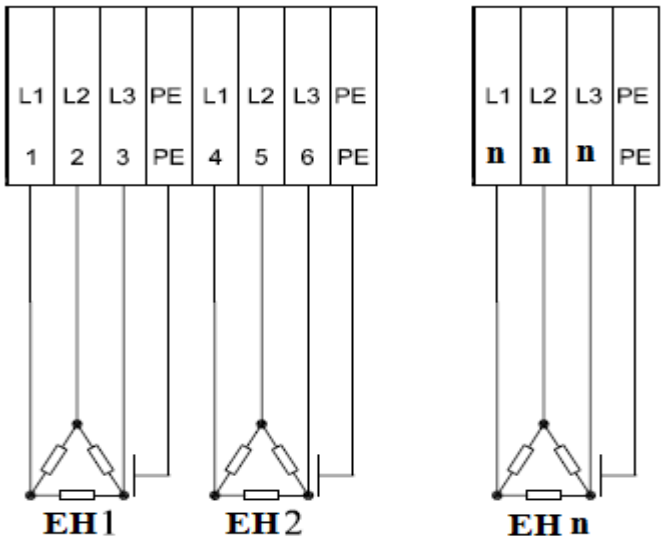
Warning: When performing any maintenance or repairs, the device must always be disconnected from the power supply!

The motors are connected in the factory to the wiring terminal boxes situated on the external casing of the fan sections. As standard, they are designed for a power supply of 3x 400 V / 50 Hz. The service switch (delivered as an optional accessory separately) is not installed on the unit. The service switch connection must be performed in accordance with directives and standards of the state of installation, and in accordance with the Installation and Operating Instructions.

The service switch (delivered as an optional accessory) serves to disconnect the fan from the power supply and from voltage. It prevents unintentional start-up and presence of voltage when performing maintenance. This switch is not a substitute for the main or emergency switches.



Electric heater wiring



L1(1), L2(2), L3(3),PE,

- clamps of first power supply of electric heater. 3f-400V/50Hz

L1(4), L2(5), L3(6),PE,

- clamps of second power supply of electric heater. 3f-400V/50Hz

Commissioning

The air-handling unit may be commissioned only by a properly qualified person.

Prior to first start-up of the air-handling unit, an inspection of the wiring of all connected components of the air-handling unit must be performed by a qualified technician.

Safety Measures

The sections which can generate some injury hazards (electric shock, rotating parts, etc.) or connection points (heating water inlets/outlets, air flow direction, etc.) are always labelled with warning or information labels.

It is forbidden to start the fans of the air-handling unit if the panels are open or removed. The hazard of trapping by movable parts is indicated by a label situated on the service door of the air-handling unit. Service doors must always be closed during air-handling unit operation and the lockable closure of the fan chambers must be locked with a key to prevent unauthorised access.

Before starting any work on the fan section, the main switch must always be turned off and secured to avoid accidental starting of the motor during service work on the fan section.

When emptying the heat exchanger, the water temperature must be below +60 °C. The connecting piping of the heater must be insulated so its surface temperature will not exceed +60 °C.

It is forbidden to remove the service panel of the electric heater if energized, or to change the factory settings of the safety thermostat.

It is forbidden to operate the electric heater without the outlet air temperature control and without ensuring the steady flow of transported air.

Controlled run-down of the fans must be ensured upon the gas heater section shut-down to avoid the exchanger overheating, and simultaneously, the outlet air temperature behind the gas heater, respectively ambient temperature of the burner, must not exceed 40 °C.

After being set by the expert, the parameters of the gas heater must stay unchanged to maintain safe and trouble-free operation.

Inspection Prior to First Start-Up

General Checks

The service panels are provided with hinges and external closures. The closure simultaneously serves as a handle. A special tool – a wrench – is needed to open/close the closure.

Check alignment of the air-handling unit. Check whether all components of the air-handling unit are installed and connected to the air distributing ducting.

Check whether all cooling and heating circuits are connected, and whether energy media are available.

Check whether all electrical appliances are connected.

Check whether all condensate draining kits are connected.

