RATHERM SOLUTIONS

AIR HANDLING UNITS

BUILDINGS — INDUSTRIAL PLANTS — SHOPPING CENTRES

www.ratherm.pl

1. ABOUT US PAGE 1

2. MAGIC BOX PAGE 4

3. OUR CUSTOMERS PAGE 5

4. RATHERM PROJECTS PAGE 6

5. RATHERM SOLUTIONS PAGE 8

6. DUCT INSTALLATIONS PAGE 9

6.1 XK COMPACT INDOOR AND OUTDOOR AIR HANDLING UNITS PAGE 10

6.2 XK-P COMPACT INDOOR SUSPENDED AIR HANDLING UNITS PAGE 12

6.3 XD MONOBLOCK AIR CONDITIONING UNITS PAGE 13

7. XK/XD DUCTLESS INSTALLATIONS — PD/PN ROOF PENETRATION MODULE PAGE 15

8. MOUNTING SYSTEMS PAGE 17

8.1 AHUBASE/AHUBASE FLEX ROOF SUPPORTS PAGE 18

8.2 MULTILEAF DAMPERS PAGE 19

8.2.1 PWK DAMPER PAGE 19

8.2.2 STAR PLUS DAMPER PAGE 20

8.2.3 STAR III DAMPER PAGE 21

SUMMARY OF GENERAL UNIT DATA PAGE 22

XK COMPACT DUCTLESS AIR HANDLING UNITS WITH PD ROOF PENETRATION MODULE PAGE 23

XK COMPACT DUCTLESS AIR HANDLING UNITS WITH PD ROOF PENETRATION MODULE WITH PN DIFFUSER PAGE 24

XK-P COMPACT INDOOR SUSPENDED AIR HANDLING UNITS PAGE 25

XK-G GAS COMPACT HEATING AND VENTILATION UNITS PAGE 26

XK-P COMPACT AIR HANDLING UNITS WITH PLATE EXCHANGER PAGE 27

XK-R COMPACT AIR HANDLING UNITS WITH ROTARY EXCHANGER PAGE 28

XD MONOBLOCK AIR CONDITIONING UNITS WITH INTEGRATED C-HP CONDENSING UNITS PAGE 29

XD MONOBLOCK AIR CONDITIONING UNITS WITH ON-OFF CONDENSING UNITS PAGE 30

ON-OFF UNITS PAGE 31

INVERTER UNITS PAGE 32

HVAC Ratherm

Treat yourself to comfort in all conditions

www.ratherm.pl

WE BUILD ON PROVEN SOLUTIONS

1.ABOUT US

RATHERM is a Polish company with Polish capital. We are connected to Pomerania, where our headquarters and production facilities are located. We specialise in air handling systems. We are a leading Polish manufacturer of compact air handling units and rooftop devices. We provide HVAC solutions, building a strong and recognisable brand in the Polish and European markets. We manufacture comprehensive, modern and energy-efficient heating, ventilation and cooling solutions for a wide range of facilities.
Our extensive experience in project delivery enables us to successfully complete even the most challenging and demanding projects. We draw on the knowledge and experience of industrial designers, automation specialists and engineers. We improve and develop products that set trends in the HVAC industry. We offer comprehensive air handling systems including heating, air handling and air conditioning units. We strive to ensure that each stage of investment implementation is carried out quickly and efficiently using ISO 9001 standards. Our customers can count on our support, starting with the selection of the product, through the sales process and ending with the after-sales service.

WHAT MAKES US DIFFERENT

HIGH EFFICIENCY AND ENERGY SAVING

Our modern air handling units provide effective and rapid ventilation of even the largest facilities. Used in conjunction with other solutions, our EC motor fans significantly reduce power requirements and therefore costs.

REDUCED NOISE LEVEL

The use of modern components has a positive effect on reducing the noise produced by ventilation equipment.

DECLARATION OF CONFORMITY AND CERTIFICATE OF HYGIENE

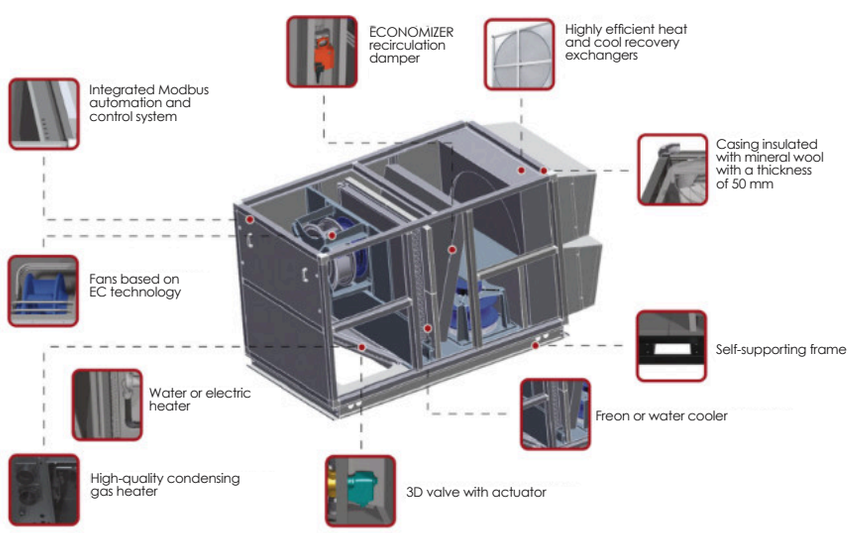
Compact XK air handling units comply with European Community directives. They also have a certificate of hygiene issued by the National Institute of Public Health — National Institute of Hygiene.

HIGHEST QUALITY WORKMANSHIP

RATHERM HVAC products are built using the best components from well-known, reputable manufacturers. The well thought-out design makes them easy to transport, assemble and keep clean.

TECHNICALLY ADVANCED COMPONENTS

- Innovative automation systems with online communication capabilities,
- Electronically commutated fans,
- Highly efficient heat and cool recovery exchangers,
- Cooling systems and reversible heat pumps.



RATHERM — RELIABILITY, PROFESSIONALISM

WHAT WE OFFER

- **RESPONSE SPEED**

As a Polish manufacturer, we guarantee efficient project management, short delivery times and, thanks to the factory service, timely inspections and quick response to incoming service requests.

- **ENGINEER SUPPORT**

Consult a Ratherm HVAC representative to avoid mistakes when designing your ventilation system. With our extensive knowledge and many years of experience, we can help you design the optimum ventilation system to meet the current and future needs of your project.

- **TESTED SOLUTIONS**

Ventilation systems can be quite complex and extensive. In industrial buildings, warehouses, distribution centres, logistics centres, manufacturing plants and similar facilities, the appearance of the ventilation system is not of primary importance. However, this is not the case in office, commercial, retail, and residential buildings. Here we usually want the ventilation system to be as concealed and invisible as possible, so that it blends in with the room without spoiling the interior design. The ever-increasing energy prices may significantly raise the cost of heating and cooling a building. Therefore, when designing a ventilation system, attention should be paid to the energy efficiency of the equipment. Therefore, the efficiency of ventilation equipment is a very important factor. The ventilation system as a whole must be able to supply the required amount of air.

- **RELIABLE SUPPLIER**

As in any other industry, the experience of an HVAC system manufacturer is important. HVAC Ratherm has specialised in the construction and installation of ventilation units for over a decade. We have delivered hundreds of projects throughout Poland. Our ventilation systems serve enterprises from many industries, including large industrial facilities, production plants, shopping centers, hospitals, warehouses, logistics centers, etc.

- **EXTENSIVE PRODUCT CATALOGUE**

We offer various types of air handling units including: XD monoblock units, XK compact units, XK-G gas-fired units, XK-P suspended units, XD-HP units with internal heat pumps, XK/XD-PD roof penetration module. We offer ductless devices that do not require internal installations. Our products are based on intelligent, yet simple solutions designed to facilitate operation. We use proprietary solutions that ensure heating and cooling comfort, energy efficiency while maintaining price competition.

HVAC Ratherm

Treat yourself to comfort in all conditions

WHAT WE OFFER

USER

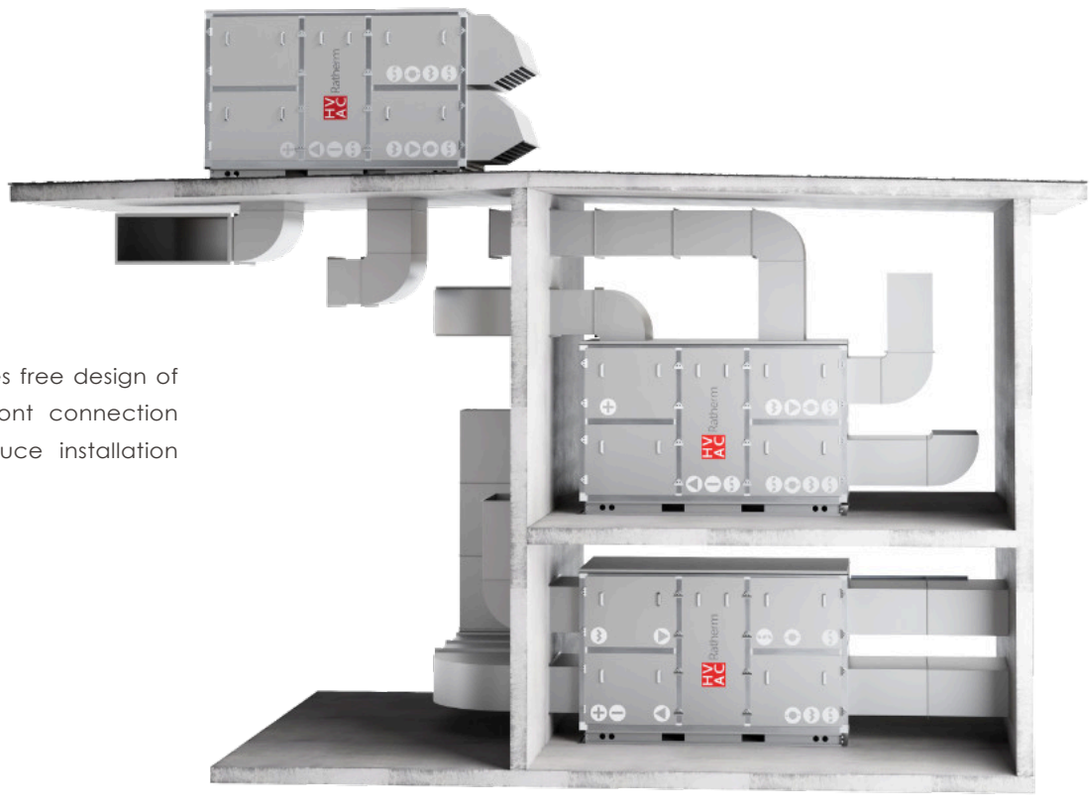
- Our devices give you the capability **to cooperate with intelligent building systems** BMS.
- We give you the capability **to monitor the working conditions of the equipment**.
- By dividing the ventilation and temperature zones, our units offer additional comfort and **energy efficiency**.
- Option to equip the device with a controller ensuring **support for multiple devices** simultaneously.
- The optional room unit gives you the ability to **read the parameters of specific units in real time**, as well as **track their operating and emergency states**, and information on maintenance activities.
- The units enable the connection of CO_2 sensors and ensure integration with local extraction systems.

