

MODULAR AIR HANDLING UNITS K-Series



ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007
www.tuv.com
ID: 9105041347



- Since 2013 SOKO INŽINJERING has participated in the EUROVENT certification program that confirms the compliance of the characteristics of **K-Series** air handling units with European and international standards.



DESIGN CERTIFICATION (casings)

K-series of air handling unit is certified by EUROVENT according to the Directive **EN 1886** (Ventilation for buildings - Air handling units - Mechanical performance). Air handling units are characterized by excellent mechanical properties (casing strength, thermal and sound insulation...) and, as a result, we have the lower energy losses through the casings.

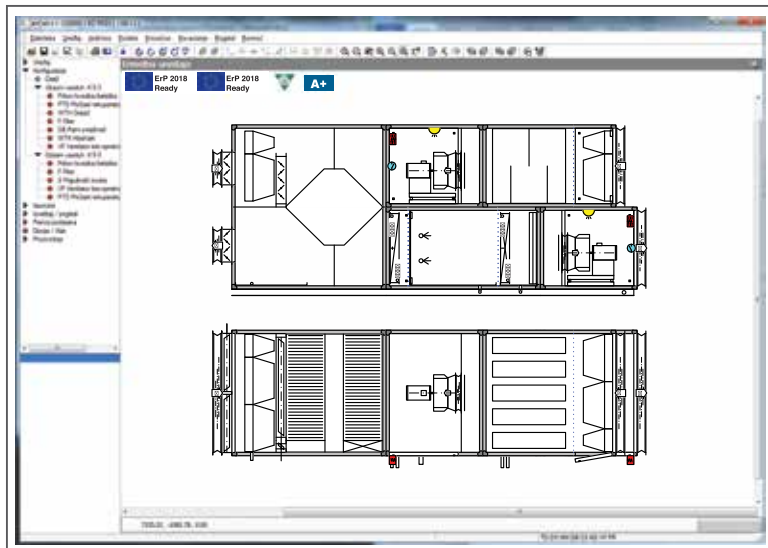
ENERGY CERTIFICATION


EUROVENT also certifies the conformity of **AirCalc++** optional program with the characteristics of a real unit, in accordance with the Directive **EN 13053** (Ventilation for buildings - Air handling units - Rating and performance for units, components and sections) of all manufactured Series-K air handling units. This procedure guarantees high level of quality and energy efficiency up to **A+ class**.

- The certificate is renewed periodically by EUROVENT to ensure and improve the technical characteristics of air handling units.


Eurovent Certificate according to EN 1886				
Model	PDP	PDP	PDP	PDP
	140.50 1	140.50 2	150.55 1	150.55 2
CS class Casing strength class	D1(M)	D1(M)	D1(M)	D1(M)
CAL class - 400 Pa Casing air leakage class at - 400 Pa	L1(M)	L1(M)	L1(M)	L1(M)
CAL class + 700 Pa Casing air leakage class at + 700 Pa	L2(M)	L2(M)	L2(M)	L2(M)
FBL class Filter bypass leakage class	F9(M)	F9(M)	F9(M)	F9(M)
TT class Thermal transmittance class W/m2K	T2	T2	T2	T2
TBF class Thermal bridging factor class	TB3	TB3	TB3	TB3

AirCalc ++ is a multilingual program for the selection and calculation of air handling units. The program allows an easy and quick way to choose the appropriate size, type and composition of air handling unit. Integrated calculations provide a range of valuable and necessary information about the device. Technical data provided by the program are: drawings in dwg and pdf format, technical specifications, energy efficiency class, presentation of thermodynamic processes in h-x diagram, characteristic curves of fans, noise levels, weights, prices...





