

***komfovent***<sup>®</sup>  
*klasik*

# KLASIK Air Handling Units



Customer oriented and unique energy efficient solutions



## KLASIK Air Handling Units



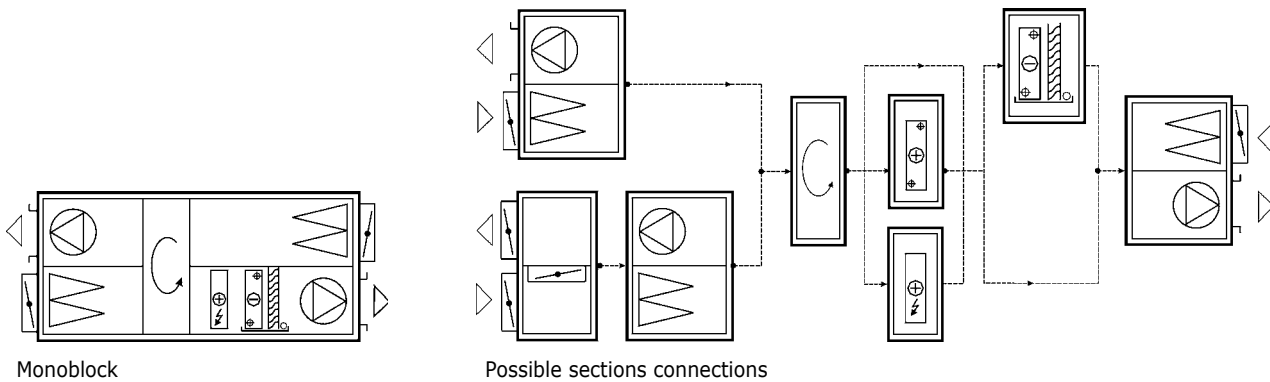
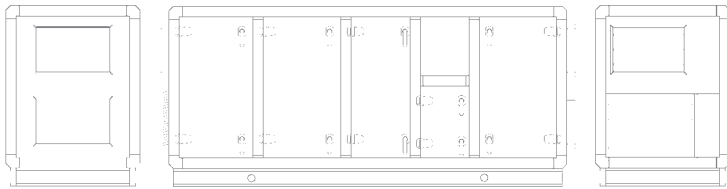
Development of air handling units KLASIK allows to offer the customer reliable and qualitative equipment which technical parameters allow to create not only comfortable conditions of a microclimate in various premises, but also to correspond to modern ecological and energy-efficient requirements. Carrying out the monitoring system of quality in conformance to standard ISO 9001, company AMALVA guarantees quality of the manufactured equipment performing and developing production according to all requirements of environment protection standard ISO 14001.

Air handling units KLASIK consist of system of modules which quantity and their functional purpose depends on requirements of the customer and features of the project. Ventilation equipment KLASIK may be offered with heat recovery or just as air supply or exhaust equipment. From the constructional point of view and depending on customer needs units may be monoblock (consisting of one common section) and modular (consisting of several sections or modules). Air handling units are available in 11 sizes with airflows ranging from 1000 m<sup>3</sup>/h to 45000 m<sup>3</sup>/h (0,3 m<sup>3</sup>/s to 11,1 m<sup>3</sup>/s). Unit of bigger capacity are also available and can be selected according to individual inquiries.