INSTALLER

- **We provide a solution**, not a product. We share almost 30 years of industry knowledge.
- Our units are modern and **designed for professionals**. We rely on **the latest** executive elements.
- Our **warranty package** includes the unit and the PLUG and PLAY control system. All devices are factory tested and ready for operation.
- Functionality is provided by centralised automation and optional intelligent control **allows you to monitor connected devices** that it automatically detects.
- The series connection ensures that the unit uses a single power cable, minimising **cabling costs in the project**.
- The central power switchboard **reduces the cost of cabling investment**.

WE ARE READY FOR ALL CONDITIONS, WE WILL DESIGN NEW SOLUTIONS

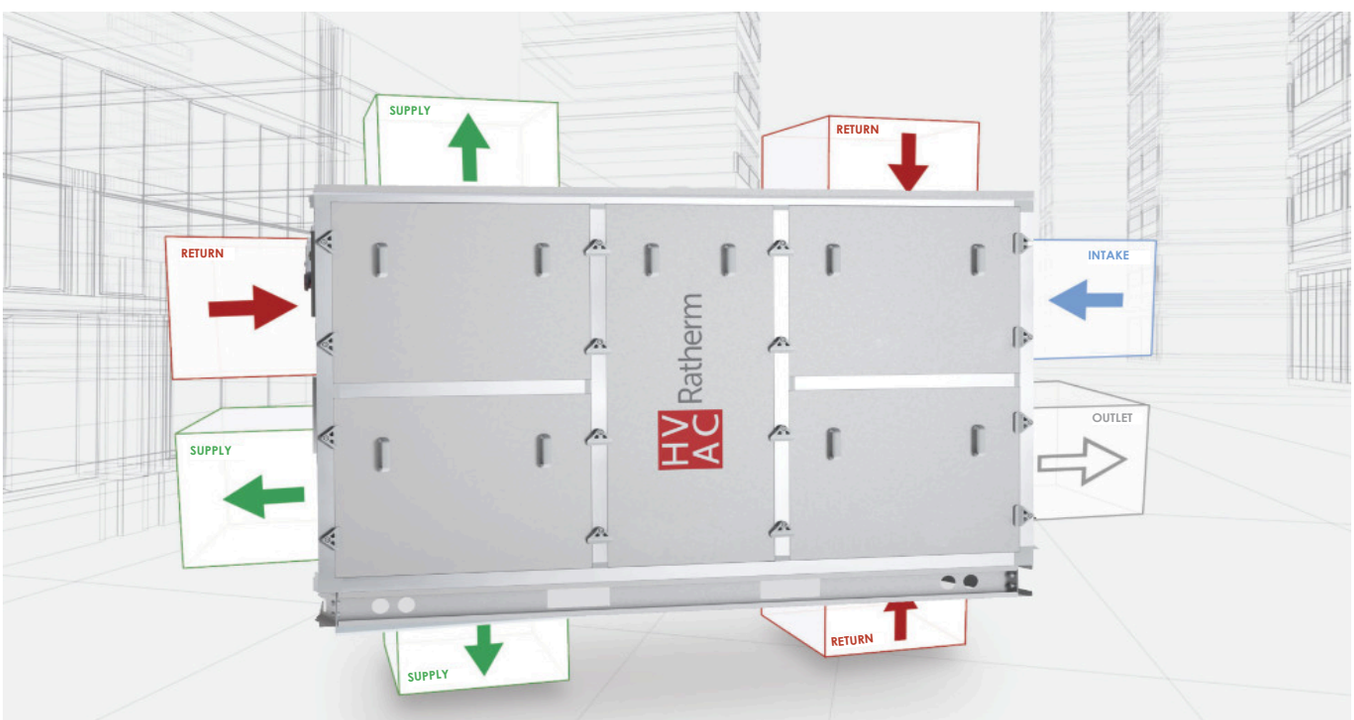
2. MAGIC BOX



The Magic Box concept enables free design of air ducts. Bottom, top and front connection configurations significantly reduce installation and assembly costs.

- Any configuration of outlets
- Compact dimensions
- Quick implementation time
- Repeatability of production

DIAGRAM OF AVAILABLE CONNECTIONS



3. OUR CUSTOMERS

We provide HVAC solutions for the most demanding customers. Our partners are general contractors, assembly companies, designers, investors and engineers. The manufactured devices are used in facilities such as shopping centres, logistics centres, halls, production plants, warehouses and many others.

COMMERCIAL CENTRES

Large-scale commercial facilities, retail parks, free-standing properties, chain shops

THEY TRUSTED US, INCLUDING:

- LPP
- TREI REAL ESTATE POLAND
- SALLER POLBAU
- PKB INWEST BUDOWA
- NAPOLLO RETAIL
- ROCK CAPITAL
- ACTEEUM CENTRAL EUROPE

INDUSTRIAL PLANTS

Various-sized manufacturing and industrial plants, assembly hall buildings, warehouses and other similar facilities

THEY TRUSTED US, INCLUDING:

- PANATTONI
- HIPROMINE
- KNORR BREMSE- AUTOMOTIVE
- KITRON
- BULTEN POLSKA
- IGLOTEX

BUILDINGS

Logistics centres, enclosed sheds, retail outlets, office buildings and other large-size facilities

THEY TRUSTED US, INCLUDING:

- JERONIMO MARTINS
- DHL
- MAJALAND
- SCHOOLS

Botanical and Zoological Garden CEE Exotarium — Sosnowiec
Implementation JUNE 2023

4. RATHERM PROJECTS

Wołomin RETAIL PARK

KNORR BREMSE — AUTOMOTIVE Rzeszów

VENDO PARK Gorzów Wlkp.

DHL LOGISTIC CENTER Gorzów Wlkp.

KNORR BREMSE — AUTOMOTIVE Rzeszów

IGLOTEX Skórcz

RATHERM PROJECTS

MULTISHOP Soczaczew

M PARK Reda

SALLER Żnin

SPITIFIRE GYM Berlin

EGZOTARIUM Sosnowiec

Trzcianka RETAIL PARK

5. RATHERM SOLUTIONS

DUCT INSTALLATIONS

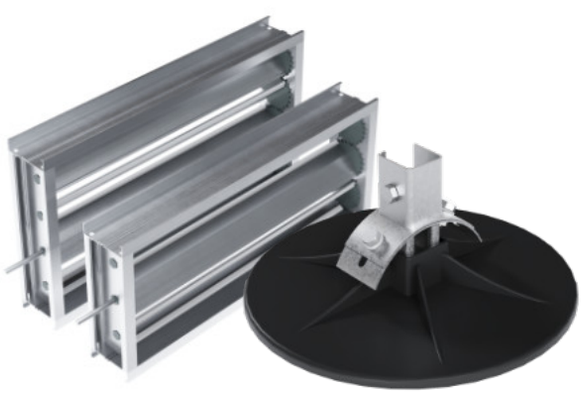
- XK — COMPACT AIR HANDLING UNITS
- XK-G — COMPACT GAS-FIRED AIR HANDLING UNITS
- XK-P — COMPACT SUSPENDED AIR HANDLING UNITS
- XD — MONOBLOCK AIR CONDITIONING UNITS

DUCTLESS INSTALLATIONS

- XK/XD–PD — PD ROOF PENETRATION MODULE
- XK/XD–PN — ROOF PENETRATION MODULE WITH PN DIFFUSER

MOUNTING SYSTEMS

- SUPPORT FRAMES
- AHUBASE ROOF SUPPORTS [without adjustment]
- AHUBASE ROOF SUPPORTS [without adjustment]
- MULTILEAF DAMPERS



RATHERM DUCT INSTALLATIONS

6. DUCT INSTALLATIONS

XK, XK-G, XK-P, XD AIR HANDLING UNITS PERFORMANCE 500–5,200 m^3/h

XK

A series of compact control panels **XK** was created in response to customer needs resulting from the use, design, delivery and operation of air handling units. **XK** units is a wide range of air handling modules used, any configuration of duct connections, a wide range of performance. **XK** AHUs are factory-equipped with a complete automation system, which means that the AHU can be started immediately after installation and connection of ducts.

XK-G

Gas central stations **XK-G** is a standard for heating and ventilation units equipped with modulated gas heaters. Production of **XK-G** units is based on the MAGIC BOX concept. By using monoblock systems we offer unrestricted configuration possibilities for ventilation duct connections: bottom (VV), top (UU) or traditional front (HH) as well as their combinations. As a result, installation is easy and costs are kept to a minimum. All **XK-G** AHUs come with a complete automation system, which means that the AHU can be started immediately after installation and connection of ducts.

XK-P

The **XK-P** suspended AHUs are designed for installation in the ceiling void or crawl space. The **XK-P** series AHUs can be installed both horizontally and vertically.

