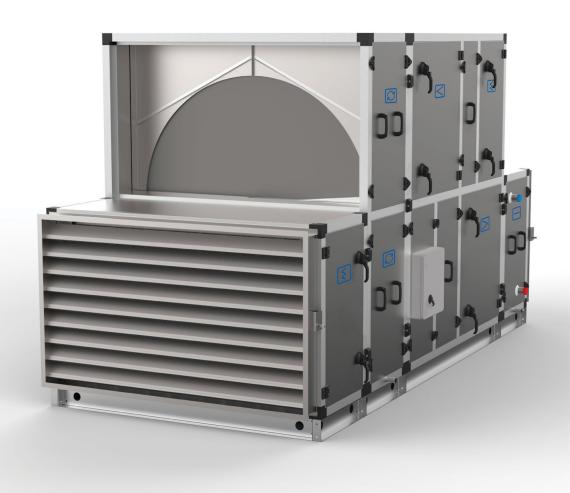


PRODUCT CATALOG

KLIMOR EVO

ADVANCED AIR CONDITIONING & VENTILATION SOLUTIONS





ADVANCED AIR CONDITIONING & VENTILATION SOLUTIONS

KLIMOR EVO CATALOG

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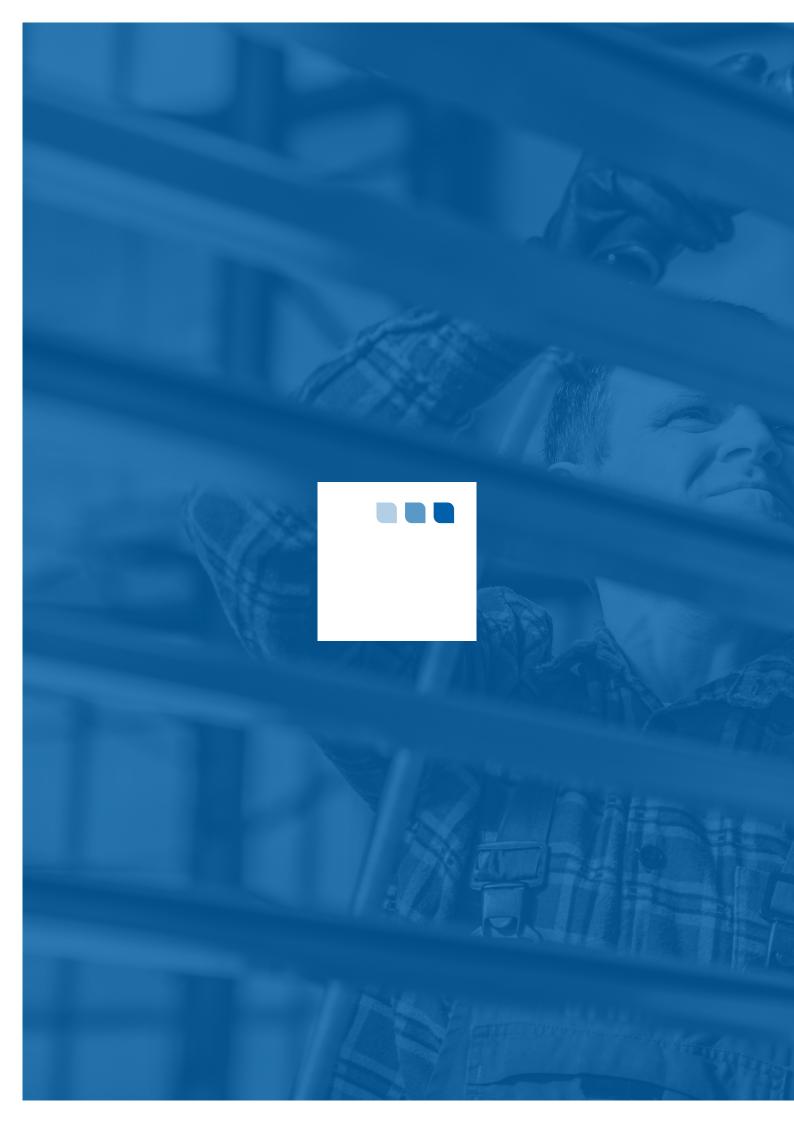
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CHAPTER I

KLIMOR BRAND

50 YEARS OF EXPERIENCE & INNOVATION

CERTIFICATES AND AWARDS

KLIMOR IN NUMBERS

KLIMOR SOLUTIONS

REFERENCE PROJECTS

50 YEARS OF EXPERIENCE & INNOVATION

For 50 years, Klimor has developed advanced air conditioning and ventilation solutions, meeting both the strictest quality standards and individual demands of customers throughout Europe – and now also in North America.