## Unit types

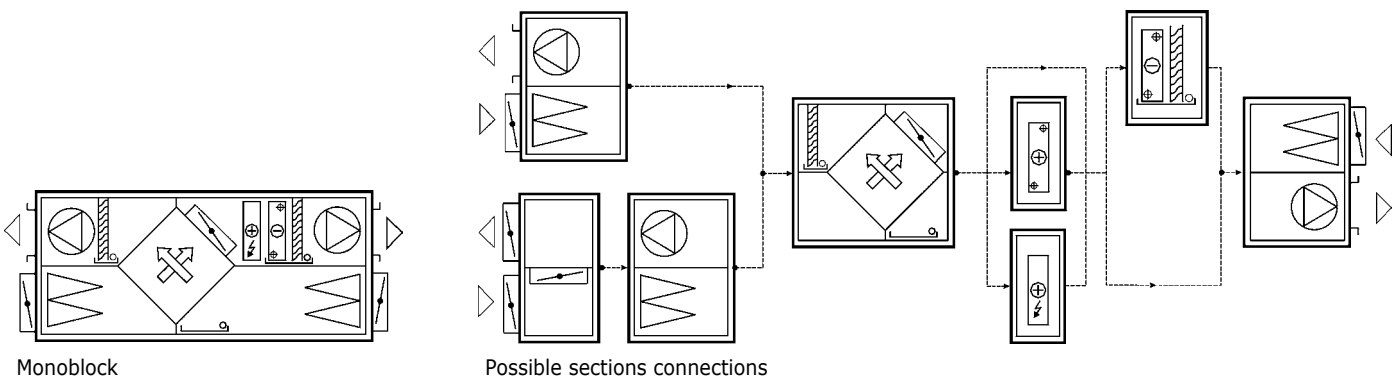
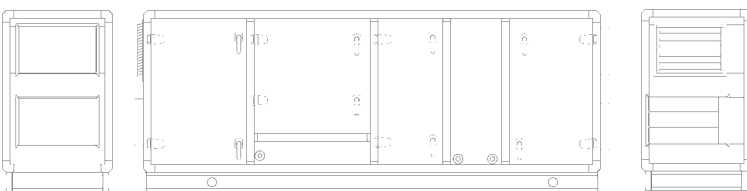
### Type KLASIK REGO

Air handling units with rotary heat exchanger.  
Temperature efficiency and economy of energy up to 85%.



### Type KLASIK RECU

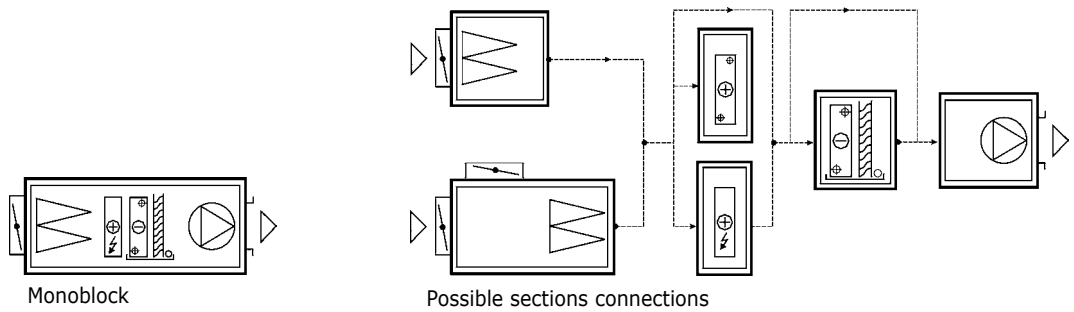
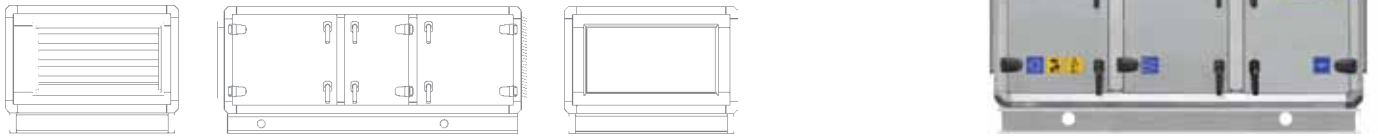
Air handling units with cross-flow plate heat exchanger.  
Temperature efficiency and economy of energy up to 70%.



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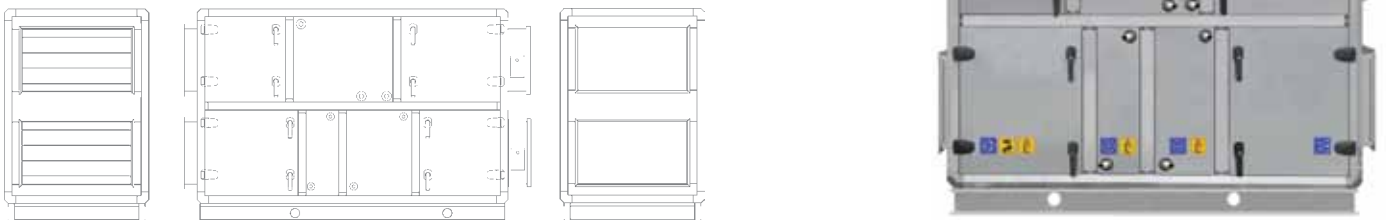
## Type KLASIK OTK

Supply or exhaust air handling unit without heat recovery.