XD

The XD series monoblock AHUs are all-purpose systems that are capable of handling any air treatment process. Their compact housing and modular equipment make it possible to adapt the units to various project requirements. The XD series units use the free cooling effect to treat the air. The configuration of both monoblock and XK units includes EC fans and high efficiency rotary heat recovery modules that meet the requirements of Ecodesign 2018. XD series units are an alternative to traditional solutions, that is a modular air handling unit with an automation system and a cooling source, typically from several different suppliers. Instead, we offer a single complete unit with a single controller for operation and a single service provider responsible for maintenance. Their compact dimensions and endless MAGIC BOX connection configuration possibilities make the designing and installation of a HVAC system easy.

3 in 1

Heating, ventilation with heat recovery, cooling

One unit with all the necessary components for complete air treatment.

RATHERM DUCT INSTALLATIONS

6.1 **XK** — COMPACT INDOOR AND OUTDOOR AIR HANDLING UNITS

Our XK series of packaged AHUs is a new range of HVAC devices offered by HVAC RATHERM. They are the outcome of constant development and improvement of the monoblock system production process.

With latest technologies, advanced material engineering and innovative design solutions we have created a product that meets the expectations of customers.

The XK series of indoor and rooftop units responds to the needs of customers in terms of AHU applications, design, delivery and operation.

All XK AHUs are factory-equipped with a complete automation system, which means that the AHU can be started immediately after installation and connection of ducts.

The XK indoor compact units provide comprehensive air treatment in any indoor environment in compliance with EU energy consumption regulations.

The range of types of units allows you to individually configure the unit, from simpler ventilation versions to solutions that meet full comfort conditions.

RATHERM indoor HVAC units allow for optimal energy recovery from exhaust air. The rotary-plate and cross-flow heat exchangers meet the Ecodesign 2018 requirements.

XK indoor compact air handling units are available in suspended versions XK-P, with a capacity of up to 4,200 m³/h.

MAGIC BOX

APPLICATIONS:

- Wide range of air flow rates: 500–52,000 m³/h
- 8 AHU sizes
- Compact dimensions
- Wide range of air conditioning modules
- Any configuration of MAGIC BOX duct connections

RATHERM DUCT INSTALLATIONS

Coding of compact AHUs

XK _____ _____ _____ _____ _____
1 2 3 4 5

E.g. XK045 NWRG C HH

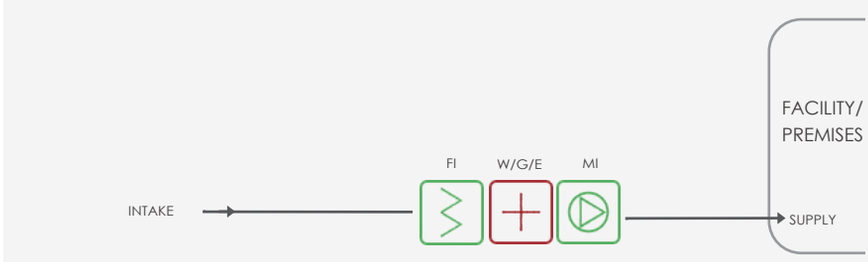
Description: Air handling unit with a capacity of 4,500 m³/h with rotary heat recovery, gas heater and water cooler

1. Air flow rate x 100 [m³/h]
2. Configuration: N — fresh air system, NW — supply and exhaust system, NWR — rotary heat recovery, NWP — plate heat recovery, NY — system with glycol heat recovery
3. Heat exchanger type: W — water, E — electric, G — gas
4. Cooler type: F — freon, C — water
5. Supply and exhaust outlet configuration: H — front, U — top, V — bottom

EXAMPLES OF CONFIGURATIONS OF CONTROL UNITS

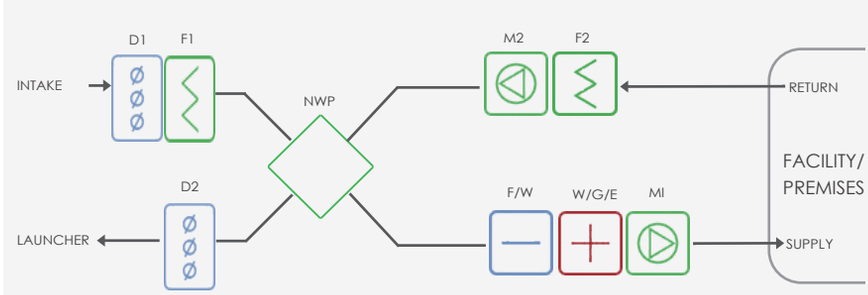
Compact air supply unit
XK 365 NG H

Air flow rate: 35,000 [m³/h]
Heating power of the gas module: 210 [kW]
Horizontal air outlet



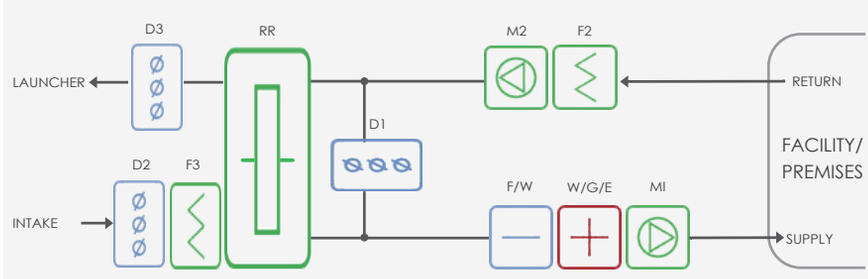
Compact unit with
plate heat recovery
XK 038 NWPWF HH

Air flow rate: 3,800 [m³/h]
Water heater power: 20 [kW]
Cooling power of the freon cooler: 22 [kW]
Horizontal supply outlet, horizontal return outlet



Compact unit with
rotary heat recovery
XK 135 NWRG UU

Air flow rate: 12,500 [m³/h]
Heating power of the gas heater: 65 [kW]
Upper supply outlet, upper return outlet



RATHERM DUCT INSTALLATIONS

6.2 **XK-P** COMPACT INDOOR SUSPENDED AIR HANDLING UNITS

The **XK-P** indoor suspended AHUs are designed for installation in the ceiling void or crawl space. The **XK-P** series AHUs can be installed horizontally, inclined or vertically. Functional modules enable the implementation of the following air treatment processes:

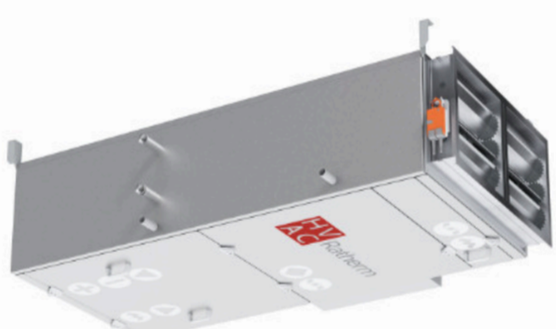
- Ventilation
- Heating
- Cooling
- Primary and secondary filtration
- Heat recovery

APPLICATIONS:

- Small and medium-size facilities
- Historical properties
- Restaurants, cafés, pubs, shops, cinemas, garages, hotels and offices

SERIES PARAMETERS:

- Wide range of air flow rates: 700–4,200 m³/h
- 3 unit models
- EC fans as standard
- Compact dimensions
- High-efficiency heat recovery modules



Coding of suspended AHUs

XK ___ ___ ___ ___ ___ HH

1 2 3 4 5

E.g. XK016 NWPW HH

Description: Suspended unit with a capacity of 1,600 m³/h with plate heat recovery and water heater

1. Air flow rate 700–4,200 [m³/h]
2. Configuration: N — supply, NW — supply-exhaust, NWP — plate heat recovery
3. Heat exchanger type: W — water, E — electric
4. Cooler type: F — freon, C — water
5. Supply and exhaust outlet configuration: HH — front

RATHERM DUCT INSTALLATIONS

6.3 **XD** MONOBLOCK AIR CONDITIONING UNITS

The XD series AHU is an optimal solution for effective and comfort air conditioning inside large buildings. To reduce operating costs, each AHU is equipped with a heat recovery module, a mixing box with FREE Cooling function and a heating module as standard. The sequence of using each module has been defined within the energy saving function. The use of electronically commutated (EC) fans radically improves the unit's energy performance.

The XD air handling unit is a universal system that implements any air treatment process. The series allows the selection of units with air flows from 1,600 to 40,000 m³/h and cooling capacities from 10 to 240 kW. High compatibility of design components and equipment elements as well as the use of an integral automation system speed up the production process and shorten the time to HVAC system commissioning. Cooling demand is optimised through the use of multi-stage compressor systems. 50 mm thick insulation and axial fans with reduced sound power guarantee low sound pressure. Due to the unit design, air ducts can be connected to the AHU from the side, bottom and top.