Klimor provides air comfort, putting people's needs and respect for its closest habitat in the first place. Having highest satisfaction of our business partners in mind, we supply innovative HVACR products based on energy saving and environment friendly priorities.

Our motto "We care about Air" reflects perfectly the essence of Klimor's attitude. It underlines the attention we draw to the air quality and comfortable living. It motivates us to the sustainable, innovation-driven development of the Klimor brand and its portfolio – in past, present and in the future.

As a manufacturer, Klimor implements its own solutions applied in the wide range of air conditioning and ventilation systems. Klimor AHUs are developed in our own production plant located in the heart of Europe – in Poland. Klimor's factory and the R&D division are situated in the northern part of the country, in Gdynia, directly by the Baltic Sea.

We are known for our commitment to highest quality and professionalism.

Foundation of The Company

1967

The Klimor company was founded in 1967 in Gdynia (Poland). We take pride in its rich tradition and global experience in the field of manufacturing both standard as well as highly specialist air conditioning, ventilation and refrigeration systems.



CERTIFICATES AND AWARDS

ETL

The ETL Listed Mark is accepted throughout the United States when denoting compliance with nationally recognized standards such as ANSI, IEC, UL and CSA.

TÜV

Independent certification confirming compliance of execution with strict standard DIN 1946-4:2008 and PN-EN 1886:2008 and PN-EN 13053:2008.

ISO 9001

Klimor products have certificates of compliance, issued by PRS, confirming meeting of specific design and functional requirements.

CE

Proves that products had been executed in line with European Union Directives and regulations.

EAC

Certificate of quality and compliance with standards and regulations of Russian Federation confirms that products underwent all certification procedures and that it meets the quality requirements and requirements of engineering and safety standards.



over 40 countries

in which KLIMOR AHUs are operating

1 tryllion CFM

of treated air per hour





THOUSANDS

semi-customised and customised AHU yearly



1700 vessels

around the world

Data as of January 201

ı

KLIMOR SOLUTIONS

Klimor's offer is based on the extensive range of modern air conditioning and ventilation units designed for any kind of commercial and industrial applications as well as for different types of residential buildings.



COMMERCIAL SOLUTIONS: office and residential buildings, sport facilities, shopping malls

PUBLIC UTILITY FACILITIES: government buildings, universities, museums **HEALTHCARE & PHARMACEUTICAL INDUSTRY:** hospitals, laboratories

INDUSTRY PLANTS INCL. HIGH HUMIDITY FACILITIES: warehouses, technical rooms,

indoor swimming pools, production plants **MARITIME INDUSTRY**: ships, boats

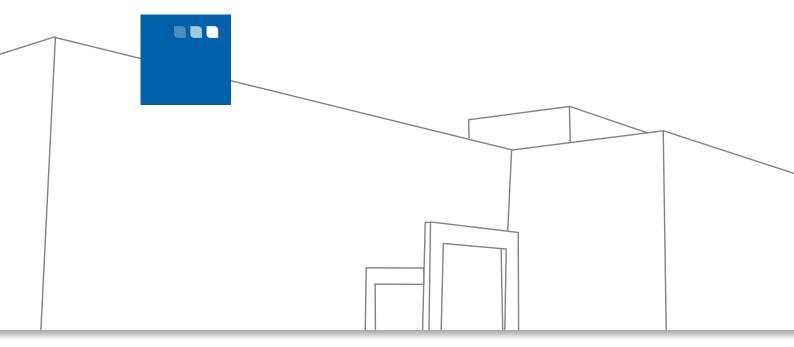
Klimor offers more than just products. We also deliver comprehensive range of services, including selection of units based on our own unit selection software, assembly and installation of units.

CONSULTING SUPPORT SELECTION

DELIVERY&ASSEMBLY

WARRANTY SERVICE

REFERENCE PROJECTS



For half a century Klimor has offered its customers and business partners various HVACR system solutions, in order to meet versatile needs for the air comfort.

Klimor air handling and cooling systems installed in thousands of facilities all over the Old Continent, especially in Central and Eastern Europe. Thanks to Klimor's vast experience, flexibility and high quality of products the company is successfully implementing HVACR solutions in office and government buildings, public utility facilities, hotels, in hospitals and laboratories, swimming pools as well as industrial plants.