## Type KLASIK DSVI

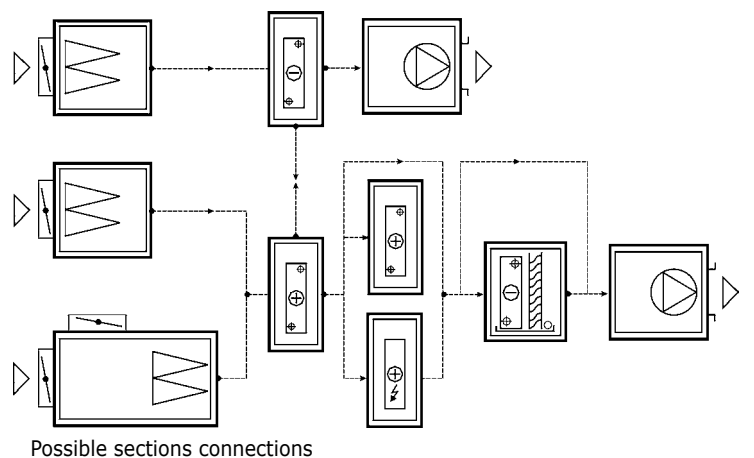
Air handling units with twin-coil.  
Temperature efficiency and economy of energy up to 55%.



DSVI – supply/exhaust air handling units with separate air flows.

Advantages:

- Due to totally separate supply and exhaust air flows there is possibility to use the heat of polluted air.
- Supply air and exhaust air units can be mounted separately in different premises what is very important when mounting space is very limited, eKLASIKly for bigger dimensions equipment.



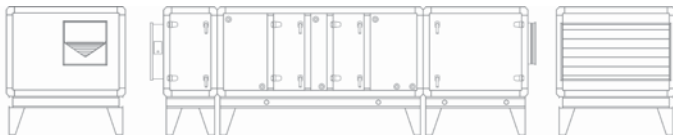
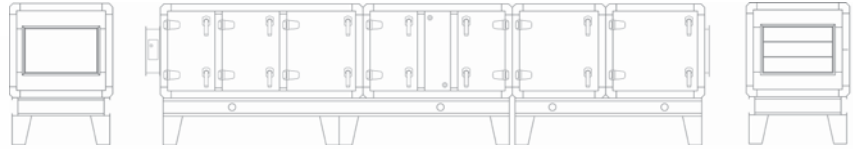
## Type KLASIK OTM, DSVIM

Ventilation equipment of hygienic purpose and clean premises ventilation.