Ponuda RZ P033
Od datuma 2.2.2016
Pozicija 00
LV



airCalc++ Vers. 3.20.121

SOKO Inžinjering

Bukvar Arsenija Čarnojevića 125, SRB 110

Tel. +381 11 785 00 60

Fax +381 11 713 00 61

Odstampaj od 21.3.2017


Kancelarija / Zastup
office@sokoing.rs

www.sokoing.rs

Serija **K**
Izvedba **Standard**
Ugradnja **Unutrašnja izvedba**

Nadmorska visina [m] **0**
Spec. masa [kg/m³] **1,20**
specific fan power [w/(m³/s)] **2,361** SFP5
Winter outdoor design temp. [°C] **-16,00**
EUROVENT Energy efficiency class **A+ (2016)**

Ukupna masa uređaj **1,446 kg**



Ecodesign Directive - Key figures

In accordance with Ecodesign-directive

SFPint [W/(m³)] **711**
HRS Type **Other HRS**
Thermal efficiency of HRS [%] **83,70**
AHU Typology **_BVU**
Type of Fan drive **variable speed**
Nominal Air flow rate [m³/h] **5,000**
Face velocity [m/s] **0,98**
Effective electric power [kW] **3,410**

ErP 2016 Ready	ErP 2018 Ready
External Pressure SUP [Pa]	350
External Pressure EXT [Pa]	350
Int. press. drop of vent. comp. SUP [Pa]	199
Int. press. drop of non-vent. comp. SUP [Pa]	149
Int. press. drop of vent. comp. ETA [Pa]	199
Int. press. drop of non-vent. comp. ETA [Pa]	128
Max. internal leakage [%]	0,10
SFPint max. 2016 / 2018 [W/(m ³)]	1,133 / 873
External leakage rate at -400 Pa [%]	0,52
External leakage rate at +400 Pa [%]	0,23

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AirCalc++ also checks the compatibility of the selection of air handling unit with ErP regulations requirements (**ErP Ready**)

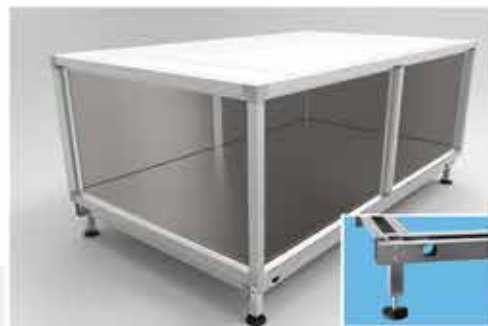
BASIC CHARACTERISTICS

- Modular air handling units are intended for central air preparation in air conditioning and ventilation systems for business premises, industrial facilities, warehouses, supermarkets, shopping centers, sales areas, restaurants, hotels, residential buildings, hospitals, clinical centers, etc..
- Air handling units provide the required purity, temperature and humidity of air through basic functions: filtration, ventilation, heating, cooling, humidification, dehumidification, heat recovery and regeneration.



Designs of air handling units can be: horizontal, floor, parallel, vertical, and according to installation location they can be intended for indoor or outdoor installation.

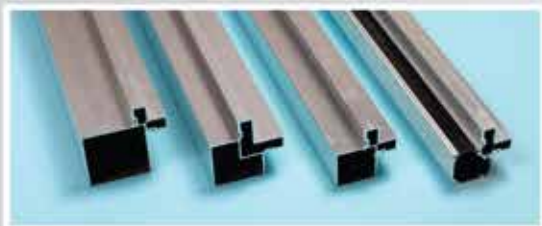
- **48 sizes** are available - **with cross sections** of air handling units for air flow rates **from 1,000 m³/h to 100,000 m³/h**.
- They are characterized by extraordinary strength, excellent thermal and sound insulation, minimal air leakage.
- High quality materials are used in manufacturing.
- Components that are incorporated in air handling units are supplied by renowned world manufacturers.



CONSTRUCTION AND DESIGN

Casings are made with frames constructed of extruded aluminum profiles with associated angles. Other parts of the casings are extremely well protected against corrosion; galvanized metal sheets DX51+275Zn; painted metal sheets DX51+275Zn + protective

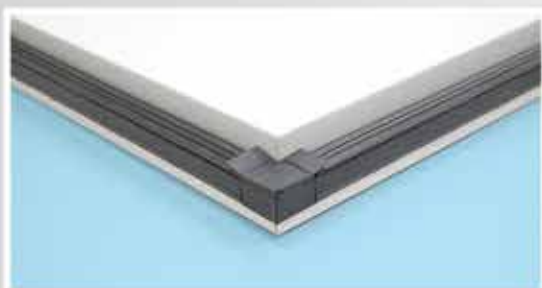
Bases are made of galvanized, curved profiles with adjustable feet of adequate height that allows for installation of siphons.