Coding of monoblock air handling units

XD ____ ____ ____ ____ ____

1 2 3 4 5

E.g. XD085 NWRW VV C502

Description: Air handling unit with a capacity of 8,500 m³/h
with rotary heat recovery, water heater, VV outlets, 50kW cooling unit

1. Air flow rate 100 [m³/h]
2. Configuration: NW — fresh air system, NWR — rotary heat recovery
3. Heat exchanger type: G — gas, W — water, E — electric
4. Supply and exhaust outlet configuration: HH — front, U — top, V — bottom
5. Cooling capacity: 10–220 [kW]

APPLICATIONS:

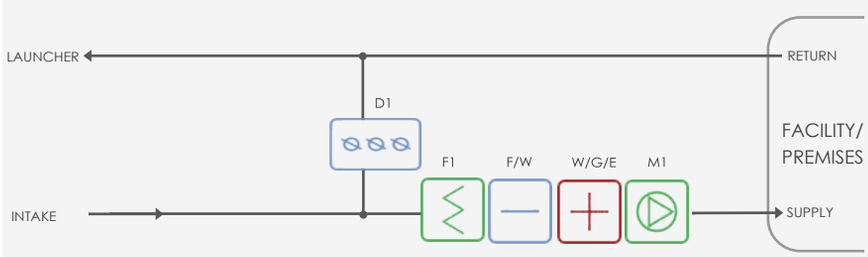
- Small and medium-size facilities
- Retail parks, shopping malls
- Restaurants, cafés, pubs, shops, cinemas, hotels and offices
- Warehouse halls, Logistics centers

RATHERM DUCT INSTALLATIONS

EXAMPLES OF CONFIGURATIONS OF CONTROL UNITS

Block diagram of the XD085 N G VV C402 air supply unit

Cooling power of the ON/OFF unit: 40 [kW]
Air flow rate: 9,000 [m³/h]
Gas heater power: 42 [kW]



Block diagram of the XD135 NWRE VV C070HP monoblock unit

Air flow rate: 12,500 [m³/h]
Electric air heater: 36 [kW]
Cooling power of the heat pump refrigeration unit: 70 [kW]

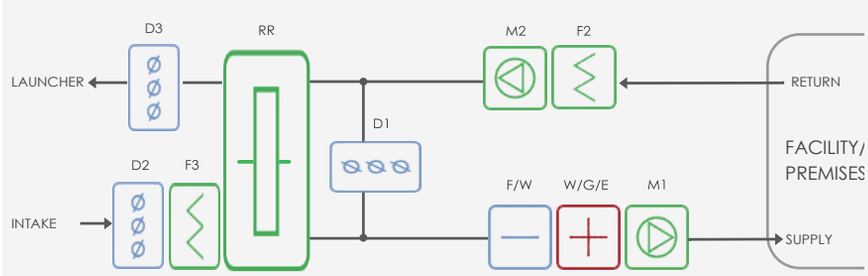
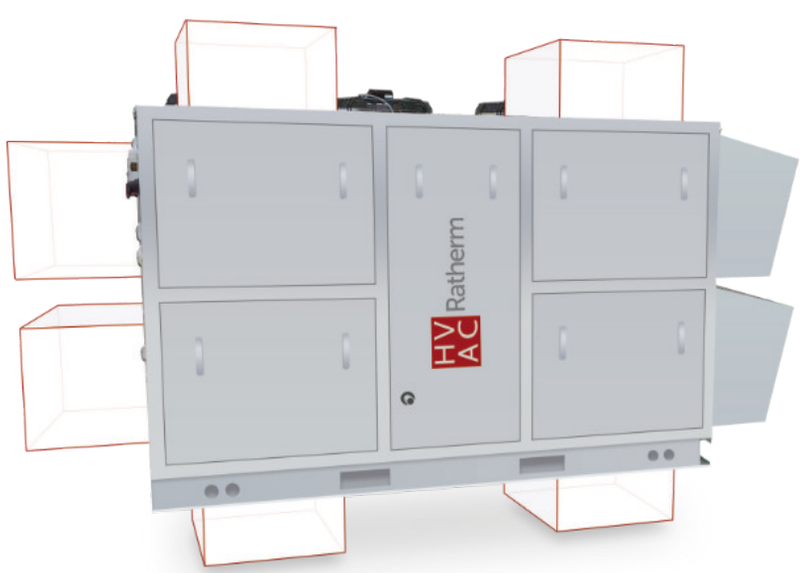


DIAGRAM OF AVAILABLE CONNECTIONS



RATHERM DUCTLESS INSTALLATIONS

7. DUCTLESS INSTALLATIONS
XK/XD- PD/PN ROOF PENETRATION MODULE

The **XK-PD/PN** compact units are a range of RATHERM HVAC air handling units with integrated supply and exhaust modules. Their use reduces the need for duct installation. At the same time, they ensure effective ventilation and heating of facilities, e.g. warehouses

The **XK-PD/PN** series responds to the needs of customers in terms of AHU applications, design, delivery and operation. All XK-PD/PN AHUs are factory-equipped with a complete automation system, which means that the AHU can be started immediately after installation of the electrical supply.

SERIES PARAMETERS:

- Wide range of air flow rates: 5,000–11,000 [m³/h]
- 3 AHU sizes... PN
- 8 AHU sizes... PD
- Compact dimensions
- Wide range of air conditioning modules

Coding of the roof penetration blocks

XK/XD____ _ ____ _ ____ _ ____ _ ____ _ ____

1 2 3 4 5 6

E.g. XK085 NWRG PN

Description: Compact ductless air handling unit with a capacity of 8,000 m³/h with rotary heat recovery and 65 kW gas heater

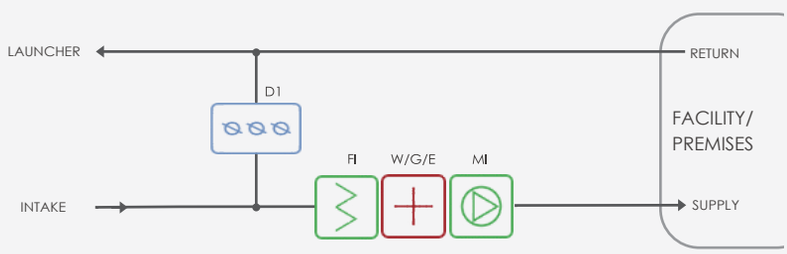
1. Air flow rate x 100 [m³/h]
2. Configuration: NW — supply-exhaust, NWR — rotary heat recovery, NWP — plate heat recovery, NY — with glycol heat recovery
3. Heat exchanger type: G — gas, W — water, E — electric
4. Cooler type: F — freon, C — water
5. Type of module used: PD — roof penetration, PN — roof penetration with air inlet
6. Optionally, we offer expansion of the system with a cooling module

RATHERM DUCTLESS INSTALLATIONS

EXAMPLES OF CONFIGURATIONS OF CONTROL UNITS

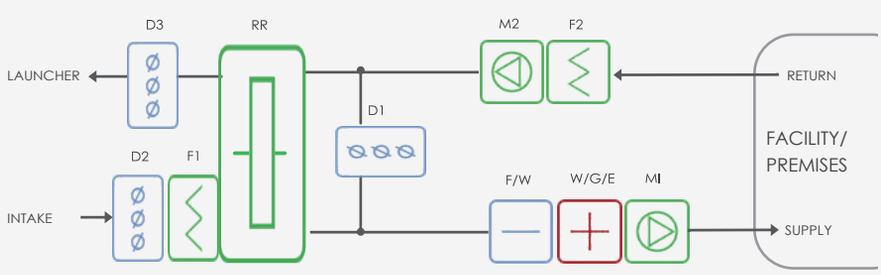
Compact air supply unit
with free exhaust
XK 060 NG PD

Air flow rate: 5,000 [m³/h]
Heating power of the gas module: 45 [kW]



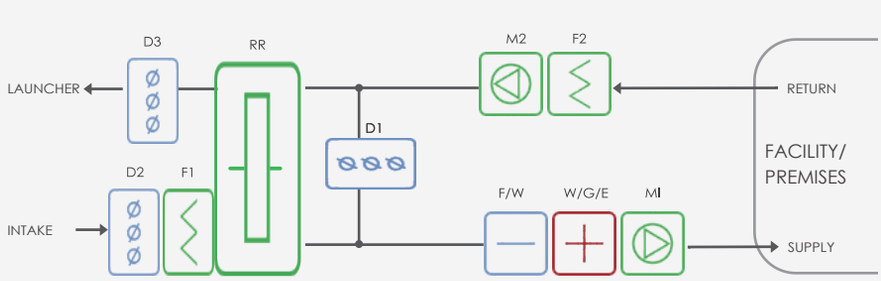
Compact unit with
rotary heat recovery
XK 085 NWRWC PD

Air flow rate: 8,000 [m³/h]
Heating power of the gas module: 70 [kW]
Cooling capacity of water cooler: 40 [kW]
Water heater power: 60 [kW]



Compact unit with
rotary heat recovery
XD 135 NWRE PD15 CO70HP

Air flow rate: 11,000 [m³/h]
Heating power of the electric heater: 54 [kW]
Power of the inverter heat pump: 70 [kW]

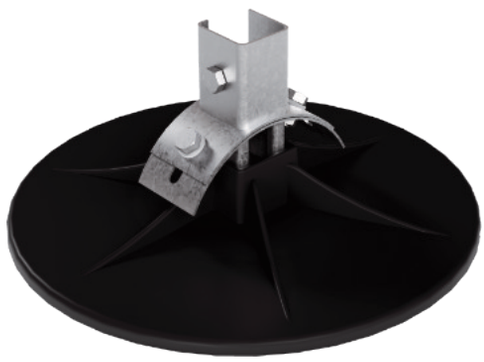


APPLICATIONS:

- Small and medium-size facilities
- Warehouse halls, logistic centers
- Restaurants, cafés, pubs, shops, cinemas, garages, hotels and offices

RATHERM MOUNTING SYSTEMS

8. MOUNTING SYSTEMS



AHUBASE/AHUBASE FLEX ROOF SUPPORTS

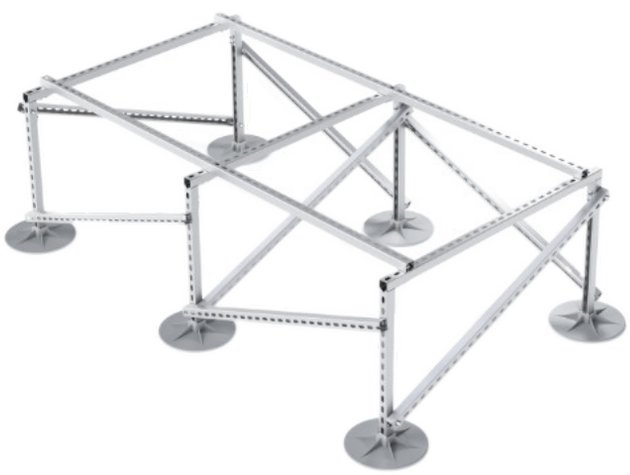
The AHUBASE roof support is dedicated to carrying the weight of all types of heating, air-conditioning and ventilation devices, ventilation ducts, smoke exhaust ducts and other elements installed on roofs and in buildings.

MULTILEAF DAMPERS

For regulating air flow in all types of air handling and conditioning units and for shutting off air flow in ventilation ducts. For installation in air conditioning units and rectangular ventilation ducts. The damper opening degree can be controlled either manually or with an electric actuator.