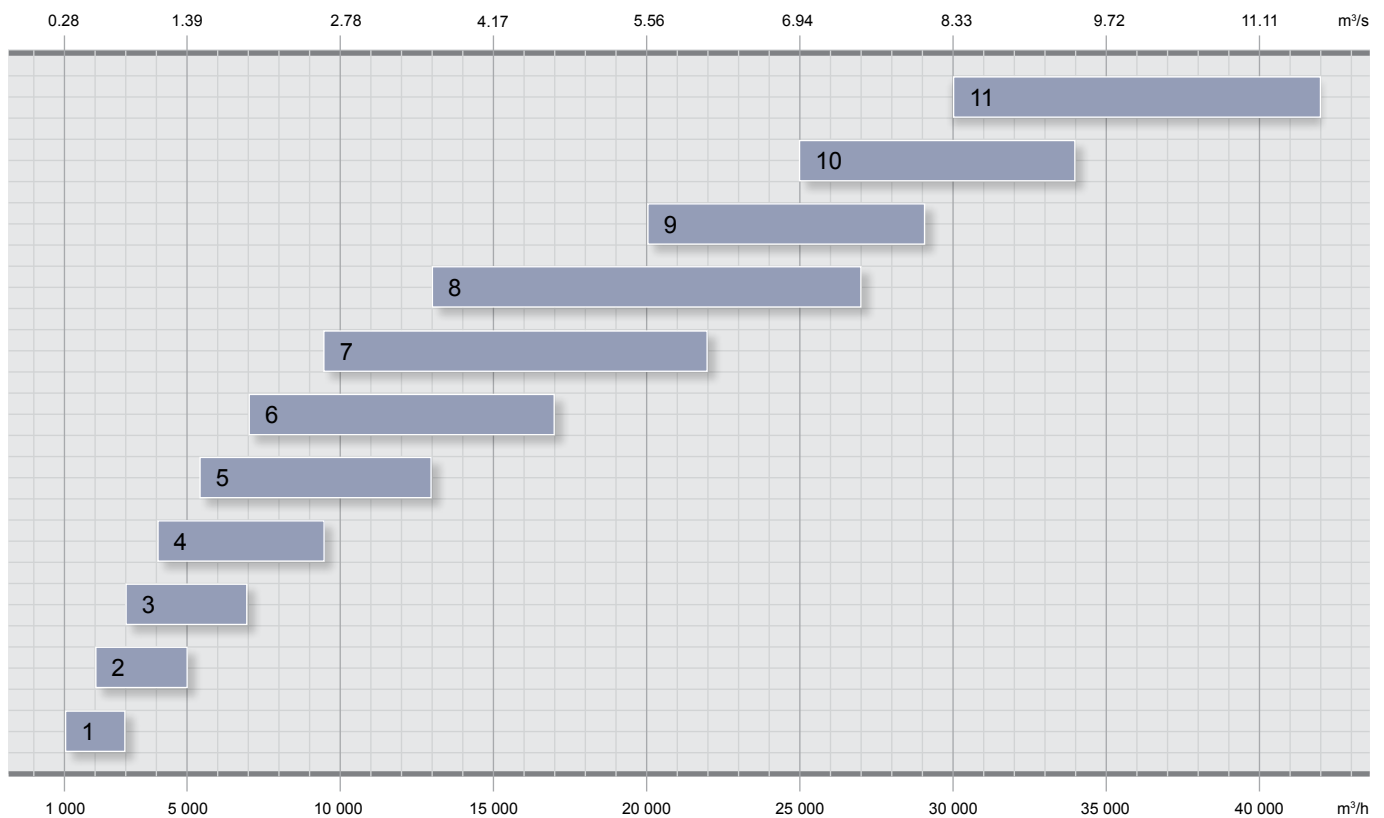
Due to exploitation purposes very high hygienic requirements are applied to air handling units of OTM, DSVIM type.

Internal surfaces of units OTM, DSVIM are smooth, without protrusive elements and roughness to avoid and protect from accumulation of impurities and activators of illnesses.

All connections are additionally sealed by dustproof sealant. The bottom of equipment (and in case of need – all internal walls) is produced from stainless steel that allows washing and cleaning of internal surfaces with disinfectants.



## Air flow



# KLASIK Air Handling Units

## Design



### Casing

Air handling units of KLASIK series characterize in reliable and stable design. Casing frameworks are made of aluminum profiles and solid cast aluminum corner pieces.

Covering panels are made from galvanized or stainless sheet steel and have two-layer construction. Panels are insulated with 45 mm thickness incombustible thermal and sound insulation.

On request casing can be painted.

KLASIK gaskets and sealing are used to ensure perfect casing tightness and sound insulation.

All doors are hinged and equipped with handles which can be locked.

Variable accessories such as adjustable feet, inspection windows, sections lighting, etc. are available on customers' request.

Unit casing corresponds to Class A for tightness requirement and Class T3 according to the common heat transfer coefficient in conformance to standard EN 1886.



### Air dampers

Closing air dampers installed in the air handling units are produced from aluminum, or galvanized steel blades with rubber sealing.



## Filters

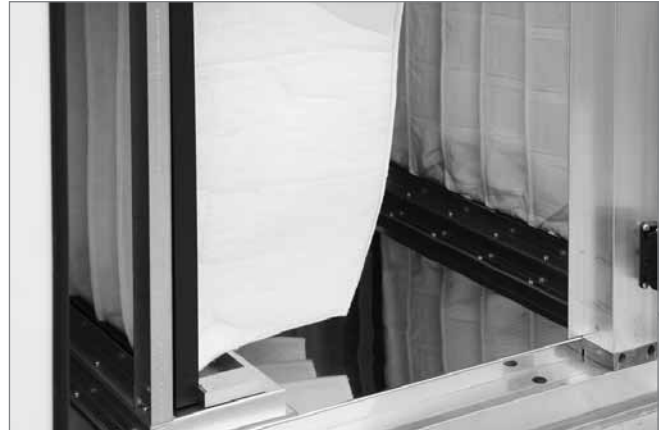
KLASIK units pocket synthetic or fiberglass filters with a class of a filtration from G3 up to F9 are used.

