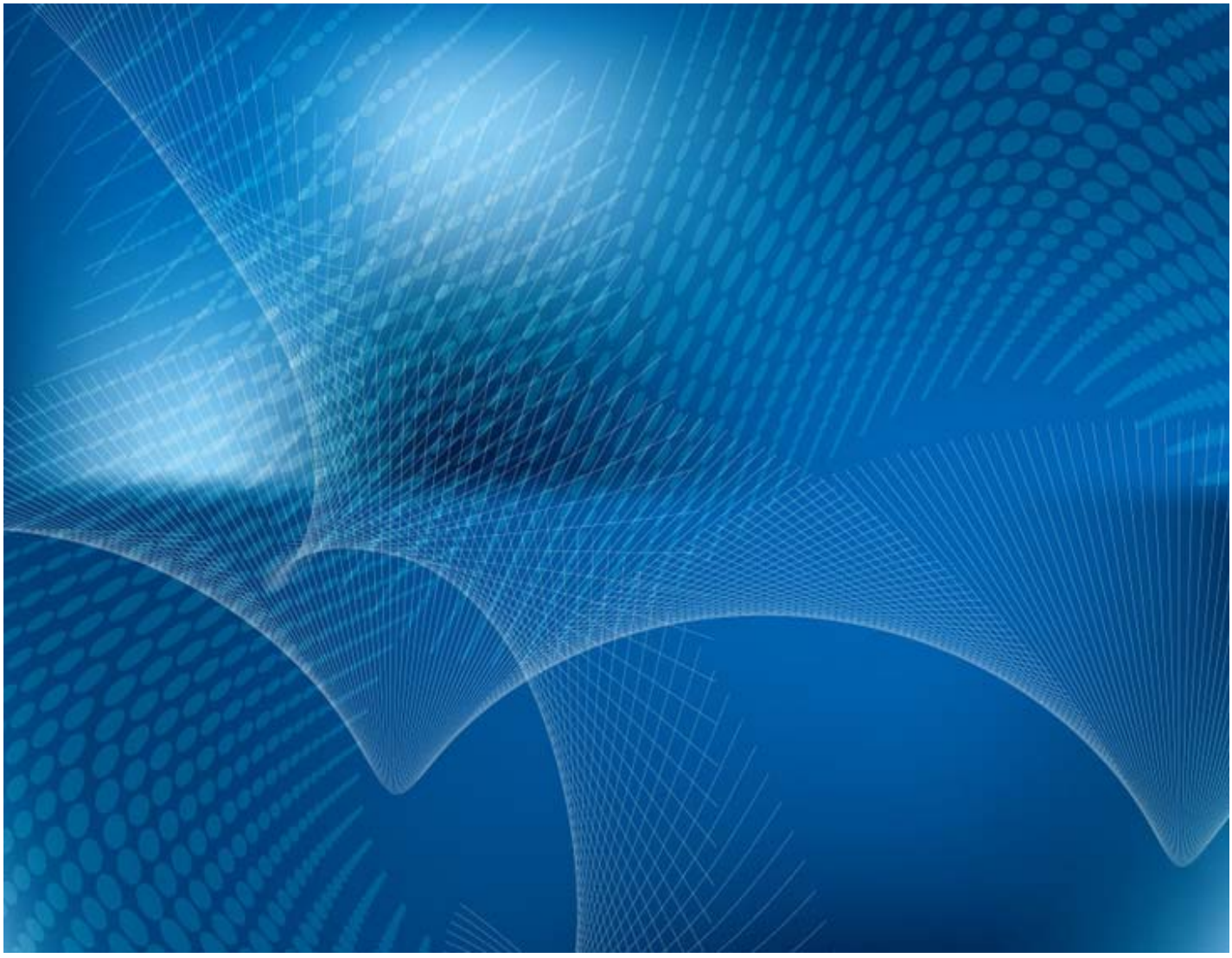
HUBER&
RANNER

ERWARTEN SIE MEHR.

World of Products



Simply the Better

Transmission and Innovation

Simply the Better

Huber & Ranner Modular Air Handling Units

Huber & Ranner supply the modern, energy-saving and comfort ventilation units to the customers around the world.

Huber & Ranner Unit is immensely flexible and includes a large range of components, which offer potential for meeting specific demands and requirements for each individual ventilation system.

High quality and mechanical stability together with high technical performance guarantee energy-efficient operation for many years to come.

Huber & Ranner unit has several unique solutions that above all provide a high degree of thermal insulation and excellent hygienic properties.