Panels of air handling units are sandwich panels (on both sides, sheet metal with a filler of insulating material), with a plastic profile for thermal break. Insulation materials are: polyurethane, density 44kg/m³, or stone mineral wool, density 90kg/m³.



Service panels with quality hinges, locks, handles and sight glasses. The elements for joining the sections and adjustable feet ensure high quality system installation.



Interior of air handling unit can be made from: galvanized sheet metal, painted sheet metal or stainless steel.

SELECTION DIAGRAM FOR AIR HANDLING UNITS OF K2-K80 Series

This diagram is used for quick selection of appropriate size of air handling unit, depending on the amount of air and the recommended air flow velocity across clear cross-section (inside dimensions), cooling coil, heating coil..

Recommended velocities are: ■ Clear cross-section - up to 3.2 m/s

■ Heating coil - up to 4 m/s

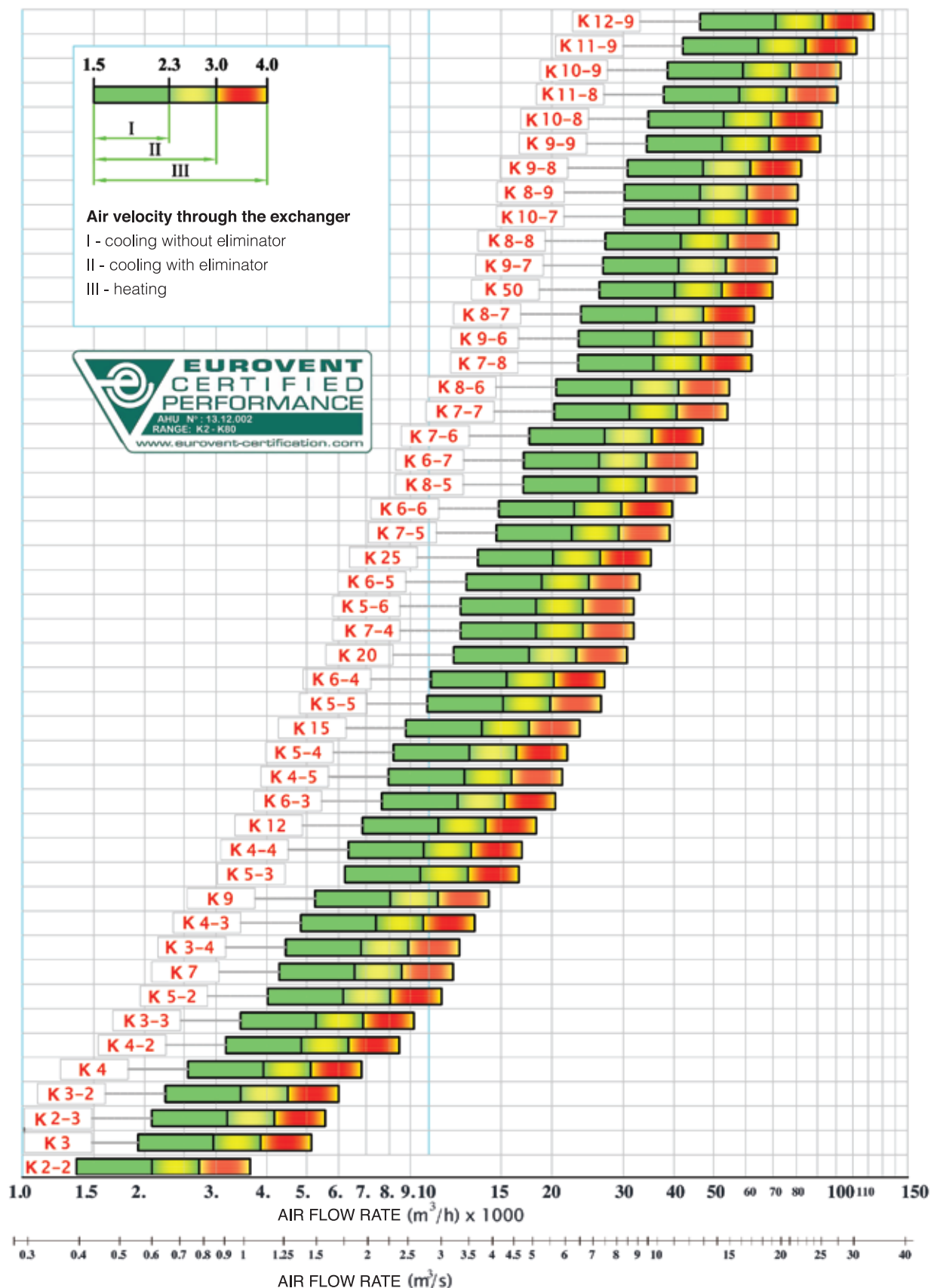
■ Cooling coil - up to 3 m/s

■ Heat exchanger - up to 3.5 m/s

■ Rotary heat exchanger - up to 3 m/s

■ Steam humidifier - up to 3.5 m/s

■ Honey comb humidifier - up to 2.8 m/s



Fans in air handling units are the main elements for energy consumption, so the basic criteria for choosing the type and size of fans are the efficiency, which means minimum required power of the electric motor, and the lowest noise level for the required amount of air and the required pressure. These are centrifugal radial fans by types:

- Fans with belt drive
- Fans with direct drive
- Free-rotating fans without spiral casing
- According to the type of blades, fans can be: with forward curved or backward curved blades.



Electric motors are available in the following types:

- Three-phase asynchronous motors, type B3, protection IP55, class IE2 and IE3 according to DIN EN 50347, adapted for variable speed drive.