PARTNERS WHO TRUSTED KLIMOR PRODUCTS AROUND THE WORLD:

BRITISH AMERICAN TOBACCO BORG AUTOMOTIVE BORGWARNER
BSH CUBUS HOTELS DANFOSS DELPHI DR. OETKER
FLEXTRONICS FRITO LAYS GOOD YEAR HUTCHINSON
IKEA LEROY MERLIN MABION MICHELIN NESTLE GROUP
OLIMP LABORATORIES PANATTONI PRATT & WHITNEY
PHILIP MORRIS POLPHARMA SAINT-GOBAIN SANOFI
TAURON TEVA TIKKURILA TRUMPF MAUXION CHOCOLATES
SUPER-PHARM VALEANT EUROPE VALEO





CHAPTER II

KLIMOR EVO PRODUCT LINE

PRODUCT PHILOSOPHY: THE EVOLUTION OF AIR

EVO ADVANTAGES

PRODUCT CHARACTERISTICS

SELECTION SOFTWARE

FLEXIBILITY

CODIFICATION & ENCODING

SAMPLE CONFIGURATIONS

THE **EVOLUTION OF AIR**

Taking into account a variety of specific needs and demands of American investors, we succeeded in creating an innovative product line by extending our way of thinking about perfect HVACR solutions.

Meet our brand new product line "Klimor EVO" that was developed particularly for the US market.

"Klimor EVO" is an evolution of technological thought and engineering excellence. We care about every single detail of the entire process - from design to production. Our confidence comes from implementation of the strictest standards of the quality management, proven know-how and almost five decades of manufacturing experience.



ECM/INVERTER TECHNOLOGY

ADVANCED ENERGY RECOVERY SOLUTIONS

> **DIRECT DRIVE PLENUMS**

VERSATILE



ANTICORROSIVE CASING innovative metal sheet coating in class C4

OPTIMAL

WIDE RANGE -INDIVIDUALLY MATCHED TO THE AIR VOLUME

Monoblock & multiblock technology

WIDE RANGE OF AIR TREATMENT FUNCTIONS

MULTISHAPE CROSSECTION

WIDE AIRFLOW RANGE

TBC PANELS

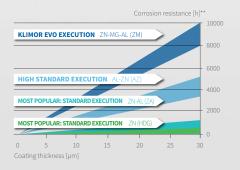
versatile climate zones operation temperature

KLIMOR EVO ADVANTAGES

ANTICORROSIVE COATING

Optional available as: painted or stainless

Antireflex surface



n

FAN

DDP

Single or multifan

AC & EC solutions



RIGID FRAME CONSTRUCTION

Universal in whole range

2 options of profiles: aluminium or high anticorrosive steel



INSULATION

Poliester foam or mineral wool

2 in thick



DRAIN PAN

Triple Sloped

Easy maintenance

Collision free access to exchanger



SINGLE POINT POWER

With high voltage distribution block
With external main unit disconnect

THERMAL BRAKE PANELS



Reduction of thermal conductivity

Economic benefits

ENERGY RECOVERY

High efficient heat recovery

Rotary heat exchanger efficiency ≤ 80%

Plate heat exchanger efficiency ≤ 70%

Counter flow plate heat exchanger efficiency ≤ 92%

The source data: manufacturer, surface treatment: Zn (HDG), Zn-Al (ZA), Al-Zn (AZ), Zn-Mg-Al (ZM) * The moment of red rust appearance on the given surface (salt spraytest)

PRODUCT CHARACTERISTICS

Klimor EVO – new product line developed for the US market, is a series of modular air handling units for air-conditioning, ventilation, heating, cooling, low pressure and high pressure systems.