Check whether all components are installed and connected

Electric Wiring

Check the proper wiring of all individual electrical components of the air-handling unit according to the corresponding wiring diagrams.

Filter Sections

Check the condition of filters.

Check the fixation of filters.

Check the settings of differential pressure sensors

Water and Glycol Heater Sections

Check the condition of the heat-exchange surface.

Check the condition of the inlet and outlet piping.

Check the condition of the mixing set.

Check the condition, connection and installation of antifreeze protection components.

Electric heater Section

Check the condition of the heating coils.

Check the connection of the heating coils

Check the connection of the emergency and operating thermostats.

Sections of water/Glycol heaters, Direct evaporators

Check the condition of the heat-exchange surface. Check the condition of the inlet and outlet piping. Check the connection of the condensate drainage. Check the connection and elements of the cooling circuit. Check the condition of the drop eliminator dampers.

Plate Heat Exchanger Section

Check the condition of the exchanger vanes.

Check the bypass damper functionality.

Check the drop eliminator condition.

Check the connection of the condensate drainage.

Gas Heater Section

Check the connection of the condensate drainage.

Check the wiring and functionality of the sensors and thermostats.

Check the gas burner connection.

Check the air-venting of the gas distribution system.

Check the gas-flue connection.

Check the bypass damper functionality

Fan Section

Check the fan impeller for intactness and free rotation.

Check the tightening of the Taper-Lock collets.

Check the tightening of the screw joints of the fan assembly.

Check the protective covers for integrity and mounting

Check the fan impeller, inlet and outlet for cleanliness and foreign objects

Until the air-handling system is adjusted, the air-handling unit can only be put into operation when the regulating damper in the airhandling unit inlet is closed. Operating the air-handling unit while the air-handling system is misadjusted can cause motor overloading and permanent damage. If the second stage of filtering is included in the air-handling unit, it is advisable to run the testing operation with the second stage filter inserts removed.

Checking During the First Start-Up

Check the proper direction of the impeller rotation following the direction of the arrow on the impeller or fan casing.

Check the proper direction of the rotary heat exchanger rotation following the direction of the arrow on the rotor situated under
the service panel.

Check the input current of connected equipment (it must not exceed the maximum permissible value stated on the rating plate).

Check the proper direction of the rotary heat exchanger rotation following the direction of the arrow on the rotor (from the service panel side always upwards) and free rotation without dragging.

After 5 minutes of operation, stop the air-handling unit and check the temperature of bearings and the tension of belts (belt-driven fans only). This check may only be performed if the fan is switched off!

Check the water level in the condensate draining kit. If the water has been sucked off, it will be necessary to increase the height of the siphon.

Check the mounting of the filters

During the testing operation, it is necessary to check the air-handling unit for unusual noises and excessive vibrations. The testing operation must last at least 30 minutes. After the test operation has finished, the air-handling unit must be inspected. Pay special attention to filters and check them for damage, proper functioning of the condensate draining kit. If the unit vibrates too much, it is necessary to check again the fan assembly and perform vibration intensity measuring, if necessary. If vibration intensity of the fan assembly with an overhung impeller) exceeds 2.8 mm/s, measured at the motor bearing shield on the impeller side, the fan must be checked and balanced by professional staff. During the testing operation it is necessary to adjust (regulate) the entire airhandling system. Before putting the air-handling unit into permanent operation, it is recommended to replace or regenerate the filter inserts.

Service Regulations

Before putting the air-handling device into permanent operation, the supplier (installing company) in collaboration with the designer must issue service regulations in accordance with local legal regulations.

We recommend including the following in these service regulations:

Air-handling device assembly description, its intended use and a description of its activities in all operating modes.

Description of all safety and protective elements and their functioning.

Health protection principles, safety and operating rules to be observed when operating the air-handling device.

Requirements for operating staff qualifications and training, a nomenclature list of personnel authorized to operate the airhandling device.

Detailed emergency and accident instructions to be followed by the operating staff.

Operating particularities during different climatic conditions (e.g. summer or winter operation).

Inspection, checking and maintenance schedule, including a list of checking steps, and their recording

Records of operating staff training, operation, inspections and cleaning of the rotary heat exchanger (subject to guarantee validity).

