

# MODULAR AIR HANDLING UNITS K-Series



ISO 9001:2008  
ISO 14001:2004  
OHSAS 18001:2007

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ID: 9105041347



## 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.

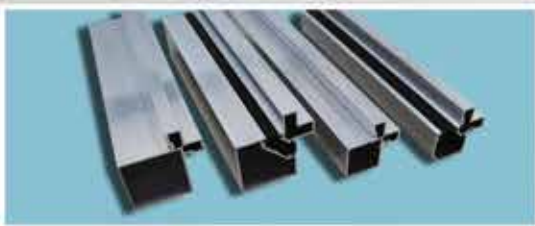
- **51 sizes** are available - **with cross sections** of air handling units for air flow rates **from 1,000 m<sup>3</sup>/h to 100,000 m<sup>3</sup>/h**.
- They are characterized by extraordinary strength, excellent thermal and sound insulation, minimal air leakage.
- High quality materials are used 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 film.

**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 foam gasket. Insulation materials are: polyurethane, density 44kg/m<sup>3</sup>, or stone mineral wool, density 100kg/m<sup>3</sup>.

**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.

# COMPONENTS OF AIR HANDLING UNITS

**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 EN 779, class G2 to F9, absolute from E10 to H14.

- The types of filters that are installed in the air handling units are: panel filters, short bag filters, long bag filters, compact filters, absolute 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



- 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)

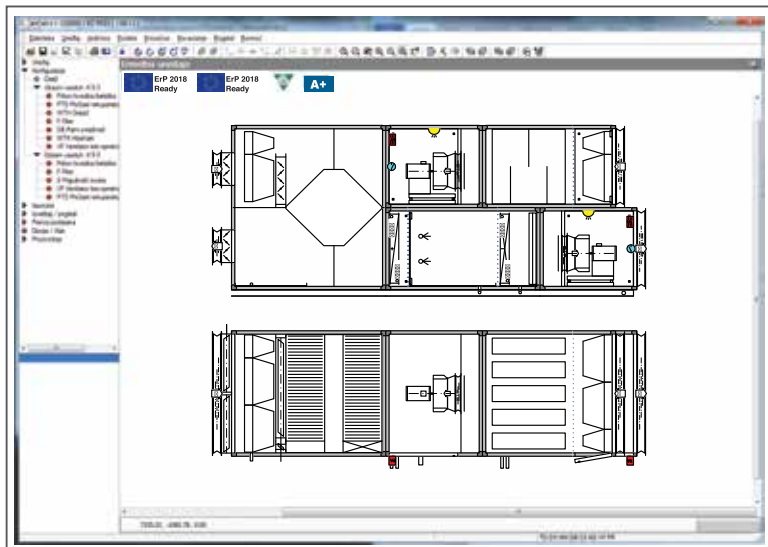
**K-series** of air handling unit is certified by EUROVENT according to the Directive **EN 1886**. Air handling units are characterized by excellent mechanical properties (exceptional strength, excellent thermal and sound insulation, minimal air leakage and, as a result, we have the lowest energy losses 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** of all manufactured Series-K air handling units. This procedure guarantees high level of quality and energy efficiency up to **A+ class**.

### Eurovent Certificate according to EN 1886

Model	PDP 140.50.1	PDP 140.50.2	PDP 140.50.3	PDP 160.60.1	PDP 160.60.2	PDP 160.60.3
<b>CS class</b> Casing strength class	D1(M)	D1(M)	D1(M)	D1(M)	D1(M)	D1(M)
<b>CAL class -400 Pa</b> Casing air leakage class at -400 Pa	L1(M)	L1(M)	L1(M)	L1(M)	L1(M)	L1(M)
<b>CAL class +700 Pa</b> Casing air leakage class at 700 Pa	L2(M)	L1(M)	L1(M)	L1(M)	L2(M)	L1(M)
<b>FBL class</b> Filter bypass leakage class	F9(M)	F9(M)	F9(M)	F9(M)	F9(M)	F9(M)
<b>TT class</b> Thermal transmittance class W/m <sup>2</sup> K	T2	T3	T2	T2	T2	T2
<b>TBF class</b> Thermal bridging factor class	TB2	TB4	TB3	TB2	TB4	TB2

**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...



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Od datuma 2.2.2016  
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Odstampaj od 21.3.2017  
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Šerija	K	Nadmorska visina [m]	0
Izvedba	Standard	Spec. masa [kg/m <sup>3</sup> ]	1,20
Ugradnja	Unutrašnja izvedba	specific fan power [w/(m <sup>3</sup> /s)]	2,361 SFP5
Ukupna masa uređaja	1,446 kg	Winter outdoor design temp. [°C]	+18,00
		EUROVENT Energy efficiency class	A+ (2016)

Ecodesign Directive - Key figures		ErP 2016 Ready	ErP 2018 Ready
In accordance with Ecodesign-directive			
SFPint [W/(m <sup>3</sup> /s)]	711	External Pressure SUP [Pa]	350
HRS Type	Other HRS	External Pressure EXT [Pa]	350
Thermal efficiency of HRS [%]	63,70	Int. press. drop of vent. comp. SUP [Pa]	199
AHU Typology	_BVU	Int. press. drop of non-vent. comp. SUP [Pa]	149
Type of Fan drive	variable speed	Int. press. drop of vent. comp. ETA [Pa]	199
Nominal Air flow rate [m <sup>3</sup> /h]	6,000	Int. press. drop of nonvent. comp. ETA [Pa]	128
Face velocity [m/s]	0,98	Max. internal leakage [%]	0,10
Effective electric power [kW]	3,410	SFPint max. 2016 / 2018 [W/(m <sup>3</sup> /s)]	1,133 / 673
		External leakage rate at +400 Pa [%]	0,52
		External leakage rate at +400 Pa [%]	0,23

17.11.2017 14:28 airCalc++ Version: 3.20.121 / 3.0.069A / Strana 1 / 6

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



2025

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