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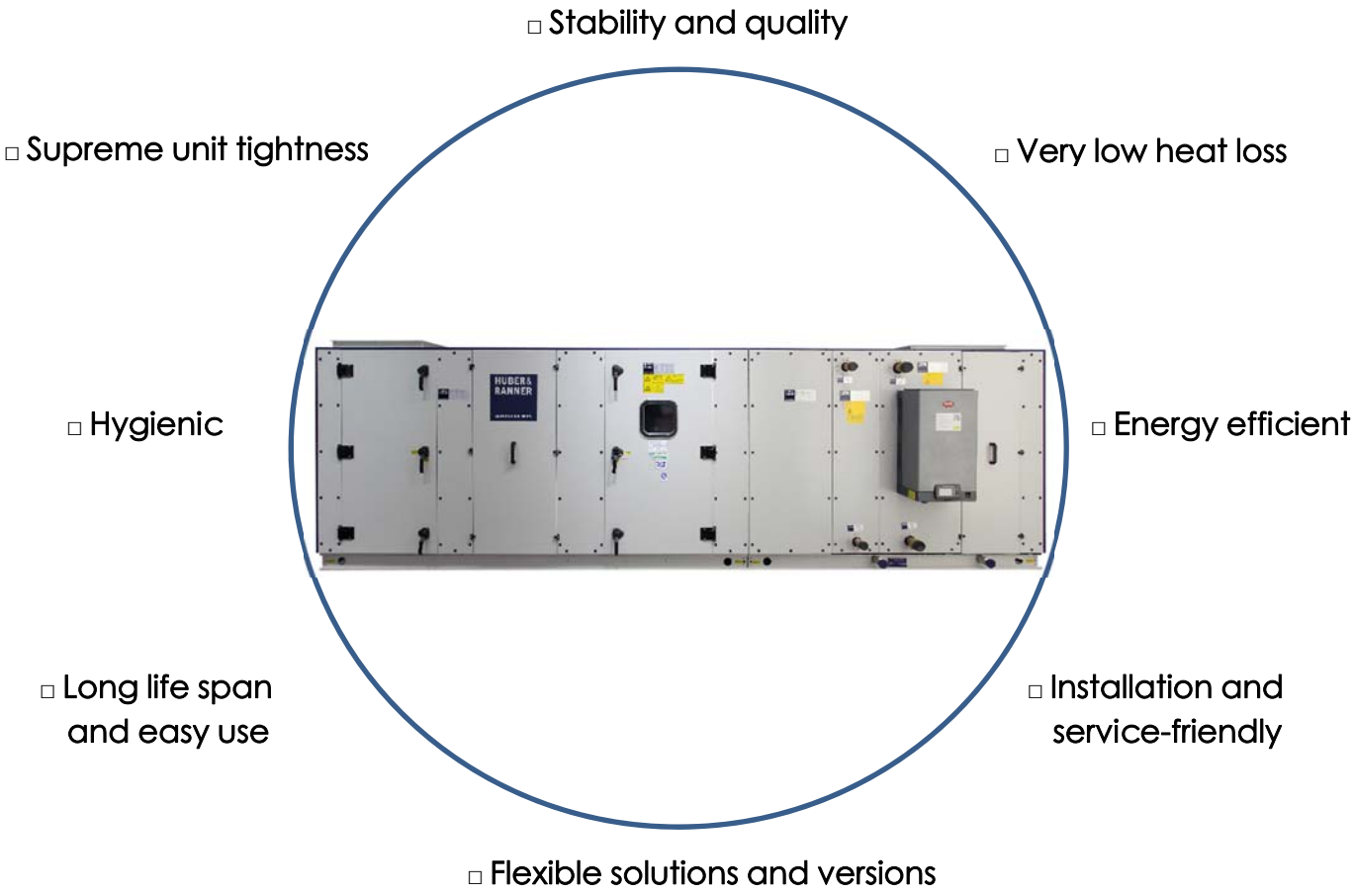
Unique Features Make It a Great Unit



Unique Characteristics Ensure the Robust Unit

- Flexible solutions and versions
- Stability and quality
- Long life span and easy use
- Supreme unit tightness
- Hygienic (in accordance with VDI 6022)
- Very low heat loss
- Energy efficient
- Installation and service friendly