Standard depth of a pocket depends on filters' class:

- G3-G4 – 360 mm;
- M5-F9 – 635 mm.

Filters have big filtration surface what results in longer terms of exploitation.

Filters are fastened by clamping mechanism which secures tightness and simplifies filter replacement procedure.



## Heat Exchanger

KLASIK air handling units can be supplied with:

### Rotary heat exchanger –

Temperature efficiency – up to 85%. Depending on required temperature efficiency  $\eta$  (%), the height of a wave of a rotor can be made from 1,5 mm up to 2,4 mm.

Rotors may be offered of two types:

- aluminum;
- aluminum with a hygroscopic covering.

The drive of a rotor is supplied with the frequency converter, allowing supporting an optimum heat exchanger operating mode, smoothly changing speed of rotation of a rotor from 0 up to 18 rotations per minute.

Rotary heat exchanger can be equipped with purge sector on customers' request.



### Plate Heat Exchanger –

Temperature efficiency – up to 70%.

Heat exchanger is tight, both air flows are separate, use of heat of polluted air is possible. Plate heat exchangers with aluminum lamellas are used in KLASIK units.

There is a built-in bypass with damper for heat recovery regulation and exchanger frost protection.

Each unit with plate heat exchanger is equipped with stainless steel tray for the condensate and drainage for its' removal.

### Heat exchanger with glycol –

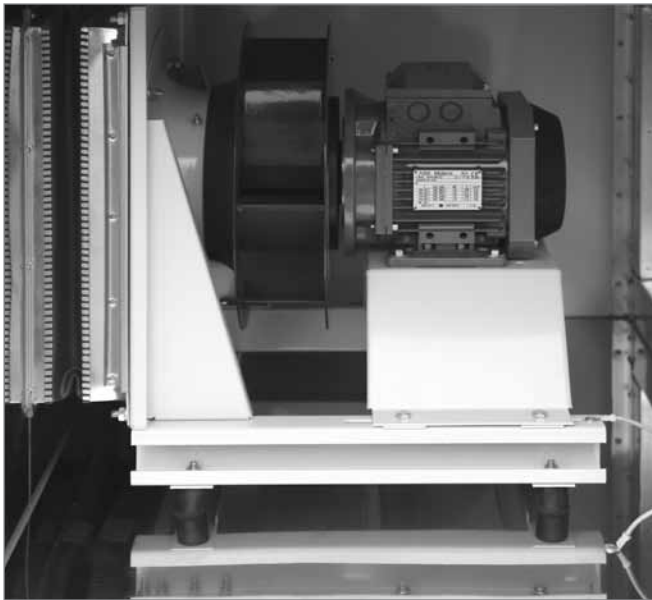
Temperature efficiency – up to 55%.

In such system warming up the air exchanger is placed in the supply air and the cooling one – in the exhaust air. Exchangers are connected with pipes and in this contour water and glycol solution is circulating.

Air handling units with such heat recovery are used in cases when air streams must be absolutely separated or when on design features or other requirements unit must be installed on different floors. Heat exchangers are made of copper pipes with aluminum fins.



# KLASIK Air Handling Units



## Fans

Fans statically and dynamically are balanced according to standard ISO 1940, correspond to class G2,5/6,3 (at the maximal rotations).

Thus, even at the maximum rotation of the fan, vibration is minimal and meets modern requirements to ventilating equipment.

Depending on air volume and required static pressure, 2 types of fans are used in equipment.

### Plug fans

Main advantages:

- high efficiency,
- smoothly adjustable productivity,
- good acoustic characteristics,
- durability.

The laminar stream after the fan wheel allows to lower losses of pressure in a network; there is an opportunity to connect the device for measurement of a stream of air.

The fan is connected to the casing by frame with vibroisolators. Three-phase fans' motors (400 In, 50 Hz) are controlled by frequency converters.

Class of safety IP55 on IEC 34-5, windings of motors has isolation of a category "F".