MODULAR DESIGN ALLOWS FREE CONFIGURATION OF FUNCTIONAL BLOCKS

AVAILABLE BLOCKS:

primary filtration, mixing, heating, cooling, silencing, secondary filtration, heat recovery, cooling module, fan

ADDITIONAL EQUIPMENT FOR OUTDOOR EXECUTION:

outdoor dampers, exchangers with freezing protection, canopy, hood

MEETS THE REQUIREMENTS OF PN-EN 1886:2008, CERTIFIED BY TÜV

AHU ARRANGEMENT



ONE ON ANOTHER







VELOCITIES IN CROSS SECTION

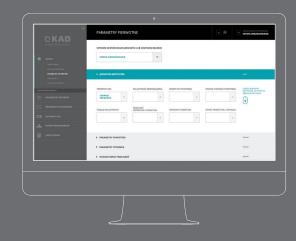
functions	AHU AIR HANDLING UNIT	PF PRIMARY FILTER	SF SECONDARY FILTER	WH HOT WATER COIL	WC CHILLED WATER COIL	DX DIRECT EXPANSION COOLING COIL	PCR PLATE CROSS-FLOW HEAT EXCHANGER	RR ROTARY HEAT EXCHANGER
maximum velocity in cross section of a function [fpm]	885.83	846.46	925.20	905.51	480.31	480.31	885.83	1023.62
optimum velocity in cross section of a function [fpm]	726.38	694.09	758.66	742.52	393.86	393.86	726.38	839.37

AIR FLOW RANGE (CFM)

680÷20 500

SELECTION SOFTWARE

KLIMOR AIR DESIGNER



Klimor Air Designer is our hallmark and competitive advantage. Klimor web-based selection software offers rapid product selection to specific project requirements. It provides users with all technical information they need.

Our selection software offers in particular: simple and user-friendly configuration of AHU, product dimensioning and optimization, defining of all technical data, precise selection of components, various formats of results and drawings.

HIGH DURABILITY

materials and components used in our AHU have been selected to last long and deliver high quality of AHU construction

AVAILABLE SIZES

SIZE	WIDTH [in]	HEIGHT [in]	OPTIMAL AIR FLOW [CFM]	CROSS-SECTION
5100	27.56	19.69	686	
3200	37.40	19.69	1 100	
0300	37.40	23.62	1 429	
0400	47.24	23.62	1 924	
2500	51.18	27.56	2 500	
0600	51.18	31.50	2 969	
0700	59.06	31.50	3 597	
5800	59.06	37.40	4 544	
0010	66.93	37.40	5 337	
5310	70.87	47.24	7 406	
4410	59.06	59.06	7 762	
5610	78.74	51.18	9 247	
0020	94.49	51.18	11 496	
0120	70.87	70.87	11 946	
5320	94.49	59.06	13 863	
0720	78.74	78.74	15 231	
0230	110.24	66.93	18 215	
0530	122.05	66.93	20 497	

10

13

14

15

16

17

18



Various configurations and wide range of functions will let users select KLIMOR EVO according their needs of air treatment, sound level and cost. KLIMOR EVO can be selected in two types of unit construction: monoblock or multiblock. This provides unique horizontal or vertical modularity.









ADVANTAGES

Variety of configurations and executions during selection

Easy transport and delivery to the place of multiblock assembly



MONOBLOCK

ADVANTAGES

Shorter construction time

High air tightness guarantee

Competitive price

Lower total weight

OUTSTANDING PERFORMANCE AT HIGH ENERGY EFFICIENCY

Highest degree of professionalism and many years of experience in HVACR industry allowed KLIMOR engineers design innovative AHU range that significantly reduces operating costs of any ventilation system

USER FRIENDLY

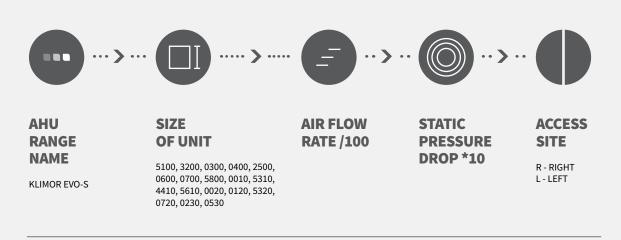
the design of KLIMOR EVO and its construction quality guarantees easy installation, maintenance and reliability.

Ш

CODIFICATION OF FUNCTIONAL BLOCKS

{	PF	PRIMARY FILTER		SL	SILENCER
**	SF	SECONDARY FILTER		RR	ROTARY HEAT EXCHANGER
	VF	FAN	\boxtimes	PR CPR	PLATE CROSS-FLOW HEAT EXCHANGER (HIGH PERFORMANCE COUNTER FLOW HEAT EXCHANGER)
	WC	CHILLED WATER COIL		MX	MIXING SECTION
DX	DX	DIRECT EXPANSION COOLING COIL		ES	EMPTY SECTION
\oplus	WH	HOT WATER COIL			

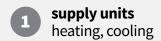
ENCODING METHOD



EXAMPLE KLIMOR EVO-S-0010-53-20-R-PFWHWCVFSL

COMPLETE DESIGNATION OF THE EVO AHUS CONTAINS ALSO CODES OF AIR SECTIONS. EXAMPLE: THE EVO AHU IN STANDARD RIGHT-SIDE VERSION, SIZE 0010, AIR FLOW: 5300 CFM, AVAILABLE PRESSURE: 2 IN. W. C., EQUIPPED WITH FILTER, HOT WATER COIL, CHILLED WATER COIL, FAN AND SILENCER.