We offer 3 types of aluminum dampers:

- PWK multileaf damper
- STAR PLUS multileaf damper
- STAR III multileaf damper



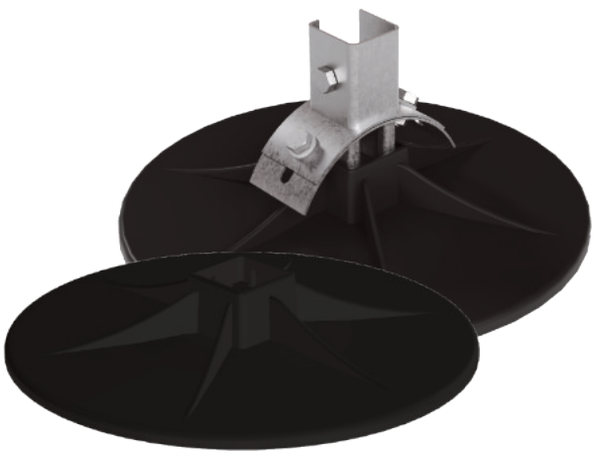
AHUFRAME SUPPORT FRAME

AHUFRAME support frames have been designed for quick and easy mounting of air handling, air conditioning and cooling units on building roofs or other flat surfaces.

RATHERM MOUNTING SYSTEMS

8.1 **AHUBASE/AHUBASE FLEX** ROOF SUPPORTS

The support is designed for the installation of support structures for equipment and installations used on both flat and pitched roofs. The support ensures stability and even distribution of loads.
The supports are characterised by high resistance to weather conditions and mechanical forces.
When designing the support, special emphasis was placed on obtaining a stable, high-strength structure while maintaining an aesthetic appearance. The AHUBASE roof support is easy to install and is highly functional. The unlimited configuration possibilities of the element connecting the feet allow it to be adapted to the individual needs of the buyer.

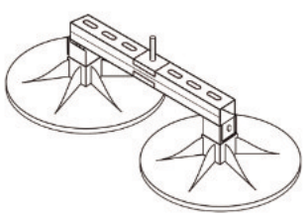


AHUBASE ROOF SUPPORTS

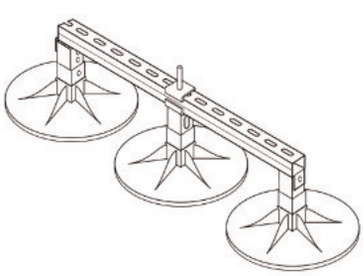
POSSIBLE CONFIGURATIONS

AHUBASE roof supports can be freely configured to minimise the unit pressure.

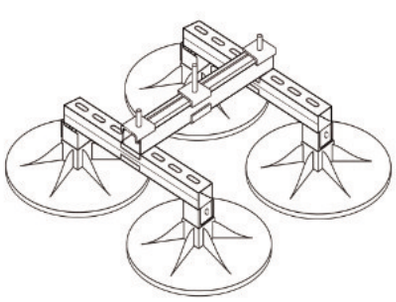
Below are examples of combined systems and the results achieved with a maximum load of 400 kg.



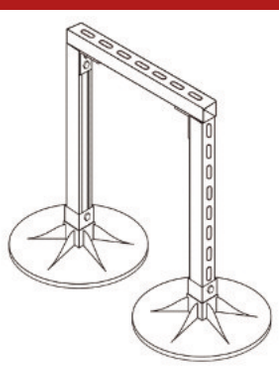
2 SUPPORTS
PRESSURE 0.189 kg/cm²



3 SUPPORTS
PRESSURE 0.119 kg/cm²



4 SUPPORTS
PRESSURE 0.090 kg/cm²



2 SUPPORTS (GATE)
PRESSURE 0.188 kg/cm²

RATHERM MOUNTING SYSTEMS

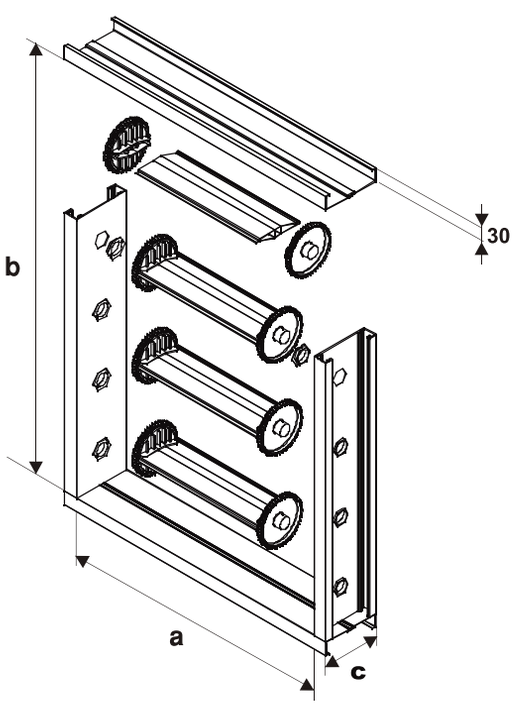
8.2 MULTILEAF DAMPERS

Multileaf dampers are designed to regulate the air flow in air handling and air conditioning units and to shut off the flow in ventilation ducts. We install dampers in air conditioning units and rectangular ventilation ducts. The damper opening degree can be controlled either manually or with an electric actuator.

8.2.1 **PWK** MULTILEAF DAMPER

The PWK damper is the oldest damper we produce. Its greatest advantage is simplicity while maintaining satisfactory quality parameters. This was made possible by using aluminum profiles to build the frame and a set of gears with bearings made of PA6GF30 polyamide. The use of a seal on the side edge of the blades and in the frame ensures high tightness when the unit is closed.

Dimensions
a = max. 3,000 mm
b = max. 2,500 mm
c = 125 mm



TYPES OF DAMPERS

Type P — damper for actuator
Type R — dampers with manual mechanism

EXAMPLES OF ORDER MARKINGS

Multileaf damper **PWK630 x 630 - P**
Width x Height — Type

Temperature range of operation (continuous operation): max. 80°C

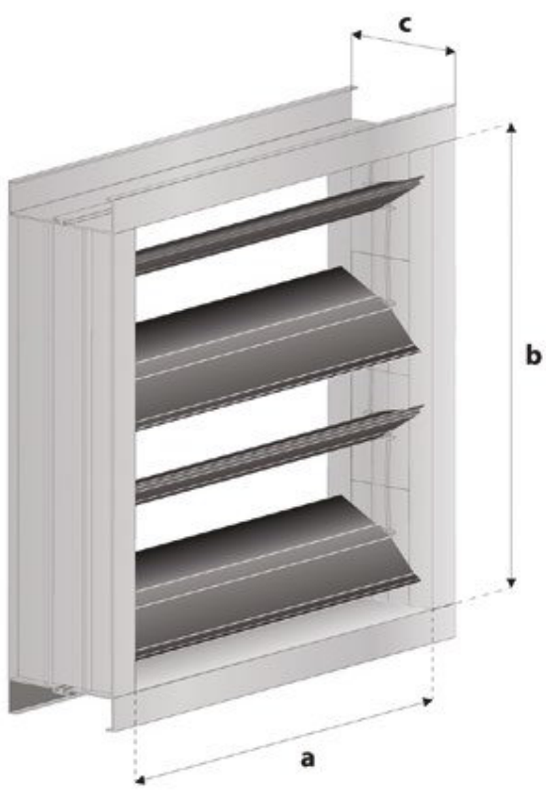
Tightness class 2 according to EN1751

RATHERM MOUNTING SYSTEMS

8.2.2 **STAR PLUS** MULTILEAF DAMPER

The design of the lamellas has been designed so that their shape minimizes the resistance to air flow when the damper is open, and they are additionally equipped with a gasket of a special design that ensures their maximum tightness. We manufacture STAR PLUS dampers (as with the rest of the STAR series) in anodised and powder-coated finishes (RAL colour range available).

Dimensions
a = 3,000 mm max.
b = 2,500 mm max.
c = 115 mm



TYPES OF DAMPERS

Type P — damper for actuator

Type R — dampers with manual mechanism

EXAMPLES OF ORDER MARKINGS

Multileaf damper **STAR Plus 630x630-P**
Width x Height — Type

Temperature range of operation (continuous operation): max. 80°C

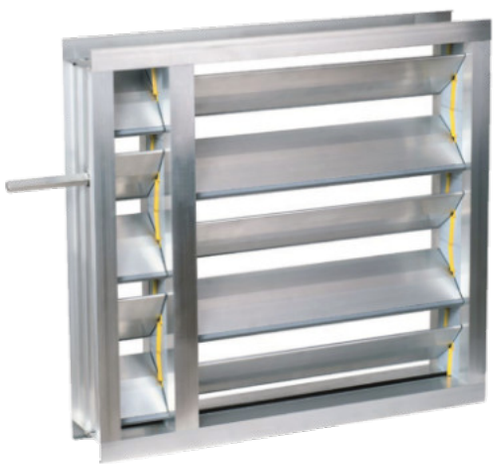
Tightness class 2 according to EN1751

RATHERM MOUNTING SYSTEMS

8.2.3 **STAR III** MULTILEAF DAMPER

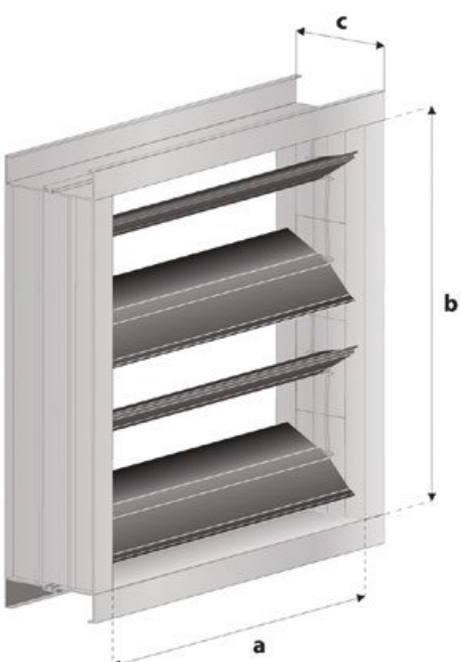
Class III multi-leaf dampers are elements of ventilation installations that ensure the regulation of air flow and the efficiency of the ventilation system. These dampers are one of the basic elements of the system and allow precise control of the amount of air supplied to each room. They are characterised by high precision in air flow regulation, and their design allows for smooth and precise adjustment of the flow rate. This allows you to optimise the efficiency of the ventilation system, which has a significant impact on the comfort of the building occupants and the energy efficiency of the installation.