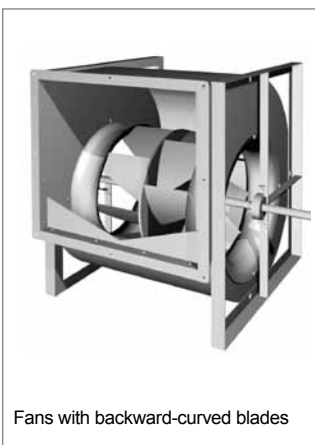
Working temperature up to 40°C.

### Belt driven radial double suction fans

Fans with backward-curved fans' blades insure KLASIK stability of work, provide a high pressure, and their efficiency reaches 85%.

- Fans with forward-curved blades operate on low speed, are quiet, the efficiency reaches 70%.
- 

Fans are delivered with the one-speed motors controlled by frequency converters.



Fans with backward-curved blades



Fans with forward-curved blades



## Air Heaters

### Hot water air heaters

In standard version normally used air heaters with aluminum lamella (spacing 3 or 4 mm) and copper pipes.

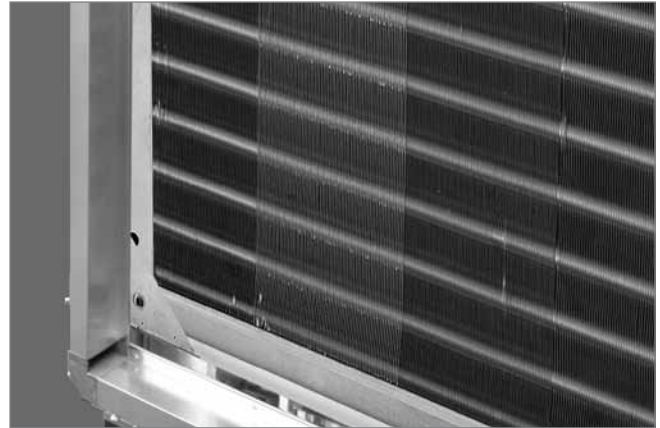
Heater can be equipped with thread joint to connect freezing sensor.

Maximum operating pressure – 21 bar.

Maximum water temperature – +100°C.

(On KLASIK order up to – + 130°C).

Heated air temperature up to – +40°C.



### Electric air heaters

Three-phase (400V/50Hz) stainless steel heating elements are used in production.

Low level protection ensures protection from overheating.

Protection class IP54 in accordance with IEC 34-5.

Heated air temperature up to – +40°C.



## Coolers and Humidifiers

### Water Air Coolers

Normally used with aluminium lamellae (spacing 2,5 or 3 mm) and copper pipes.

Maximum operating pressure – 21 bar.

Air cooler section can be assembled with condensate drain and siphon.



### Direct Evaporation Air Coolers

Normally used with aluminium lamellae (spacing 2,5 or 3 mm) and copper pipes.

Maximum operating pressure - 42 bar.

Cooler section can be assembled with condensate drain and siphon.

Power of direct evaporation air cooler can be divided into stages.

It is necessary to indicate this upon order.

### Humidifiers

Low pressure steam humidifiers or atomizing humidifiers can be offer with equipment.



Atomizing humidifier.

## KLASIK Air Handling Units



### Sound attenuator section

Integrated sound attenuators or separated sound attenuators maybe offered with air handling units. High performance sound attenuators as well as ventilation unit ensures high sound attenuating level and are completely insulated casing.



### Additional accessories

KLASIK air handling units can be outdoor type.

For such outdoor performance there is complete set enclosed consisting of:

- a protective roof,
- intake and exhaust air hoods,
- external grilles.