- EC - IE4 class motors with integrated control electronic circuitry for voltage control with a potentiometer or voltage signal (0-10Vdc).
- Electric motors comply with the European regulation **ErP** in accordance with the Directive 2009/125/EC.

Filters are necessary to ensure the quality (purity) of the internal air. Air handling units are equipped with different types of high efficiency filters according to the standard ISO 16890, to F9 class.
-The types of filters that are installed in the air handling units are: panel filters, short bag filters, long bag filters, compact filters, active carbon filters, metal filters...



Dampers and flexible connections are indispensable elements on every air handling unit.

Other elements that can be parts of air handling units:

- Steam or adiabatic humidifiers
- Electric heaters
- Restrictors
- Gas heaters

Heat exchangers that are installed in the air handling unit are available as: coolers, hot water heaters, Dx evaporators, condensers, steam heaters.



Normally, all these exchangers are made of copper tubes with aluminum lamellae at certain spacing. Collecting pipes are made of steel (with thread or flange connections) or copper with soldered connection. Exchangers are equipped with connections for air venting and water discharge.

Cooler units are equipped with a drip-tray (with insulation on the bottom side) and a connection for siphon. For air velocities through the cooler higher than 2.2 m/s, a droplet eliminator is fitted behind the cooler.

Recuperators (heat recovery units) are the components most directly affecting the energy efficiency class by utilizing the energy from the waste air. Recuperation (heat recovery) level depends on the recuperator type and size.