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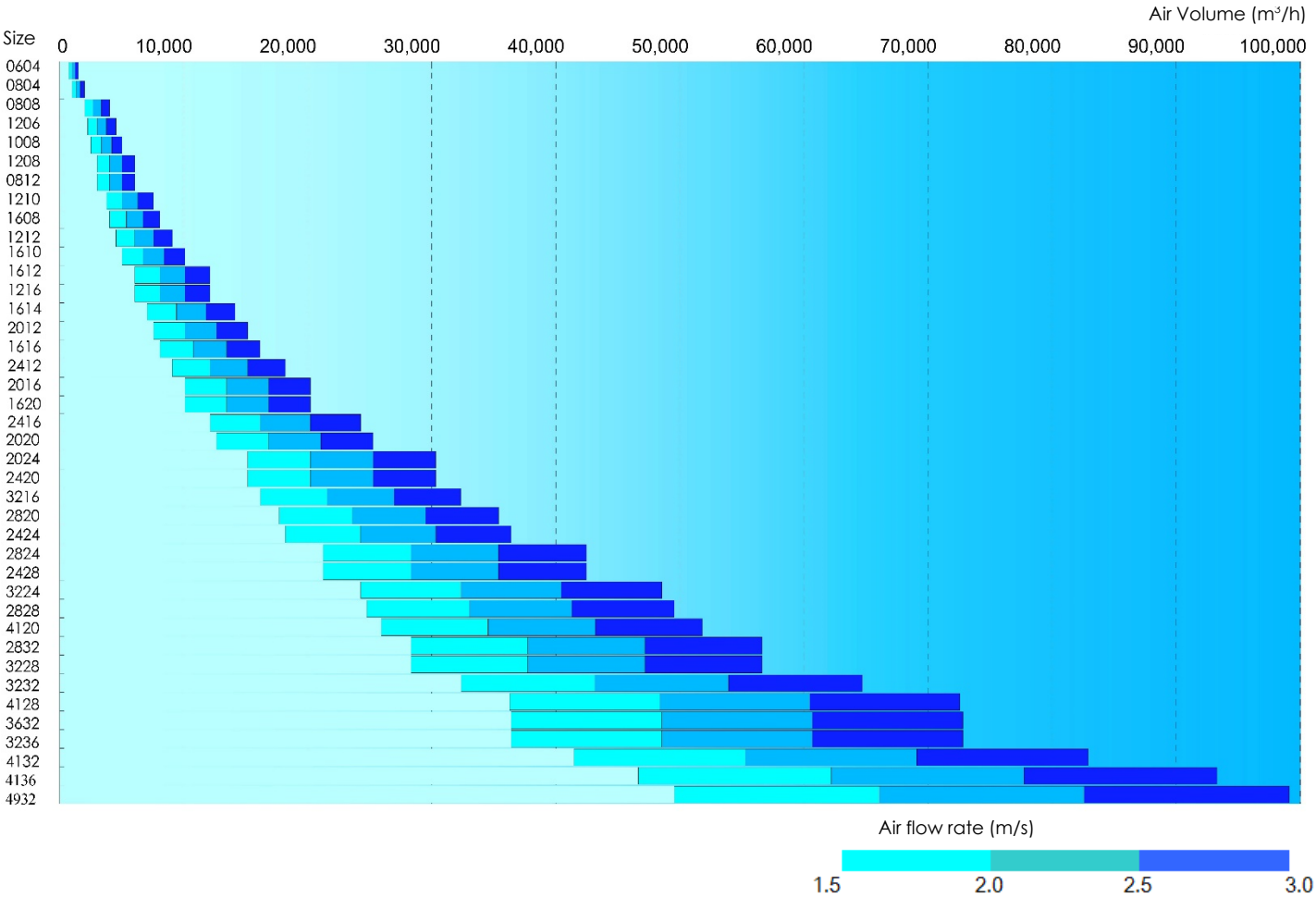
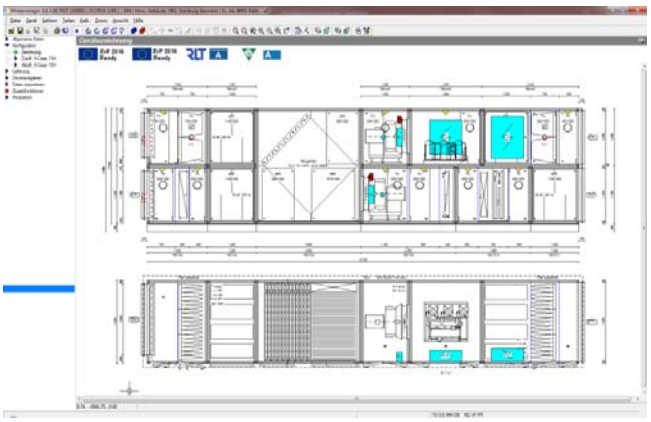
Operating Range & Selection Software



Selection Software Certified by Eurovent

All Huber & Ranner units and their accessories are sized with precision in the selection software. The selection software computes and presents all the necessary data for correct air handling unit selection, among others the following:

- ✧ Air temperature and humidity
- ✧ Air resistance in each unit section
- ✧ Water flow resistance in the air heater and air cooler
- ✧ Air heater and air cooler capacities
- ✧ Efficiency of the heat exchangers
- ✧ Sound power level of the fans
- ✧ Attenuation capability of the silencers
- ✧ Energy consumption of the fan motors



Unit Dimensions

Standard filer cassette: 612 x 612 mm;

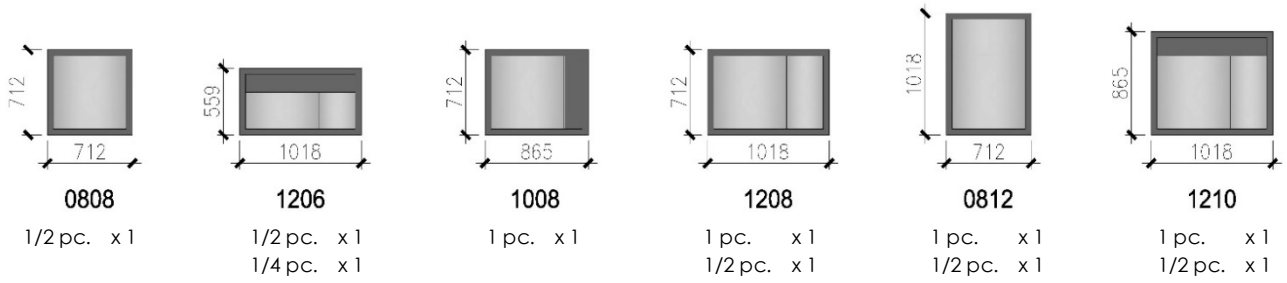
1/2 filer cassette: 612 x 306 mm;

1/4 filer cassette: 306 x 306 mm;

Besides the standard sizes, special dimensions are available!