Class III multi-leaf dampers are intended for use in various types of buildings, such as offices, schools, shops and hotels.



SPECIAL FEATURES OF THE STAR III DAMPER

- Patented two-component design
- Damper frame seals
- A unique system for compensating play in gears
- Unique design



Dimensions
a = 3,000 mm max.
b = 2,500 mm max.
c = 115 mm

TYPES OF DAMPERS

Type P — damper for actuator
Type R — dampers with manual mechanism

EXAMPLES OF ORDER MARKINGS

Multileaf damper **STARIII 630 x 630 - P**
Width X Height — Type

Temperature range of operation (continuous operation): max. 80°C

Tightness class 3 according to EN1751

RATHERM SOLUTIONS

SUMMARY OF GENERAL UNIT DATA

XK COMPACT DUCTLESS AIR HANDLING UNITS WITH PD ROOF PENETRATION MODULE

TECHNICAL PARAMETERS		XK 025	XK 045	XK 085	XK 135	Ind. design
Ventilation						
Performance range	m³/h	1,000–3,000	4,000–6,000	6,000–8,500	8,500–13,500	●
Range of available static pressure	Pa	150–500	150–500	150–600	150–600	●
Supply fan	-	Radial EC				●
Exhaust fan	-	Radial EC				●
Types of filters	-	M5, F7				●
Heat recovery		**Rotary exchanger with speed control**				
Nominal air capacity	m³/h	2,500	5,000	8,000	11,000	●
Heat recovery efficiency for the nominal value	%	75	75	74	75	●
Recovery power at nominal capacity	kW	33	78	114	139	●
Heating						
Power range of the gas heater	kW	20	20–45	35–65	45–80	●
Regulation	-	15–100% smooth				●
Water heater power at nominal capacity ΔT = 15ºC	kW	12.6	27.6	47.7	57.8	●
Water heater power at nominal capacity ΔT = 25ºC	kW	20.9	46.1	79.6	96.3	●
Regulation	-	10–100%, 3D valve				●
Electric heater power	kW	6–18	18–36	18–36	36–54	●
Regulation	-	0–100%				●
Cooling						
Water cooler power range	kW	8–15	16–30	30–70	35–80	●
Regulation	-	10–100%, 3D valve				●
Heating power range	kW	8–15	16–30	30–70	35–60	●
Regulation	-	Smooth, inverter				●
Basic technical data						
Description of the structure	-	Monoblock framework/aluminium profiles				●
Configuration of duct connections	-	HH — front, VV — bottom, UU — top and variations				●
Materials	-	ALUZINC standard, 50 mm insulation				●
Thermal insulation class according to PN-EN 1886	-	T3/TB3, Housing, Thermal bridges				●
Construction dimensions L x W x H	mm	2,000 x 900 x 1,360	2,350 x 1,200 x 1,515	2,350 x 1,350 x 1,515	2,350 x 1,600 x 1,890	●
Weight	kg	480	545	695	878	

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

XK COMPACT DUCTLESS AIR HANDLING UNITS WITH PD ROOF PENETRATION MODULE WITH PN DIFFUSER

W_1

TECHNICAL PARAMETERS		XK 045	XK 085	XK 135
Ventilation				
Performance range	m³/h	3,000–5,000	6,500–8,000	9,000–11,000
Range of available static pressure	Pa	150–500	150–600	150–600
Supply fan	-		Radial EC	
Exhaust fan	-		Radial EC	
Types of filters	-		M5, F7	
Heat recovery			**Rotary exchanger with speed control**	
Nominal air capacity	m³/h	5,000	8,000	11,000
Heat recovery efficiency for the nominal value	%	75	74	73
Recovery power at nominal capacity	kW	78	114	147
Heating				
Power range of the gas heater	kW	20–45	35–65	42–80
Regulation	-		15–100% smooth	
Water heater power at nominal efficiency ΔT = 15°C	kW	27.6	47.7	62.8
Water heater power at nominal efficiency ΔT = 25°C	kW	46.1	79.6	104.7
Regulation	-		10–100% smooth, 3D valve	
Electric heater power	kW	24	36	54
Regulation	-		0–100% smooth	
Cooling				
Water cooler power range	kW	10–30	30–70	40–90
Regulation	-		10–100% smooth, 3D valve	
Freon cooler power range	kW	8–36	16–50	40–85
Regulation	-		Smooth/inverter or multi-stage	
Basic technical data				
Description of the structure	-		Monoblock framework/aluminium profiles	
Materials	-		ALUZINC standard, 50 mm insulation	
Thermal insulation class according to PN-EN 1886	-		T3/TB3. Housing, Thermal bridges	
Construction dimensions L x W x H	mm	2,350 x 1,200 x 1,515	2,350 x 1,350 x 1,515	2,350 x 1,600 x 1,890
Weight	kg	550	695	1165
Diffuser dimensions	mm	1,100 x 800 x L	1,100 x 1,100 x L	1,300 x 1,300 x L

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

XK-P COMPACT INDOOR SUSPENDED AIR HANDLING UNITS

TECHNICAL PARAMETERS		XK 012	XK 016	XK 028	XK 038	Ind. design
Ventilation						
Performance range	m³/h	600–1,200	1,000–1,800	1,800–3,300	3,300–4,400	●
Range of available static pressure	Pa	150–300	150–400	150–400	150–400	●
Supply fan	-	Radial EC				●
Exhaust fan	-	Radial EC				●
Types of filters	-	M5, F7				●
Heat recovery		**Plate exchanger + by-pass**				
Nominal air capacity	m³/h	1,000	1,600	2,800	3,800	●
Heat recovery efficiency for the nominal value	%	76	75	76	76	●
Recovery power at nominal capacity	kW	13	20	36	51	●
Heating						
Water heater power at nominal capacity ΔT = 15ºC	kW	5.0	8.0	14.1	19.9	●
Water heater power at nominal capacity ΔT = 25ºC	kW	8.4	13.4	23.5	31.6	●
Regulation	-	10–100%, 3D valve				●
Electric heater power	kW	2	2–6	6–18	12–24	●
Regulation	-	0–100%				●
Cooling/Reversible heat pump						
Cooling power range	kW	-	5–8	8–18	8–26	●
Heating power range	kW	-	5–8	8–18	8–26	●
Regulation	-	Smooth, inverter				●
Basic technical data						
Description of the structure	-	Monoblock framework/aluminium profiles				●
Configuration of duct connections	-	HH — front,				●
Materials	-	ALUZINC standard, 30 mm/50 mm insulation				●
Thermal insulation class according to PN-EN 1886	-	T3/TB3. Housing, Thermal bridges				●
Construction dimensions L x W x H	mm	1,550 x 905 x 425	1,700 x 1,150 x 425	2,350 x 1,400 x 650	2,350 x 2,000 x 650	●
Weight	kg	160	210	386	511	●
Supply/exhaust connections	mm	400 x 350	500 x 400	400 x 400	700 x 400	●

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

XK-G GAS COMPACT HEATING AND VENTILATION UNITS

TECHNICAL PARAMETERS		XK 025	XK 045	XK 085	XK 160	XK 205	XK 300	Ind. design
Ventilation								
Performance range	m³/h	1,500–3,000	3,000–6,000	6,000–11,000	11,000–16,000	16,000–24,000	24,000–30,000	●
Range of available static pressure	Pa	150–500	150–500	150–600	150–600	150–600	150–600	●
Supply fan	-	Radial EC						●
Exhaust fan	-	Radial EC						●
Types of filters	-	M5, F7						●
Heat recovery		**Rotary exchanger with speed control**						
Nominal air capacity	m³/h	3,000	6,000	11,000	16,000	24,000	30,000	●
Recovery efficiency at 50% of nominal capacity	%	83	83	81	80	78	81	●
Recovery power at 50% nominal efficiency	kW	20	41	73	112	164	225	●
Heating								
Power range of the condensing, modulated gas burner	kW	20	20–45	35–65	80–130	105–210	160–320	●
Regulation	-	15%–100% smooth						●
Basic technical data								
Description of the structure	-	Monoblock framework/aluminium profiles						●
Configuration of duct connections	-	HH — front, W — bottom, UU — top						●
Materials	-	ALUZINC standard, 50 mm insulation						●
Thermal insulation class according to PN-EN 1886	-	T3/TB3. Housing, Thermal bridges						●
Construction dimensions L x W x H	mm	2,000 x 900 x 1,220	2,350 x 1,100 x 1,360	2,350 x 1,350 x 1,515	2,350 x 1,600 x 1,890	2,350 x 1,900 x 2,120	3,950 x 2,250 x 2,570	●
Weight	kg	360	528	782	1,740	1,894	2,665	●
Supply/exhaust connections	mm	600 x 500/600 x 400	800 x 500/800 x 500	1,000 x 550/1,000 x 500	1,300 x 650/1,300 x 600	1,600 x 700/1,600 x 700	1,900 x 900/1,900 x 900	●