Unit Operation Screening Checks

The operating staff checking activities must be focused on the following:

The air-handling unit operation and functioning; leak tightness of connections, inspection doors and service panels; temperature of energy media and transported air; sensors indicating fouling of filters.

The condition and operation of systems associated with the air-handling unit, and of which proper functioning is needed for proper operation of the air-handling unit as well as for operation of the entire air-handling system.

These are:

Electric wiring

VO water heater system - circuit, pump operation and water filters (also in SUMX)

Cooling system

Sanitary installation - condensate drainage

Gas heater system

Regular Inspections

The user will determine the intervals for regular inspections of the air-handling unit according to the operating conditions, however, at least once in three months. Within the framework of the inspection, check the following:

Overall Check

Clean all parts of the air-handling unit:

Min. 1× per year or more frequently, if needed (recommended cleaning solution – 10 parts of a dish washing cleaner, 45 parts of Isopropanol, 45 parts of water – pH 5–9, do not use cleaners containing active chlorine). Max. 50 °C when steam cleaning equipment is used.

When high-pressure cleaning equipment is used, there is a risk of paint damage, especially in the elbows

Don't use brushes or similar abrasive tools and cleaners

First, probe on a little surface area

Use the same technique on the entire surface area to prevent differences in colour in some areas

Fan Inspection

Check the fan operation (strange noise and excessive vibrations of the unit) and, if needed, balance the fan, refer to the section Unit First Start Inspection.

Check the impeller for cleanliness.

Check the tightening of the Taper-Lock threaded pins

Check the impeller for integrity and free rotation

Check the assembly screw connections for tightening

Check the silent-blocks for condition (damage)

Check the fan assembly elastic sleeves

Check the motor and fan bearings in the fan case.

Filter Replacement

Different types of filter mounting are used depending on the air-handling unit size, filter type and filtration class. When replacing filter inserts, always check the condition of the sealing; if damaged, replace the sealing with a new one. If checking or replacing the filters, follow these procedures:

The filters can be removed by pulling the frame edge out and then realising the sheet steel retaining clamps. The replacement filter can be installed in the reverse procedure: Carefully bend (without permanent distortion) both edges of the vertical frame, install the clamps and place all the filters between the bars, first the lower row then the upper row, until they are completely seated. It is advisable to perform regular inspections of the filters, especially if high air humidity is present or if it fluctuatesthrough the day. Unsuitably low pressure loss read on the manometer can indicate frame distortion. If this happens, a physical check of the filters is recommended

Spare Filter Inserts

A complete set of filter inserts can be ordered. Specification of the filter type (bag, compact, insert, or grease/metal filter), air-handling unit size and filtration class will do. There is no need to specify the types of individual filter inserts of the filter.

Checking the Exchangers (Heaters, Coolers)

Be very careful when cleaning the exchanger‘s vanes to avoid mechanical damage.

It is important to check the air-venting of the exchangers.

Permanently check the functionality of the condensate draining system (coolers).

Important note: If taking the exchanger out of operation during the winter season, the water must be completely drained out of the exchanger, and possible water residuals must be removed, e.g. by flushing the exchanger with pressurised air; or the exchanger must be filled with a safe antifreeze solution of water and glycol. The water residuals can freeze in the exchanger and damage the copper pipes.

Steam Generator Check

All prescribed checks are included in the Installation Instructions attached to the steam generator. Please follow these instructions, especially the following:

First 5 hours of operation: check the water conductivity (min. 5 refills per water exchange cycle, sparking and max. current checking); check the cylinders for condition (water leakage) and operation; check the tightening of electrical connections.

Every three months: check the steam generator operation (number of water refilling switching per cycle) and the condition of the cylinders (water leakage, condition of electrodes and inner casing of the cylinder).

Yearly or every 2500 service hours: replace the boiling cylinders; check the condition and shape of hoses; check the sealing of the distributing tubes inside the chamber; check the tightening of electrical connections.