For the rest part of the cross section whose short side is less than 306 mm, the blind board will be used.

The external dimensions of some unit size as well as the number and size of the filter cassettes in the filter section are as follows (other size and non-standard size are all analogs):



0808
1/2 pc. x 1

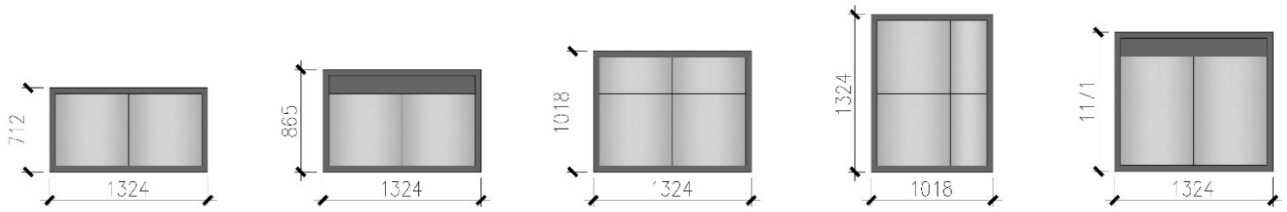
1206
1/2 pc. x 1
1/4 pc. x 1

1008
1 pc. x 1

1208
1 pc. x 1
1/2 pc. x 1

0812
1 pc. x 1
1/2 pc. x 1

1210
1 pc. x 1
1/2 pc. x 1



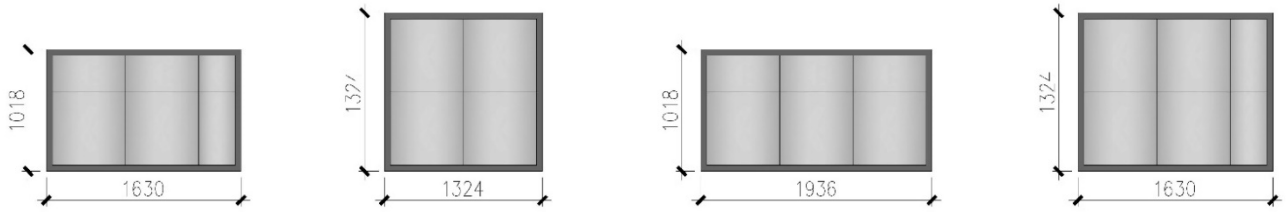
1608
1 pc. x 2

1610
1 pc. x 2

1612
1 pc. x 2
1/2 pc. x 2

1216
1 pc. x 2
1/2 pc. x 2

1614
1 pc. x 2
1/2 pc. x 2

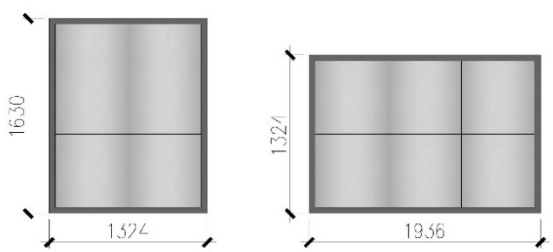


2012
1 pc. x 2
1/2 pc. x 3
1/4 pc. x 1

1616
1 pc. x 4

2412
1 pc. x 3
1/2 pc. x 3

2016
1 pc. x 4
1/2 pc. x 2



1620
1 pc. x 4
1/2 pc. x 2

2416
1 pc. x 6

Notes:

1. The height of the unit is specified without base beams.
2. The standard height and maximum height of the base beam are 100 mm and 300 mm respectively.
3. For the vertical stacked unit with base beam fitted at the bottom, the total height of the unit including 3 parts: the height of the supply air unit, the height of the extract air unit and the height of the base beam.

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Unit Design

General

The unit consists of several functional sections that are supplied to the building site separately or joined together in blocks.

Depending on the sizes and transport facilities, the units can be manufactured and delivered in one common casing.

The casing is composed of panels and supporting frame members. Its design makes it simple to dismantle if modifications are required.

The interior surfaces of the unit are completely smooth and are free from sharp edges.

The configuration of the unit allows good access for maintenance of all the incorporated parts and components.

The patented liquid sealing strips between the panels and frame members in the unit casing prevent thermal bridges.

Application

Immense flexibility characterizes the Huber & Ranner unit. Thanks to its large selection of solutions, the unit can be used in ventilation systems designed for various purposes. The air handling units are therefore especially well-suited for special projects such as electronics factories, pharmaceutical factories, automobile factories, spray-painting facilities, hospitals and high-grade civil buildings, etc. The many solution variants enable the unit to live up to special requirements and at the same time make work easier for project designers in building services engineering.

Version for outdoor installation

Each functional section or unit block of the air handling units for outdoor installation is supplied with a factory-fitted roof.