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

XK-P COMPACT AIR HANDLING UNITS WITH PLATE EXCHANGER

TECHNICAL PARAMETERS		XK 018	XK 035	XK 045	XK 065	XK 095	XK 125	XK 175	XK 205	XK 295	XK 405	Ind. design
Ventilation												
Performance range	m³/h	1,000–1,800	2,000–3,500	3,500–5,000	5,000–8,000	9,500–12,000	12,500–14,500	14,500–18,000	10,000–24,000	24,000–32,000	32,000–40,000	●
Range of available static pressure	Pa	150–400	150–500	150–500	150–500	150–600	150–600	150–600	150–600	150–600	150–600	●
Supply fan	-	Radial EC						2 or 3 radial ECs				●
Exhaust fan	-	Radial EC						2 or 3 radial ECs				●
Types of filters	-	M5, F7										●
Heat recovery		**Plate exchanger + bypass**										
Nominal air capacity	m³/h	2,200	3,000	4,500	6,500	10,000	14,000	17,000	22,000	30,000	38,000	●
Heat recovery efficiency for the nominal value	%	76	74	74	74	73	74	74	74	74	74	●
Recovery power at nominal capacity	kW	28	38	50	72	124	153	186	220	263	327	●
Heating												
Power range of the gas heater	kW	-	20	20–52	35–65	65–105	65–105	65–210	105–210	105–320	105–320	●
Regulation	-	15–100% smooth										●
Water heater power at nominal efficiency ΔT = 15°C	kW	11.1	17.6	22.6	32.7	57.8	70.4	85.4	100.5	120.6	150.8	●
Water heater power at nominal efficiency ΔT = 25°C	kW	18.4	29.3	37.7	54.4	96.3	117.3	142.4	167.5	201.0	251.3	●
Regulation	-	10–100%, 3D valve										●
Electric heater power	kW	6	12–18	12–24	36	24–54	36–72	54–72	Individual selection	Individual selection	Individual selection	●
Regulation	-	0–100%										●
Cooling												
Water cooler power range	kW	5–10	10–23	14–25	20–45	35–70	40–80	50–100	80–140	100–170	100–200	●
Regulation	-	10–100%, 3D valve										●
Freon cooler power range	kW	8	8–18	8–36	18–54	36–70	36–70	54–105	70–140	105–175	105–175	●
Regulation	-	Smooth, inverter		Smooth/inverter or multi-stage								●
Basic technical data												
Description of the structure	-	Monoblock framework/aluminium profiles			Framework/aluminium profiles							●
Configuration of duct connections	-	HH — front										●
Materials	-	ALUZINC standard, 50 mm insulation										●
Thermal insulation class according to PN-EN 1886	-	T3/TB3. Housing, Thermal bridges										●
Construction dimensions L x W x H	mm	1.800 x 900 x 1.020	2,600 x 900 x 1,360	2,600 x 1,200 x 1,515	2,600 x 1,600 x 1,515	3,200 x 2,000 x 1,890	3,950 x 2,400 x 2,120	3,950 x 2,400 x 2,120	3,950 x 2,400 x 2,120	3,950 x 3,100 x 2,670	3,950 x 3,100 x 2,670	●
Weight	kg	367	505	550	787	1,250	1,670	2,260	2,660	3,315	3,770	●
Supply/exhaust connections	mm	315 x 300	600 x 500/600 x 400	800 x 500/800 x 500	1,200 x 500	1,200 x 600	1,700 x 600	Ind.	Ind.	Ind.	Ind.	●

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

XK-R COMPACT AIR HANDLING UNITS WITH ROTARY EXCHANGER

TECHNICAL PARAMETERS		XK 025	XK 045	XK 085	XK 135	XK 160	XK 175	XK 205	XK 265	XK 300	XK 345	Ind. design
Ventilation												
Performance range	m³/h	1,000–3,000	4,500–6,000	6,500–8,500	10,000–13,000	13,000–16,000	16,000–18,000	18,000–20,000	20,000–25,000	25,000–30,000	30,000–34,000	●
Range of available static pressure	Pa	150–500	150–500	150–600	150–600	150–600	150–600	150–600	150–600	150–600	150–600	●
Supply fan	-		Radial EC					2 or 3 radial ECs				●
Exhaust fan	-		Radial EC					2 or 3 radial ECs				●
Types of filters	-					M5, F7						●
Heat recovery						**Rotary exchanger with speed control**						
Nominal air capacity	m³/h	2,500	5,000	8,000	11,000	13,500	16,000	18,000	24,000	28,000	32,000	●
Heat recovery efficiency for the nominal value	%	76	75	78	75	73	75	73	76	76	74	●
Recovery power at nominal capacity	kW	33	78	95	139	147	188	206	286	325	362	●
Heating												
Power range of the gas heater	kW	20	20–45	35–65	45–80	45–80	65–105	65–105	105–210	105–320	105–320	●
Regulation	-					15–100% smooth, optionally 2–stage						●
Water heater power at nominal efficiency ΔT = 15°C	kW	12.6	27.6	37.7	57.8	62.8	77.9	90.5	113.1	133.2	153.3	●
Water heater power at nominal efficiency ΔT = 25°C	kW	20.9	46.1	62.8	96.3	104.7	129.8	150.8	188.4	221.9	255.4	●
Regulation	-					10–100%, 3D valve						●
Electric heater power	kW	6–12	12–24	18–36	36–54	36–54	36–72	36–72		Individual selection		●
Regulation	-					0–100%						●
Cooling												
Water cooler power range	kW	8–15	16–30	20–55	35–80	40–90	50–100	50–120	80–140	100–170	100–200	●
Regulation	-					10–100%, 3D valve						●
Freon cooler power range	kW	8–18	18–36	18–54	36–70	36–70	36–105	36–105	105–200	105–200	105–200	●
Regulation	-					Smooth/inverter or multi-stage						●
Basic technical data												
Description of the structure	-	Monoblock framework/aluminium profiles			Framework/aluminium profiles							●
Configuration of duct connections	-					HH — front, VV — bottom, UU — top and variations						●
Materials	-					ALUZINC standard, 50 mm insulation						●
Thermal insulation class according to PN-EN 1886	-					T3/TB3. Housing, Thermal bridges						●
Construction dimensions L x W x H	mm	2,000 x 900 x 1,220	2,350 x 1,200 x 1,360	2,350 x 1,350 x 1,515	2,350 x 1,600 x 1,890	2,350 x 1,600 x 1,890	2,350 x 1,900 x 2,120	2,350 x 1,900 x 2,120	3,950 x 2,250 x 2,570	3,950 x 2,250 x 2,570	3,950 x 2,600 x 2,670	●
Weight	kg	480	550	675	878	1,165	1,580	1,650	2,265	2,340	2,880	●
Supply/exhaust connections	mm	600 x 500/600 x 400	800 x 500/800 x 500	1,000 x 550/1,000 x 500	1,300 x 650/1,300 x 600		1,600 x 700/1,600 x 700			1,900 x 900/1,900 x 900	Ind.	●

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

XD MONOBLOCK AIR CONDITIONING UNITS WITH INTEGRATED C-HP CONDENSING UNITS

TECHNICAL PARAMETERS / SAMPLE CONF.		XD 018 C008HP	XD 035 C018HP	XD 045 C026HP	XD 045 C036HP	XD 085 C044HP	XD 085 C054HP	XD 135 C070HP	XD 160 C090HP	XD 205 C0105HP	XD 265 C1120HP	XD 300 C140HP	XD 345 C175HP	Ind. design
Ventilation														
Performance range	m³/h	1,000–1,800	1500–3,000	3,000–4,500	5,000–6,000	6,000–8,000	8,000–11,000	11,000–14,000	14,000–17,000	17,000–20,000	20,000–25,000	25,000–30,000	30,000–34,000	●
Range of available static pressure	Pa	100–400	150–500	150–500	150–500	150–500	150–600	150–600	150–600	150–600	150–600	150–600	150–600	●
Supply fan	-	Radial EC												●
Exhaust fan	-	Radial EC												●
Types of filters	-	M5, F7												●
Rotary heat recovery		**Rotary, hygroscopic with adjustable speed**												
Nominal air capacity	m³/h	1,600	3,000	4500	6,000	8,000	11,000	13,000	16,000	20,000	24,000	28,000	32,000	●
Recovery efficiency at 50% of nominal capacity	%	78	83	81	847635	82	81	82	80	79	80	78	76	●
Recovery power at 50% nominal efficiency	kW	11	20	27	35	61	63	77	112	123	143	164	184	●
Heating														
Power range of the gas heater	kW		20	20–45	20–45	36–65	35–65	45–80	65–80	65–105	105–210	105–210	105–320	●
Regulation	-	15–100% smooth												●
Water heater power at nominal efficiency ΔT = 15°C	kW	8.8	15.1	20.1	26.8	45.2	55.3	70.4	85.4	95.5	110.6	130.7	150.8	●
Water heater power at nominal efficiency ΔT = 25°C	kW	13.4	25.1	33.5	45.4	75.4	92.1	117.3	142.1	159.1	184.3	217.8	251.3	●
Regulation	-	0–100%, zawór 3D												●
Electric heater power	kW	02–06	06–12	12–24	12–24	18–36	18–36	36–54	36–54	36–72	Ind.	Ind.	Ind.	●
Regulation	-	Smooth/step												●
Cooling module, configuration														
R410a/R32 inverter cooling units	kW	R32	R32	R32	R32	R32	R32	R410	R410	R410	R410	R410	R410	●
Cooling power	kW	7.6	16.7	24.3	33.4	41.3	50.1	70.0	86.7	105.5	122.2	140.0	173.4	●
Heating power	kW	7.9	18.2	26.1	36.4	44.3	54.6	70.1	88.3	105.2	123.5	140.2	176.6	●
Optional inverter units	-		C008HP	C008HP, C018HP	C026HP, C018HP	C026HP, C036HP	C026HP, C036HP, C044HP	C036HP, C044HP C054HP	C044HP, C054HP, C070HP	C090HP, C070HP	C105HP, C090HP, C070HP	C120HP, C105HP, C090HP	C140HP, C120HP, C105HP	●
Basic technical data														
Description of the structure	-	Monoblock framework/aluminium profiles												●
Configuration of duct connections	-	HH — front, VV — bottom, UU — top and variations												●
Materials	-	ALUZINC standard, 50 mm insulation												●
Thermal insulation class according to PN-EN 1886	-	T3/TB3. Housing, Thermal bridges												●
Construction dimensions L x W x H	mm	1,800 x 1,400 x 1,020	2,000 x 1,700 x 1,220	2,350 x 1,700 x 1,360	2,350 x 1,700 x 1,360	2,350 x 2,150 x 1,515	2,350 x 2,150 x 1,515	2,350 x 22800 x 1,890	2,350 x 1,200 x 1,515	2,350 x 3,400 x 2,120	2,350 x 3,400 x 2,120	3,150 x 3,250 x 1,890	3,150 x 3,250 x 1,890	●
Weight	kg	490	620	690	850	1,160	1,210	1,470	1,560	1,980	2,660	2,960	3,380	●
Supply/exhaust connections	mm	315 x 300	600 x 500 x 400	800 x 500/800 x 500	800 x 500/800 x 500	1,000 x 550/1,000 x 500	1,000 x 550/1,000 x 500	1,300 x 650/1,300 x 600	1,300 x 650/1,300 x 600	1300 x 650/1,300 x 600	1,600 x 700/1,600 x 700	1,600 x 700/1,600 x 700	1,900 x 900/1,900 x 900	●