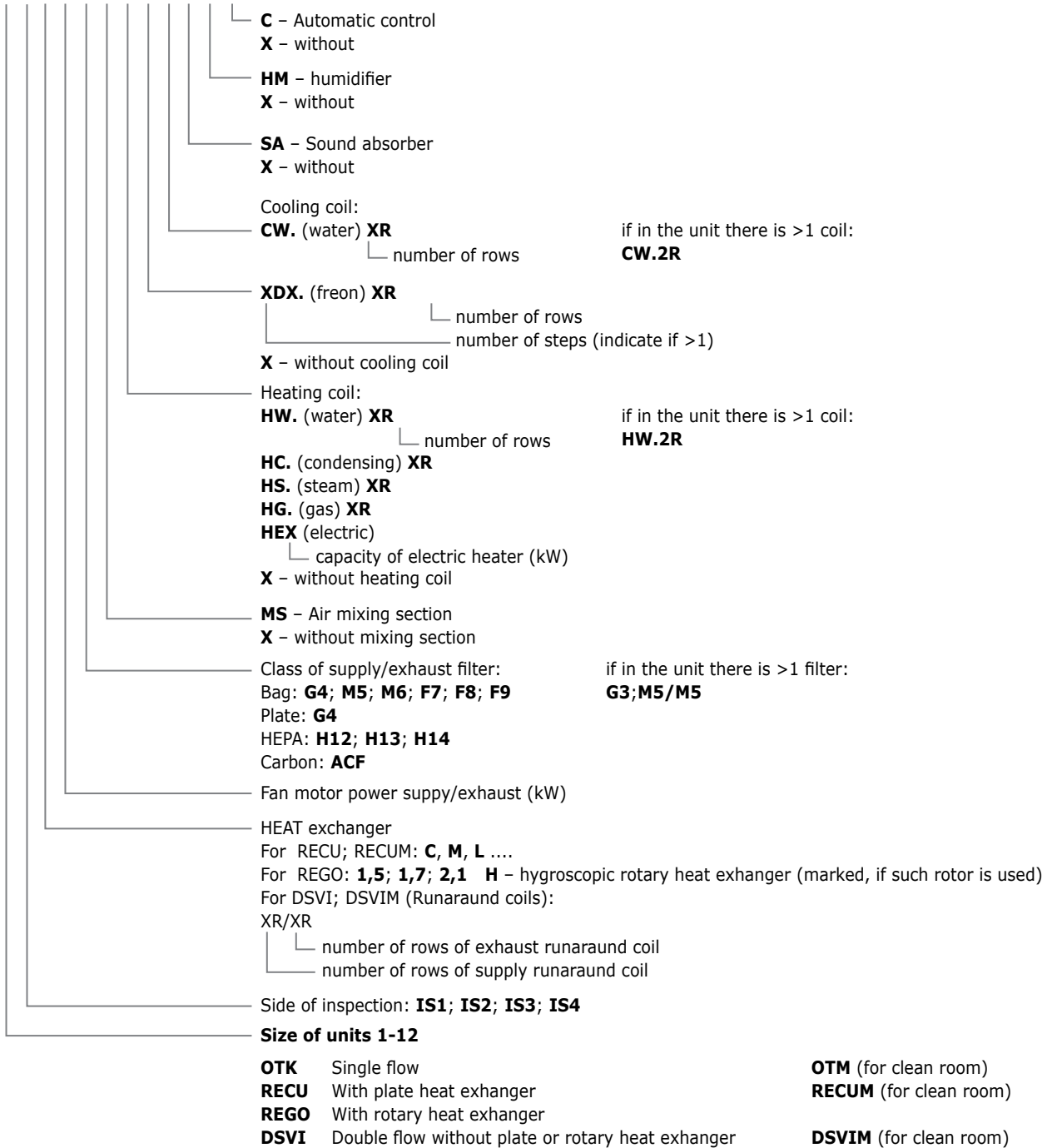
Also such additional elements are available:

- adjustable feet,
- inspection window,
- sections lighting.



# Marking

XXXXXXXXXXXX



Symbol: «-» separates different elements  
 «/» separates filters of supply and exhaust air; and motor powers of supply and exhaust air  
 «;» separates same elements

Example: KOMFOVENT KLASIK-OTK-2-IS1-1,5-G4;F7-MS-HW.2R-CW.4R-HM-SA-C  
 KOMFOVENT KLASIK-RECU-2-IS2-C-1,5/1,5-F5/F5-X-HW.2R-DX.4R-HM-SA-C  
 KOMFOVENT KLASIK-REGO-2-IS3-1,7-1,5/1,5-G4;F7/F5-X-HW.2R-CW.4R-HM-SA-C  
 KOMFOVENT KLASIK-DSVI-2-IS1-10R/10R-1,5/1,5-G4;F5;F9/F5-X-HE15-DX.4R-X-X-C

For each installation the individual system of automatics and equipment control can be offered. Automatics of ventilating devices can be mounted in separate automatic control boxes. Depending on a degree of complexity of ventilating system and required control functions producer equips control system with digital controllers KOMFOVENT C3.



For the most perfect control and management of equipment KOMFOVENT engineers have developed a computer control system for one as well as the whole complex of units controlling.



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