Profiled brackets for jointing together the roof of one unit block to the next are included in the supply.

The units with roof can also be equipped with extra accessories, such as outdoor air intake and exhaust air hood.

Base beams

The design of the air handling unit makes it so stable that no base beams are required for stabilizing the unit. If it is necessary to give the unit extra height, base beams and/or support feet are available as accessories.

Mechanical performance

The unit casing has the following mechanical performance:

- Thermal insulation conforming to Class T2; T1 is optional
- Coefficient of thermal transmittance to Class TB2; TB1 is optional
- Tightness Class L1
- Mechanic stability Class D1

Standards

- Quality Standard ISO9001
- Engineering Standard EN1886
- Hygienic Standard VDI6022

Unit Version & Inspection Sides

The units are accessible with inspection side to the left or right. The inspection side is determined depending on the direction of airflow in relation to the service side of the unit.

For the supply air and extract air vertical stacked unit, the inspection side is determined by the direction of airflow in the supply air sections.

The supply air unit or extract air unit

Unit version with inspection side to the right

The supply air and extract air vertical stacked unit

Unit version with inspection side to the left

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Unit Casing

Unit casing

The casing of the unit is manufactured of panels and frame members. The 50 mm thick panels of "sandwich" type are made of galvanized sheet (both inner and outer skins). The panels are filled with an intervening slab of mineral wool that provides effective thermal and acoustic insulation. The casing panels contain mineral wool insulation with a density of 65 kg/m^3; the floor panels have insulation with a density of 90 kg/m^3.

The casing panels are jointed together with corer pieces by means of screws driven in from outside. The screw holes are blanked off by plastic covers.

The inspection doors are produced in the same way as the wall panels. The inspection doors are hung on robust metal hinges and are equipped with handles with or without lock depending on the requirements of the user. The inspection doors can, as an option, be equipped with rectangular inspection windows.

The standard unit casing has an earth connection at each fan section as well as an extra connection on the unit end panel by the air outlet if the fan section is not the outermost section inside the air handling unit.

Hoisting holes

The base beams have big hoisting holes together with the small hoisting holes as standard for lifting and transporting the air handling unit blocks.

The standard casing for the unit can, as an option, be equipped with several different accessories.

Joint brackets

Special screwed connections are used for jointing adjacent functional sections or unit blocks together. The screwed connections are a unique solution that prevent lateral and vertical displacement as well as ensure an exact interconnection of the unit sections. The joint brackets are supplied together with the unit.

Sealing strips between each unit section are provided together with the unit.

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Damper & Mixing Section

Damper

The damper casing and the damper blades in the standard version are made of galvanized sheet steel.

The damper blades are available with rubber seals to tightness class 2, or class 4 without rubber seals.

The dampers' blades can be opened by gear wheels with low adjusting torque.

The dampers are designed for installation of damper motors, but they can also be modified for hand actuation with levers.

The dampers can be mounted inside or on the outside of unit casing.

If the dampers are mounted inside the unit casing, allow sufficient clear space for the installation and servicing of damper motors. The space should be accessible through the inspection door or through the adjacent inspection section.

The damper blades can be equipped with an internal heating system as an option.

In a special version, the damper can be made of stainless steel.

Inlet, outlet or mixing section

The dampers can be mounted on the bottom, top or front panel according to the airflow inlet and outlet directions.

Damper, soft connection or hard connection are available according to the design.

The unit casing has the earth connection on the unit end panel by the air outlet.

3-D stainless steel sunken draining pan as standard is fitted to the air inlet section of the outdoor unit.

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Filter Section

Filter section

The filter section can, depending on the application, be equipped with bag filters, cassette filters, HEPA filters or carbon filters.

The filters that conform to an appropriate filter class are supplied depending on site conditions.

Filter holder

The ventilation unit can be equipped with different types of filter holder depending on the requirements of the user. With the help of cold-liquid sealing technology, the filter holders ensure a high degree of air tightness. The bypass air leakage rate of the filter holders can reach at least Class F9 specified in the EN1886 standard.

The filter holders can be made of powder coating galvanized steel or stainless steel 304/316.

Bag filters

The filter material can be made of synthetic fiber or glass fiber.

Bag filters are available in Class G3, G4 (so-called wide-meshed filters) as well as M5, M6, F7, F8 and F9.

Cassette filters

Cassette filters consist of a casing and filter material. The standard cassette casing is made of plastic. The filter material is made of synthetic fiber or glass fiber.

HEPA filters

High-efficiency HEPA filters are of extremely high filter class. HEPA filter cassettes are mounted in a specially designed framework that ensures a high degree of air tightness.

HEPA filters conforming to Class E10, E11, E12, H13 and H14 are available.

Carbon filters

Carbon filters are designed for absorbing unpleasant or harmful odors from the air. Carbon filter cartridges are available in a cylindrical design, with activated carbon as the absorbent filled in it.

Transmission and Innovation

Energy Recovery Section

Rotary wheel heat exchanger

The rotary wheel device consists of a casing, rotor and a drive unit. The casing is made of galvanized sheet steel and galvanized profiled sections. The rotor is made of aluminum.