Warning: Attention-electrical equipment! The steam generator cylinder can be hot. In case of water leakage, hazard of burning and/ or electric shock exists! The intervals of inspections and service life of parts can vary depending on the water quality and operating conditions.

Checking the Electric Heater

Check the heating coils for fouling; vacuum the heating coils if necessary. Check the functionality of the safety thermostats.

Checking the Plate Heat Exchangers

Check the plate heat exchanger for fouling. Check the functionality of the condensate drainage.

Verification Measurements

After completing the regular inspection of the air-handling unit, it is necessary to verify and record its actual performance parameters.

Maintenance checks recommended by the Aerostar service for air handling units
Once a month:

1. Visual inspection of equipment, checking fixtures, fences and structures supply installation;
2. Check the power supply in phases (checking voltage imbalance, check for current imbalances);

3. Monitoring the Status and cleaning (replacement) air filters;

4. Check the electric regulating and shutoff valves;

5. Monitoring and recording the state of automation;

6. Check the anti-vibration mounts;

7. The service water pump;

8. Check the operation of the drainage system and if necessary cleaning the drainage;

9. Monitor the belts;

10. Check the status of the heat exchanger;

Once a quarter:

11. Check the condition of the power and control circuits equipment, as necessary to produce retightening;

12. Monitoring and debugging three-way valve water air heater;

13. Monitoring and debugging three-way valve water-cooling;

14. Bearing lubrication supply installation;

15. Check if necessary adjustment, equalization of the drive pulley and the pulleys of the fan;

16. Check if necessary adjustment, the parallelism of the shafts of the engine and the fan;

17. Checking and belt tension;

18. Check alignment and impeller shaft;

19. Removing plaque from the impeller;

20. Check the correct position of the crankcase protection belts;

21. Lift the depreciation of springs at the base of the fan motor;

22. Check the flexibility and strength fasteners;

Semi annually:

23. Dry cleaning drainage of condensate;

24. Monitor the water filter with stainless steel mesh for contamination;

Once a year:

25. Cleaning louvres;

26. Inspection of air ducts for leaks;

27. Chemical cleaning of the heat exchanger;

28. Washing and cleaning of the inner cavity of forced ventilation unit;

29. Planned seal the duct;

30. Revision bearing fan motors;

31. Verification of compliance instruments Bale;

32. Revision of the impeller handling unit;

33. Check the electric regulating and shutoff valves;

34. Maintenance of drainage siphons;

35. The service water pump.

Warranty conditions

The VENTSERVICE Limited Liability Company, hereinafter referred to as the Manufacturer, manufactures the Unit in accordance with the requirements of Technical Specifications TU U 28.2-35851853-002:2013 and the design documentation and ensures that the Unit complies with the requirements of technical documentation providing that the consumer observes the rules of transportation, storage, installation, commissioning and operation during installation and commissioning works performing by a specialized organization having a relevant manufacturer's permission. Warranty obligations are fulfilled under the conditions specified in paragraphs 9.1-3.3 During the warranty period the manufacturer is obliged to eliminate equipment malfunctions of the Unit or its parts and components resulting from factory faults. The basis for consideration of claims for fulfilment of warranty obligations is Claim. The procedure for filing and content of the Claim is specified in section 9. The manufacturer decides whether the components or their defective parts shall be replaced or whether they shall be repaired on site.
The executed warranty service does not increase the warranty period; the warranty on the replaced parts will expire with the expiration of the warranty period of the Unit.

These warranty terms are valid for all agreement for purchase of Manufacturer's Units, unless other terms are specified in these agreements.

Warranty period

The unit warranty period is 36 months from the date of delivery of the equipment to the consumer, but not more than 42 months from the date of production. The date of transfer of the equipment to the consumer is the date of the expenditure invoice issue by the Distributor.
The service life of the unit is at least 10 years.

The following are not covered by the guarantee:

1. Parts of equipment and maintenance materials subject to normal physical wear (filter, fuses, etc.)
2. Unit damage, resulting from:
a) ingress of foreign objects or liquids;
b) natural phenomena;
environmental exposure;
c) animal activities;
d) unauthorized access to the assembly units and parts of the Unit by persons not authorized to carry out the specified actions;
f) mechanical damage and breakage due to non-compliance with the installation and operation instructions.
3. Various modifications, changes in the operation parameters, processing, repairs and replacement of parts of the Unit performed without the consent of the Manufacturer or the Distributor.
4. Damage caused by idle time during the period of waiting for warranty service and any damage to the Customer's property, other than the Manufacturer's Unit, will not be compensated.