SAMPLE CONFIGURATIONS







supply units mixing chamber



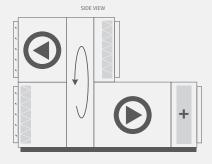


KLIMOR EVO-S [_] [_] [_] [R] – [PF] [WH] [WC] [VF]

KLIMOR EVO-S [_] [_] [_] [R] – [PF] [MX] [WH] [WC] [VF]



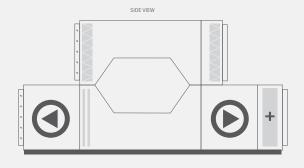




KLIMOR EVO-S [_] [_] [_] [R] – [PF] [RR] [WH] [VF] KLIMOR EVO-S [_] [_] [_] [L] – [PF] [VF] [RR]

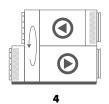


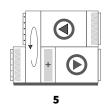


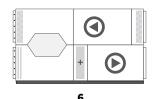


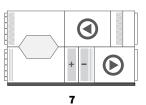
KLIMOR EVO-S [_] [_] [_] [R] – [PF] [PR] [WH] [VF] KLIMOR EVO-S [_] [_] [_] [L] – [PF] [VF] [PR]

OPTIONS









supply units heating, cooling

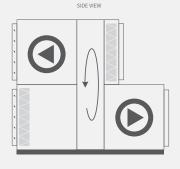






supply and exhaust units with rotary heat exchanger ventilation

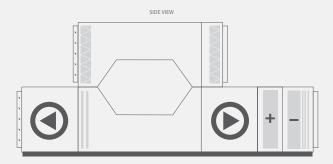




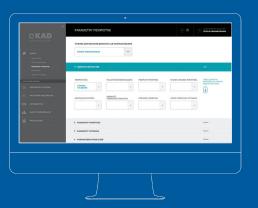
KLIMOR EVO-S [_] [_] [_] [R] – [PF] [WC] [WH] [VF]

KLIMOR EVO-S [_] [_] [_] [R] - [PF] [RR] [VF] KLIMOR EVO-S [_] [_] [_] [_] [L] - [PF] [VF] [RR]

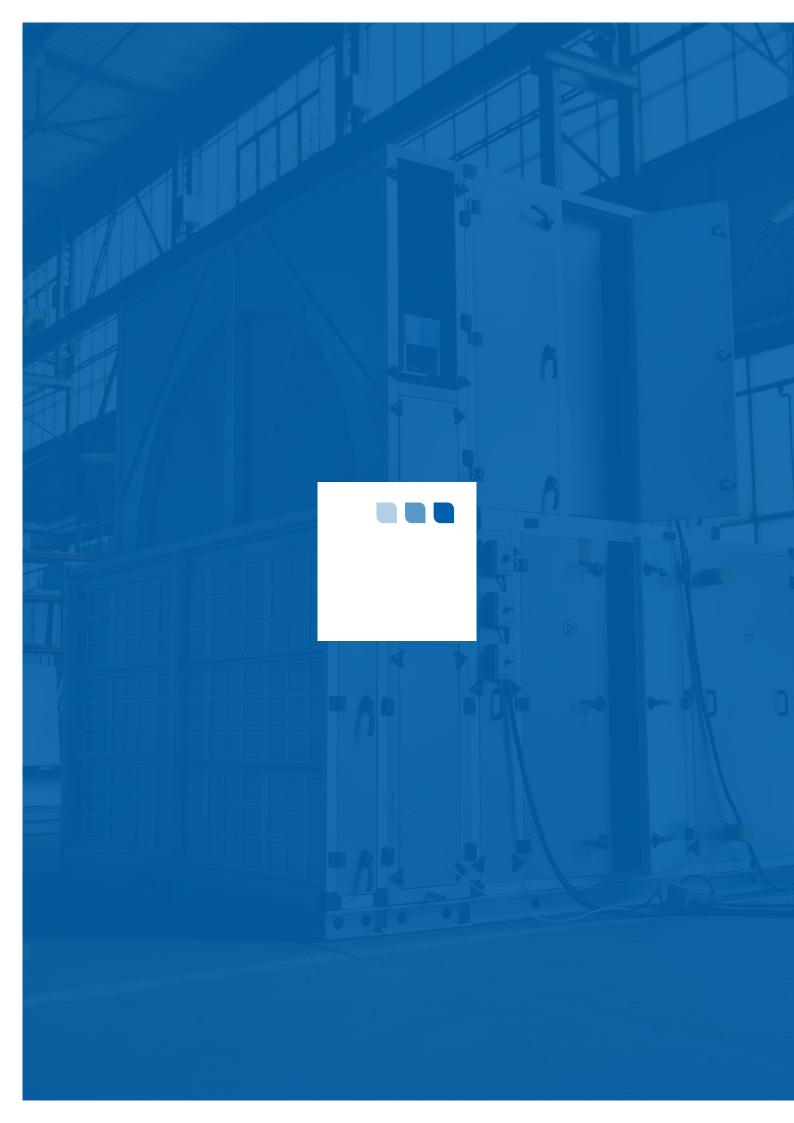
supply and exhaust units
with cross-flow heat exchanger
heat recovery, cooling