There’ re three available versions:

- Standard rotor — recovers heat in the extract air.
- Hygroscopic rotor — recovers both heat and moisture in the extract air.
- Epoxy-coated rotor — recovers heat in chemically aggressive extract air.

Rotary wheel is very efficient in energy recovery, and the silicone coating or molecular sieve can be used to the wheel core.

The energy recovery rate depends on:

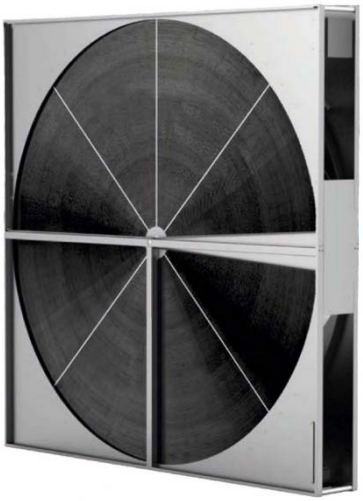
- The airflow rate through the rotary wheel
- Temperature difference between supply air and extract air
- The rotary speed of the wheel

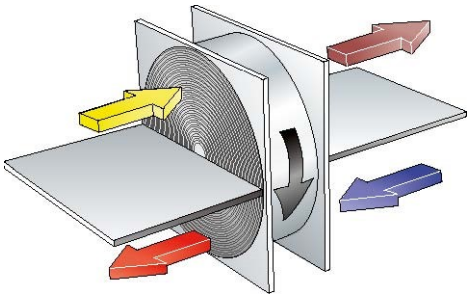
Regulating the speed

The rotary wheel device is equipped with a motor with stepless speed regulation as standard.

The controller also controls the temporary purging function of the rotor and transmits an alarm signal if the rotor should stop rotating.

By maintain the pressure of supply air side higher than the extract air, the possibility of cross contamination between the supply air and extract air can be reduced.





Basic function diagram

Outdoor air Supply air Extract air Exhaust air

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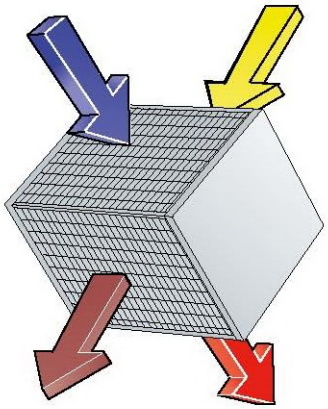
Energy Recovery Section



Basic function diagram

Outdoor air Supply air Extract air Exhaust air

Cross-flow plate heat exchanger

The heat exchanger section consists of a casing, exchanger cube and damper system. The heat exchanger cube is made of aluminum plates and the external walls are made of galvanized sheet steel.

The heat exchanger is available in two versions:

- Standard aluminum
- Epoxy-coated, for chemically aggressive extract air

The heat exchanger section is equipped with a bypass damper and interlinked damper located in the outdoor air inlet of the heat exchanger to meet different working conditions, especially in the transition season.

A stainless-steel draining pan is fitted below the heat exchanger on the extract air side, so that the condensate can be removed quickly.

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Energy Recovery Section

Green KV-System

Green KV-System is the patented recuperative energy recovery system that consists of 3 parts: the liquid coils, hydraulic module and the controller.

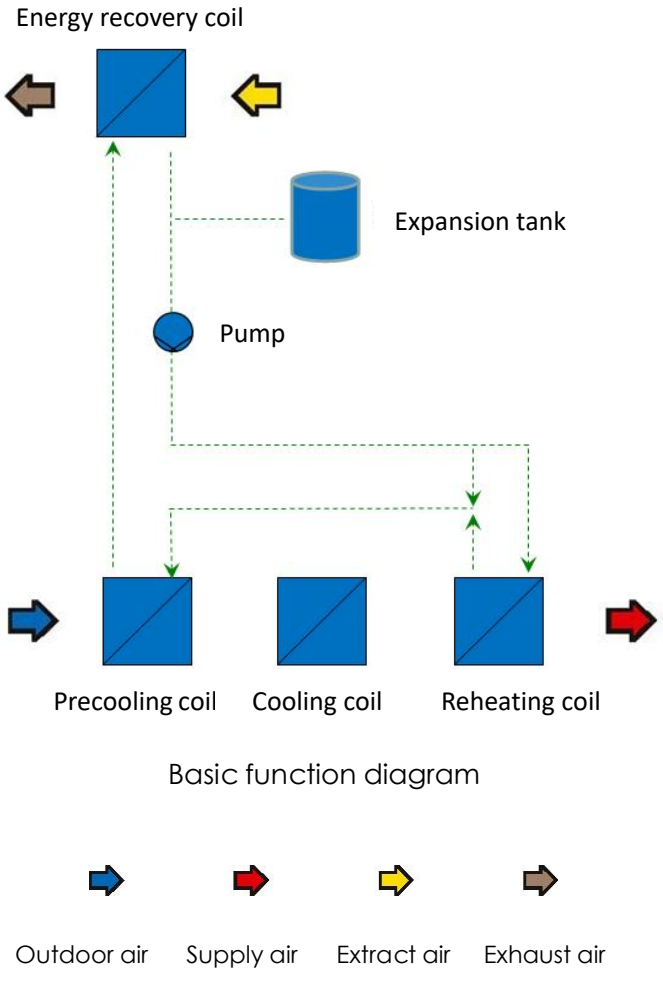
The liquid coils are mounted in the supply air handling unit and the extract air unit separately.