Warranty services

1. Work under this warranty shall be performed within 14 days from the date of the claim submission. This period shall be extended in exceptional cases, particularly in cases when more time is required for delivery of parts, or if the service cannot be performed on site.
2. Parts dismantled from the Unit by service workers during the warranty repair and replaced with new ones are the property of the Manufacturer.
3. Costs arising from unjustified claims or due to interruptions in service at the request of the claimant shall be borne by the claimant. Repair services shall be evaluated in accordance with the services rates established by the Distributor or the Manufacturer.
4. The Manufacturer has the right to refuse to perform warranty services or maintenance if the customer delays payment for the equipment or for previous service work.
5. The Customer shall help the service workers when carrying out repair work on site by means of:
a) providing access to the Unit and to the relevant documents at the appropriate time.
b) ensuring protection of the service team and its property, as well as compliance with all health and safety requirements on site.
c) creating conditions for instant commencement of work immediately upon the arrival of service workers and performance of work without any obstacles.
d) providing free necessary assistance for work (for example, supplying elevators and free sources of electricity).
6. The Customer is obliged to accept the completed warranty services immediately on their fulfilment and to confirm it in writing in the certificate of completion, the copy of which he receives.
7. The warranty shall not be maintained in case the service has not been conducted in accordance with the regulations for operation of this type of product.

Claims information

Acceptance of products shall be carried out by the consumer according to the “Instructions on the procedure for quality acceptance of products for industrial purposes and consumer goods”.
Upon detection of a quality inconsistency, the consumer shall send a Claim to the Distributor, which is the cause for resolving the issue of validity of the provided claim.
A list of Distributors and their contact information is available at www.aerostar-vent.com.
The Distributor shall be provided with written Claims. Claims may be submitted by fax or e-mail. The Claim shall contain type, factory number, expenditure invoice number and Unit delivery date, as well as Unit location, telephone numbers and full name of the person in charge.
The Claim shall also contain a description of installation problems, as well as the titles of the damaged parts (if possible).
If the Customer violates the rules of transportation, acceptance, storage, installation and operation, no quality claims are accepted.

COMMISSIONING PROTOCOL			
unit type		object	
serial number		address	
manufacturer		date	
customer			

EQUIPMENT OPERATION PARAMETERS				
supply voltage, V	according to the certificate		actual values	
inlet fan motor current, A				
exhaust fan motor current, A				
inlet air flow rate, m3/h				
exhaust air flow rate, m3/h compressor				
(compressors) current, A (*optional)				

AUTOMATION TESTING			
shut down in case of fire		outdoor temperature sensor	
phase control relay		inlet air temperature sensor exhaust air	
air heater freezing risk		temperature sensor	
recuperator freezing risk		indoor air temperature sensor	
electric air heater overheating		heat conductor temperature sensor	
humidity transducer		inlet damper servomotor exhaust damper	
humidistat		servomotor recirculation damper	
circulation pump		servomotor recuperator damper	
remote control		servomotor fan differential pressure	
cooling unit failure		sensors filter differential pressure sensors	
heater valve servomotor		rotary recuperator rotation rotary	
cooler valve servomotor		recuperator fault	
cooling unit start			

AIR PREPARATION PROCESSES CONTROL			
heating		recovery	
cooling		humidification	
recycling		dehumidification	

PREPARED BY		CONFIRMED BY	
FULL NAME		FULL NAME	
position		position	
company		company	
signature		signature	

Acceptance certificate

The SkyStar ventilation unit is manufactured in accordance with the Order. It has passed acceptance tests. Based on the results, it meets the requirements of technical specification TU U 28.2-35851853-002:2013 and is considered to be operational.

Production date “___”_____ 202__

Controller

Signature _____ Seal

Notes

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