KLIMOR EVO-S [_] [_] [_] [R] - [PF] [PR] [WH] [WC] [VF] KLIMOR EVO-S [_] [_] [_] [L] - [PF] [VF] [PR] Much more configurations available in KLIMOR AIR DESIGNER selection software



→ klimor.com



CHAPTER III

FUNCTIONAL BLOCKS

CASING

FILTER

FAN SET

HOT WATER COIL

CHILLED WATER COIL

DIRECT EXPANSION COOLING COIL

ROTARY HEAT EXCHANGER

PLATE HEAT EXCHANGER (STANDARD & HIGH PERFORMANCE)

SILENCER



filter

fan set

hot water coil

chilled water coil

DX cooling coil

rotary heat exchanger

plate heat exchanger

silencer

casing





functions and application

framework

Supporting framework structure based on internal system of aluminum or steel frame

environment

AHU for indoor and outdoor installation

panels

Sandwich type with thermal brake solution

construction

external materials

Magnesium sheet

Galvanized and coated (option)

Stainless steel sheet (option)

insulation

PU foam

Mineral wool (option)

internal material

Galvanized sheet

Stainless steel

Coated sheet (option)

access

On the side

Butterfly clamps and hinges

cover

Other panels riveted with framwork structure

base frame

Feet or steel frame for transport/foundation of the unit

parameters (panels)

working temperature

-40÷194°F

panel thickness

2 in

type of sheets

Galvanized sheet with magnesium (DX51+ZM250)

Optional: galvanized and polyester coated steel sheet RAL9010, stainless sheet type 304 and 316



fan se

hot water coil

chilled water coil

DX cooling coil

rotary heat exchanger

plate heat exchanger

silencer

filter [PF] [SF]

functions and application

type

Pleated filter MERV8 ÷ MERV13

Air purification

usage

As base filter in systems with standard purity requirements

As preliminary filter in systems with strict purity requirements

application

Public utility buildings, office spaces, hotels, arenas, collective and individual residential bildings, etc.

parameters

filtration class

MERV8 ÷ MERV13

end pressure drop

 $\Delta p = 1$ in w.g.

filtration grade

Am = 98%

air velocity

working temperature

Maximum v = 625 FPM Maximum 200°F

construction

class

installation

Class MERV8 ÷ MERV13 pleated filters

Pleated filters mounted on steel frames

fan col



hot water coil

chilled water coil

DX cooling coil

rotary heat exchanger

plate heat exchanger

silencer

fan set [VF]

functions and application

application

Low and medium pressure ventilation and air-conditioning systems with overall pressures up to 8.03 in w.g.