The hydraulic module consists of pumps, valves and pipes. The liquid usually is glycol solution or soft water.

The controller can adjust the pump’ s speed and the open degree of the valves according to the feedback signal from the sensors.

The liquid coil can be fitted on the extract air side with the stainless-steel draining pan with a drain connection on the inspection side. A ball water trap or normal water trap (extra accessory) must be fitted to the drain connection.

Green KV-System is a very flexible energy recovery system suitable for different working conditions.



Basic function diagram

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Air Heater Section

Air heater for hot water

The air heater consists of a casing made of galvanized sheet steel and a heating coil. The coil consists of copper tubes and pressed-on aluminum fins.

The coil headers are made of copper. The connection pipes with a diameter of up to Φ100 mm have a male threaded connection; the pipes with larger diameter have a flange connection as standard.

There are three air heater connection pipe variants to choose from:

- Straight (standard) that extend out through the unit casing.
- Oriented for counter-flow in relation to the direction of airflow
- Oriented for parallel-flow in relation to the direction of airflow

Both aforementioned variants have connection pipes concealed inside the unit casing.

The air heater is equipped with connection pipes for mounting an insertion sensor as an anti-frost protective device as standard.

A frame for installing an anti-frost capillary tube is optional.

Special versions are available.

Electric air heater

The air heater consists of a casing made of galvanized sheet steel as well as heating components made of stainless steel. The air heater conforms to Degree of protection IP54. The air heater is equipped with an adjustable, temperature-limiting thermostat with an automatic tripping device that temporarily switches off the power supply if the temperature in the heater becomes too high.

Both step adjustment and stepless adjustment are available for the electric air heater.

The air heater has an overheating protection that after tripping must be reset manually.

Due to the risk of overheating, the air velocity through the heater must not be less than 1.0 m/s.

In the standard version, the air heater can be supplied with 230 or 400 V current.

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Air Cooler Section

Air cooler for water

The air heater consists of a casing made of galvanized sheet steel and a heating coil. The coil consists of copper tubes and pressed-on aluminum fins.

The coil headers are made of copper. The connection pipes with a diameter of up to Φ100 mm have a male threaded connection; the pipes with larger diameter have a flange connection as standard.

There are three air heater connection pipe variants to choose from:

- Straight (standard) that extend out through the unit casing.
- Oriented for counter-flow in relation to the direction of airflow
- Oriented for parallel-flow in relation to the direction of airflow

Both aforementioned variants have connection pipes concealed inside the unit casing.

When the air velocity in the heat exchanger exceeds 2.6 m/s, the air cooler can be fitted with a droplet separator to be mounted directly downstream of the cooling coil. The droplet separator prevents condensate from being entrained by the air flowing through the unit. The air resistance in the droplet separator is low.

The air cooler has a condensate drip tray made of stainless steel with a drain connection on the inspection side. A ball water trap or normal water trap (extra accessory) should be fitted to the drain connection.

Special versions are available.

Direct-expansion air cooler

The air heater consists of a casing made of galvanized sheet steel and a heating coil. The coil consists of copper tubes and pressed-on aluminum fins. The coil headers and connection pipes are made of copper.

The air cooler can be fitted with a droplet separator to be mounted directly downstream of the cooling coil. The droplet separator prevents condensate from being entrained by the air flowing through the unit. Droplet separators are used when the air velocity in the heat exchanger exceeds 2.6 m/s. The air resistance in the droplet separator is low.

The air cooler has a condensate drip tray made of stainless steel with a drain connection on the inspection side. A ball water trap (extra accessory) should be fitted to the drain connection.

Special versions are available.

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Humidifier Section

Humidifier section

The humidifier section is a special designed air handling
unit module in which different types of air humidifiers are installed.

The interior surfaces of the humidifier section are painted or made of stainless steel. The humidifier section is equipped with a drip tray made of stainless steel as well as an inspection door with window.

The length of the humidifier section depends on the air humidifying system in use and its efficiency.

The following humidification systems are available:

Steam humidifier

Special steam lances (horizontal or vertical) are mounted inside the humidifier section, humidifying the air with high qualitative steam supplied by the peripheral equipment through the check valve mounted directly on the wall of the air handling unit.

The humidification process is quick, uniform, stable, without bacteria and saving power, meanwhile the control accuracy of humidification is high.

Electrode/ Electric resistance humidifier

The humidification process is quick, uniform, stable, without bacteria, convenient and flexible control, low noise and with high control accuracy of humidity. But the power consumption and the running cost are both high.

Soft or distilled water should be used to avoid internal scaling.

The length of the pipes used for transporting the steam from the generators must not exceed 4 meters.