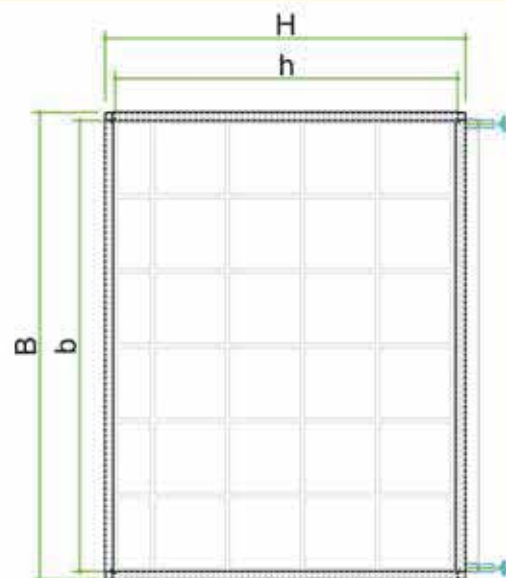
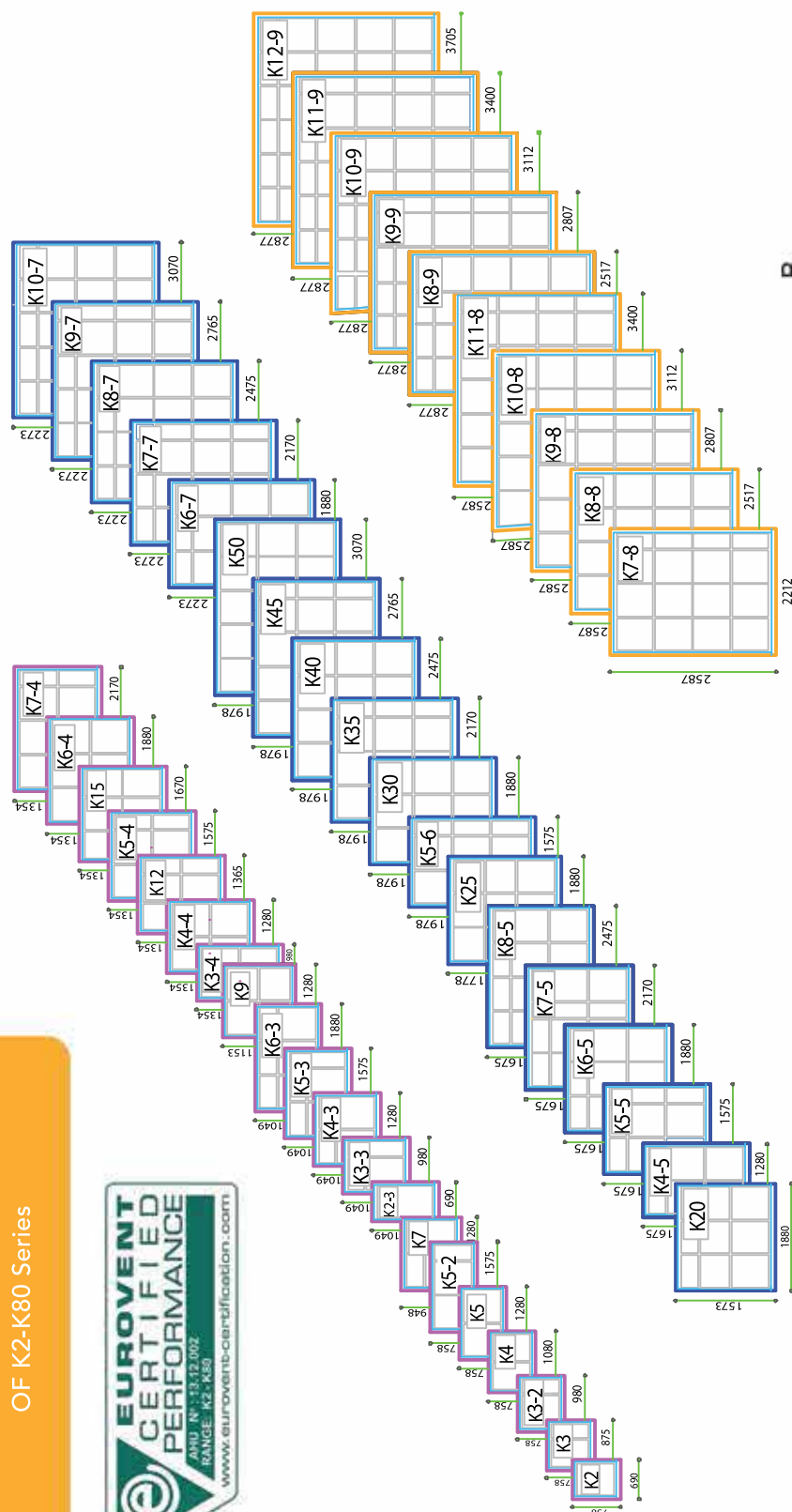


Types of recuperators used:

- Plate, cross-flow or counter-flow recuperators
- Rotary, condensing, enthalpy or sorption
- Run-around coils



DIMENSIONS AND SHAPE OF K2-K80 Series



- 48 sizes of cross sections are available
- Dimensions of clear cross-section (clear inside dimension) are defined by a modular system, with modules approx. 300mm (dimension of the smallest filter)
- Designation of air handling unit size represents the number of modules along the width and height of clear inside dimensions of air handling unit
- Selection of the size of cross section is determined by the amount of air that should be prepared by air handling unit, complying with the recommendations for the speed of air flow through the clear inside dimensions and the heat exchangers

b x h - dimension of clear cross-section