construction

type

Radial fan without casing

One-way suction

PLUG type with backward curved blades

insulation

Fan and motor set on common frame

Insulated from unit structure by rubber shock absorbers

mounting

Direct drive – rotor mounted on motor shaft

motor

TEFC (Totally Enclosed Fan Cooled) motors conforming to PREMIUM efficiency class

All units equipped with direct drive fans are equipped with factory mounted Variable Frequency Drives (VFD)

optional

Shaft grounding rings

EC motors (in selected AHU sizes)

parameters

rated voltage

3×208..460V 50/60Hz. protection type / index

PTC / IP55

motor insulation

insulation class: F

bearing lifecycle

L10 = 20000h / L50 = 100000h working environment

140°F

hot water coil

functions and application

supply air

Heating of supply air to premises in air conditioning and ventilation systems

process air

Heating of process air in industry-grade air conditioning and ventilation systems

source

Heat source is required, supplying the coil with hot water



construction

structure

Galvanized steel sheet casing

CuAl package with copper pipes and aluminum fins

Manifolds and connectors made of copper or steel

standard fin spacing

standard fin thickness

tube wall thickness

tube diameter

0.08 in

0.006 in

0.02 in

3/8" ÷ 5/8"

connector types (nominal diameter)

Ø NPS [in]	0.75	1.00	1.25	2.00	3.00
Connector ending	Thread R 3/4"	Thread R 1"	Thread R 11/4"	Thread R 2"	Thread R 3"

parameters

max. medium temp.

302°F

max. medium pressure

535.30 in w.g. = 0.005 in w.g. (tested 0.007 in w.g.)

max. permitted air flow

v = 480.31 fpm

additional data

Thermal output. pressure losses, etc. available in KAD selection software

temperature

Min/max temperature of air for the coil: -40 ÷ 140°F

Protection: permissible minimum temperature of air downstream coil is monitored by freezing protection thermostat (optional)

filter fan set

hot water coil

chilled water coil

DX cooling coil

rotary heat exchanger

plate heat exchanger

silencer

filter

fan set

hot water coil

DX cooling coil

rotary heat exchanger

plate heat exchanger

silencer

chilled water coil

[WC]



functions and application

cooling*

Of supply air to premises in air conditioning and ventilation systems

Of process air in industry-grade air conditioning and ventilation systems

construction

general info

Copper pipes; aluminium fins

standard fin spacing

Distance between fins: 0.08 in

number of rows

drain pan

Triple sloped drain pan made of stainless steel

connector types (nominal diameter)

Ø NPS [in.]	0.75	1.00	1.25	2.00	3.00
Connector ending	Thread R 3/4"	Thread R1"	Thread R 11/4"	Thread R 2"	Thread R 3"

parameters

medium temp.**

Min temperature of the medium:

medium pressure

Maximum working pressure of the medium: 535.30 in w.g. = 0.005 in w.g. (tested 0.007 in w.g.)

glycol content

Max glycol content: 50% velocity

Max. permitted air velocity v = 480.31 fpm

additional data

Cooling capacity, pressure drop, etc. available in KAD

^{*} Cold source is required, supplying the coil with chilled water.
** Possibility to select individually according to non standard paramaters.

direct expansion cooling coil





functions and application

cooling*

Of supply air to premises in air conditioning and ventilation systems

Of process air in industry-grade air conditioning and ventilation systems

construction

general info

Copper pipes; aluminium fins stainless steel coil casing

standard fin spacing

between fins: 0.08 in

number of rows

drain pan

Made of stainless heat exchanger

Single (100%) or double section

connection stub pipes

Connection stub pipes are on the service side of the unit.

parameters

medium temp.**

Minimum evaporating temperature of cooling medium evaporation: 37.4°F* medium pressure

Maximum working pressure of the medium up to 11241.27 in w.g. = 0.112 in w.g. (tested 0.128 in w.g.)

velocity

Max. permitted air velocity v = 480.31 fpm

additional data

Cooling capacity, pressure drops, etc. available in KAD selection software

casing filter

fan set

hot water coil chilled water coil



exchanger

plate heat exchanger

silencer

^{*} Cold source is required, supplying the coil with refrigerant.
** Possibility to select individually according to non standard paramaters.