High pressure micro mist humidifier

The water pressure rises to 5-7 MPa after flowing through the filter and high-pressure pump, then very fine water mist is formed by the special nozzles. It has the advantages of large humidification capacity, very small water mist particles, high efficiency, reliable operation and low power consumption.

It can be supplied by circulating water or direct-flow water, the former has better water-saving effect, while the latter can eliminate the possibility of carrying bacteria in water mist.

Honeycomb humidifier

This kind of humidifier which is widely used in air handling units. And the core component, wet-membrane is made of plant fiber or inorganic material, which has good water absorption and evaporation capability.

It has the advantages of high efficiency, energy saving and water saving. Usually, no droplet separator is needed, which can shorten the length of the units. The initial investment and operation costs are both relatively low. It is strongly suggested that soft water should be used together with sterilization measures to avoid microbial contamination.

Air washer

It has large humidification capacity, and can be supplied by circulating water. The corrosive, toxic or harmful pollutants in the air can be removed during the humidification process. Pure water is recommended as the source of water when the cleanliness requirement of air treatment is very high.

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Fan Section & Silencer Section

Fan section

Direct-driven fans

Direct-driven centrifugal fans are the type of fan most used in the Huber & Ranner units.

The fan impeller is made of galvanized sheet steel with a powder-painted and baked finish. The fan with drive motor is located on a steel frame mounted on spring-type antivibration mountings that prevent the transmission of motor vibration to the unit casing. The fan motors can be designed for operation with a frequency inverter, and the motors can be supplied with or without frequency inverter. The EC fans can also be supplied. The motors of the direct-driven centrifugal fans conform to Degree of protection IP55 and Efficiency class IE2/IE3/IE4.

As an option, the fan assemblies are available in a stainless or explosion-proof version.

Belt driven fans

Huber & Ranner is also available with belt-driven, double-inlet, centrifugal fans. The fan with drive motor is located on a steel frame mounted on spring-type anti-vibration mountings that prevent the transmission of motor vibration to the unit casing.

The motors of the centrifugal fans conform to Degree of protection IP55 and Efficiency class IE2/ IE3.

If there is a functional section downstream of the fan section that requires a uniform airflow in the unit configuration, (such as a silencer or air heater section) the fan is equipped with an air diffuser as standard.

As an option, the fan assemblies are available in a stainless or explosion-proof version.

Silencer section

The silencer in the air handling unit is composed of specially designed sound baffles that guarantee effective sound attenuation. The sound baffles are made of galvanized sheet steel and mineral wool. The mineral wool inside the baffles is covered with special glass fiber woven material on the outside. The silencer material meets the highest demands on surface treatment with minimal fiber dust emissions and is easy to clean.

Normally the sound baffles are filled with mineral wool covered with glass fiber woven material on the outside and with extra perforated sheet metal cladding.

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Spacer Section & Air Hood

Spacer section & Inspection section

Inspection section

The inspection section is an empty section equipped with an inspection door. The inspection section is used for inspecting the functional components.

The inspection section can be one separate section or it can be included in a module with several functions. The inspection doors can be equipped with inspection windows.

Spacer section

The spacer section does not have any inspection door and can be one separate section or it can be included in a module with several functions.

Hoods

Outdoor air hood

The outdoor air hood is used for air handling units installed outdoors.

The casing of the outdoor air hood and its louvers are made of galvanized sheet steel. The louvers of the outdoor air hood are specially profiled and permanently mounted to protect the interior of the air handling unit from snow and water.

The outdoor air hood is equipped with a metal grille that protects the inside of the air handling unit from the entry of pollutants, such as leaves, insects, etc.

The outdoor air hood is supplied mounted on unit blocks having a total length of 2.4 meters or shorter. It is supplied as a separate component with the longer unit blocks.

For the large air handling units, the outdoor air hood is delivered as two separate components. The air outlet section has two separate openings.

Exhaust air hood

The exhaust air hood is used for air handling units installed outdoors.

The exhaust air hood is equipped with a metal grille that protects the inside of the air handling unit from the entry of pollutants, such as leaves.

The exhaust air hood is supplied mounted on unit blocks having a total length of 2.4 meters or shorter. It is supplied as a separate component with the longer unit blocks.

For the large air handling units, the exhaust air hood is delivered as two separate components. The air outlet section has two separate openings.

There are various design solutions for exhaust air hoods to choose from.

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Extra Accessories

Extra accessories

The Huber & Ranner unit can be equipped with a number of extra accessories. Here are a few examples:

Pressure gauge

Safety isolating switch

Door arrester

Ball Water trap

Service Lighting

Rectangular inspection window

Overhanging eaves above the inspection door

Service rails

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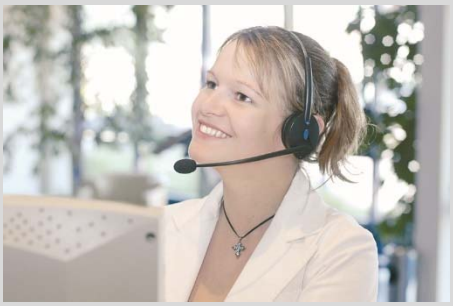

Any questions?

Talk to us.