casing

filter

fan set

hot water coil

chilled water coil

DX cooling coil

rotary heat exchanger



plate heat exchanger

silencer

rotary heat exchanger

(heat wheel)





functions and application

heat & humidity recovery

Ttransfers sensible and latent heat (i.e. energy bound up in moisture) simultaneously

energy recovery

Energy recovery without full separation of supply and exhaust air streams

application

Applicable in combined supply and exhaust units

construction

general info

framework casing

Shaft mounted rotor,

hygroscopic rotary heat exchanger

Rotor made of aluminium strips/sheets

brush sealing

Protects against additional

purification lock

Reduces the quantity of "contaminated" exhaust air to the supply section of the unit

speed belt

belt driven transmission – controlling recuperation degree and freezing protection for <u>humidity condensing on rotor</u>

parameters

efficiency

tightness

air velocity rotor speed

pressure drop working environment

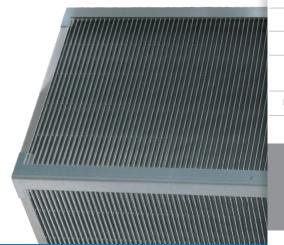
Up to 80%

Heat-exchanger tightness for rated working parameters 97%

Maximum air velocity 1023.62 fpm Rotor rotational speed: 10rpm

Maximum pressure drop: 1.806 in w.g. -20÷158°F

plate heat exchanger



casing filter

fan set

hot water coil

chilled water coil

DX cooling coil

rotary heat exchanger

plate heat exchanger



silencer

2 OPTIONS AVAILABLE



standard cross-flow heat exchanger



high performance counter cross-flow heat exchanger

functions and application

energy recovery

Indirect energy recovery from exhaust air and transfer of such energy to supply air, without possibility of humidity recovery

supply air

Complete separation of supply air from exhaust air streams

application

Used in combined supply and exhaust units

construction

external materials

The block is made of aluminium plates with separated supply and exhaust air streams flowing between them

by-pass

Installed damper allows to bypass the plate heat exchanger in order to:

- decrease efficiency or "switch off" energy recovery
- energy recovery

 protect the exchanger against freezing

drop tray

Drop separator with drip pan

parameters

efficiency

air velocity medium pressure additional data

working environmen

Up to 70% – cross flow plate heat exchanger

Up to 90% – counter flow plate heat exchanger

Maximum air velocity: 866.14 fpm

Heat-exchanger tightness for rated working parameters 99.9%

Maximum pressure drop: 1.806 in w.g. -40÷175°F

casing

filter

fan set

hot water coil

chilled water coil

DX cooling coil

rotary heat exchanger

plate heat exchanger

silonco



silencer

[SL]



functions and application

silent operation

Installed to ensure silent operation of the AHU

sound levels reduction

Reduces noise spreading throughout ventilation ducts

construction

materials

The block is fitted with silencing cartridges made of non-flammable mineral wool, 3.9 or 7.87 in thick

wool insert

The surface of wool insert is protected with veil

protection

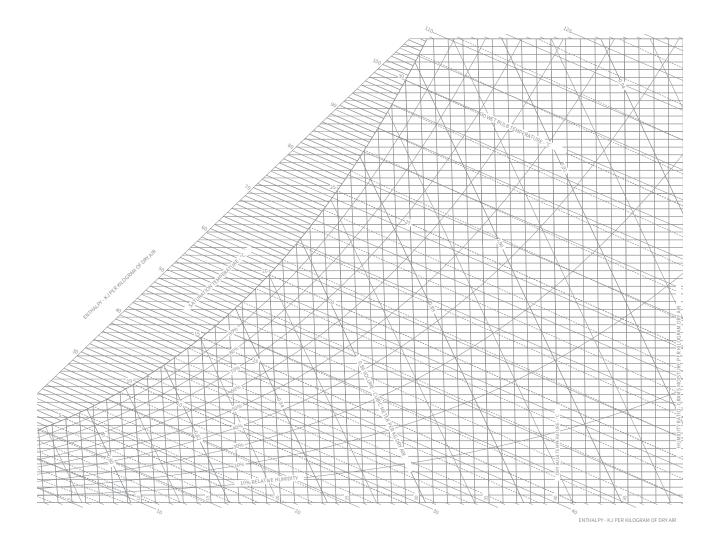
Protection prevents permeating of condensate into slotted cartridges

execution

2 stes of baffle silencer are being produced

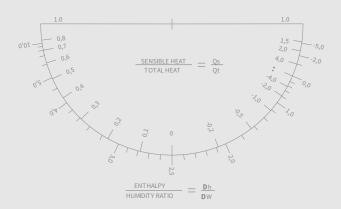
PSYCHROMETRIC CHART





NORMAL TEMPERATURE

BAROMETRIC PRESSURE: 406.793 in w.g





If you cannot find suitable solution please let us know. We will design a custom solution especially for you.







ADVANCED
AIR CONDITIONING
& VENTILATION
SOLUTIONS