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

XD MONOBLOCK AIR CONDITIONING UNITS WITH ON-OFF CONDENSING UNITS

TECHNICAL PARAMETERS / SAMPLE CONF.		XD 035 C201	XD 045 C301	XD 045 C402	XD 085 C502	XD 085 C602	XD 135 C702	XD 160 C802	XD 205 C1002	XD 265 C1202	XD 300 C1403	XD 345 C1804	Ind. design
Ventilation													
Performance range	m³/h	1500–3,000	3,000–4,500	4,000–5,000	7,000–9,000	9,000–12,000	12,000–14,000	14,000–17,000	17,000–20,000	20,000–25,000	25,000–30,000	30,000–34,000	●
Range of available static pressure	Pa	150–500	150–500	150–500	150–500	150–600	150–600	150–600	150–600	150–600	150–600	150–600	●
Supply fan	-	Radial EC											●
Exhaust fan	-	Radial EC											●
Types of filters	-	M5, F7											●
Rotary heat recovery		**Rotary, hygroscopic with adjustable speed**											
Nominal air capacity	m³/h	3,000	4,500	5,000	9,000	11,000	13,000	16,000	20,000	24,000	28,000	34,000	●
Recovery efficiency at 50% of nominal capacity	%	83	81	84	82	81	82	80	79	80	78	76	●
Recovery power at 50% nominal efficiency	kW	20	27	35	61	63	77	112	123	143	164	184	●
Heating													
Power range of the gas heater	kW	20	20–45	20–45	35–65	35–65	45–80	45–80	65–105	105–210	105–210	105–320	●
Regulation	-	15–100% smooth,											●
Water heater power at nominal efficiency ΔT = 15°C	kW	15.1	20.1	25.1	45.2	55.3	70.4	85.4	95.5	110.6	130.7	150.8	●
Water heater power at nominal efficiency ΔT = 25°C	kW	25.1	33.5	41.9	75.4	92.1	117.3	142.4	159.1	184.3	217.8	251.3	●
Regulation	-	0–100%, 3D valve											●
Electric heater power	kW	06–12	12–24	12–24	36	18–36	36–54	36–54	36–72	Ind.	Ind.	Ind.	●
Regulation	-	0–100%								Individual choice			●
Cooling module, configuration													
Number of circuits/compressors	-	1/1	1/1	2/2	2/2	2/2	2/2	2/2	2/2	2/2	3/3	4/4	●
Factor	-	R410	R410	R410	R10	R410	R410	R410	R410	R410	R410	R410	●
Cooling power	kW	19.4	28.9	38.9	46.2	57.9	66.4	87.2	102.9	118.8	146.5	189.6	●
Optional ON-OFF units	-		C201	C201, C301	C301, C402	C301, C402, C502	C402, C502, C602	C402,C502,C602,C702	C602,C702,C802	C702,C802, C1002	C802,C1002,C1202	C1002,C1403,C1604	●
Basic technical data													
Description of the structure	-	Monoblock framework/aluminium profiles											●
Configuration of duct connections	-	HH — front, VV — bottom, UU — top and variations											●
Materials	-	ALUZINC standard, 50 mm insulation											●
Thermal insulation class according to PN-EN 1886	-	T3/TB3. Housing, Thermal bridges											●
Construction dimensions L x W x H	mm	2,000 x 1,700 x 1,220	2,350 x 1,700 x 1,360	2,350 x 1,700 x 1,360	2,350 x 2,150 x 1,515	2,350 x 2,150 x 1,515	2,350 x 2400 x 1,890	2,350 x 2,400 x 1,890	2,350 x 3,250 x 2,120	3,950 x 3,250 x 2,570	3,950 x 4,050 x 2,570	3,950 x 34,090 x 2,670	●
Weight	kg	620	690	850	1160	1210	1470	1560	1650	2290	2390	2480	●
Supply/exhaust connections	mm	600 x 500 x 400	800 x 500/800 x 500	800 x 500/800 x 500	1,000 x 550/1,000 x 500	1,000 x 550/1,000 x 500	1300 x 650/1300 x 600	1300 x 650/1300 x 600	1300 x 650/1300 x 600	1,600 x 700/1,600 x 700	1,600 x 700/1,600 x 700	1,900 x 900/1,900 x 900	●

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

R410a CONDENSING UNIT	C201	C251	C301	C351	C401	C402	C502	C602
Cooling	**Temp. of evaporation 7°C, Temp. External 35°C**							
Cooling power [kW]	18.9	24.7	28.9	34.2	39.1	37.9	49.4	58.7
Power consumption [kW]	6.1	8.1	9.5	10.5	12.3	11.9	15.5	18.9
EER	3.11	3.06	3.03	3.25	3.18	3.18	3.18	3.11
Configuration								
Number of compressors/circuits	1/1	1/1	1/1	1/1	1/1	2/2	2/2	2/2
Factor load [kg]	3.0	3.5	3.5	4.5	6.0	6.0	8.5	10.5
Number of condenser fans	2	2	2	2	3	4	4	4
Adjustment steps	1	1	1	1	1	2	2	2
Electrical data								
Voltage [V]	400V/50Hz							
Full load current [A]	8.44	10.7	12.5	15.5	17.1	16.9	21.3	24.8
Acoustic data								
Acoustic power LWA [dB]	76	76	76	77	79	81	82	82
Sound pressure at a distance of 1 m dB [A]	57	57	57	57	59	60	60.00	60.00
Dimensions [mm]	2,350 x 800 x 1,245	2,350 x 800 x 1,245	2,350 x 800 x 1,515	2,350 x 800 x 1,515	2,350 x 800 x 1,515	2,350 x 800 x 1,515	2,350 x 800 x 1,515	2,350 x 800 x 1,515
Weight [kg]	170	170	221	221	258	258	311	311

R410a CONDENSING UNIT	C702	C802	C902	C1002	C1202	C1403	C1503	C1703	C1604	C1804	C2004
Cooling	**Temp. of evaporation 7°C, Temp. External 35°C**										
Cooling power [kW]	68.5	78.3	88	97.8	118.6	135.7	146.7	167.5	156.4	176.1	195.6
Power consumption [kW]	21.3	24.6	27.9	30.4	38.0	42.3	46.4	53.7	48.9	55.0	61.3
EER	3.22	3.18	3.15	3.22	3.12	3.21	3.16	3.12	3.2	3.2	3.19
Configuration											
Number of compressors/circuits	2/2	2/2	2/2	2/2	2/2	3/3	3/3	3/3	4/4	4/4	4/4
Factor load [kg]	9.0	12.0	14.0	18.0	21.0	20.0	27.0	30.0	24.0	30.0	36.0
Number of condenser fans	4	4	4	2	2	5	6	6	6	6	4
Adjustment steps	2	2	2	2	2	3	3	3	4	4	4
Electrical data											
Voltage [V]	400V/50Hz										
Full load current [A]	31.8	34.2	38.5	42.8	49.6	59,9	64.2	70.9	68.4	77	85.6
Acoustic data											
Acoustic power LWA [dB]	83	83	84	86	86	88	88	88	89	90	90
Sound pressure at a distance of 1 m dB [A]	60	60	61	63	63	64	64	64	64	65	65
Dimensions [mm]	2,350 x 800 x 1,880	2,350 x 800 x 1,880	2,350 x 800 x 1,880	2,350 x 1,350 x 1,880	2,350 x 1,350 x 1,880	2,350 x 2,150 x 1,880	2,350 x 2,150 x 1,880	2,350 x 2,150 x 1,880	2,350 x 2,150 x 1,880	2,350 x 2,150 x 1,880	2,350 x 2,150 x 1,880
Weight [kg]	396	396	396	580	580	870	960	960	1660	1660	1660

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative

INVERTER UNITS

CONDENSING UNIT	C008HP	C018HP	C026HP	C036HP	C044HP	C054HP	C070HP	C090HP	C0105HP	C120HP	C140HP	C175HP
Cooling												
Cooling power [kW]	7.00	15.20	22.20	30.40	37.40	45.60	67.10	82.30	100.65	115.85	134.20	164.60
Power consumption [kW]	2.30	5.00	7.30	10.00	12.30	15.00	19.14	24.14	28.71	33.71	38.28	48.28
EER	3.04	3.04	3.04	3.04	3.04	3.04	3.51	3.41	3.51	3.44	3.51	3.41
SEER	6.10	6.10	6.10	6.10	6.10	6.10	6.98	6.80	6.98	6.87	6.98	6.80
Heating												
Cooling power*/Heating power** [kW]	7,30	18,20	25,50	36,40	43,70	54,60	70,10	88,30	105,30	123,50	140,20	176,60
Power consumption [kW]	2,10	5,50	7,60	11,00	13,10	16,50	14,28	19,78	21,42	26,92	28,56	39,56
COP	3,48	3,31	3,36	3,31	3,34	3,31	4,91	4,62	4,92	4,72	4,91	4,62
SCOP	4,00	4,00	4,00	4,00	4,00	4,00	4,58	4,46	4,58	4,55	4,58	4,46
Heating power [kW] T_{out} – 7°C	6,1	13,3	19,4	26,6	32,70	39,9	55,2	68,6	81,3	75,4	110,4	138,4
Heating power [kW] T_{out} – 15°C	555,5	11,9	17,4	23,8	29,30	35,7	49,8	61,8	73,2	85,9	99,5	124,7
Configuration												
Number of compressors/circuits	1/1	1/1	2/2	2/2	3/3	3/3	2/2	3/3	4/4	4/4	4/4	6/6
Refrigerant	R32						R410a					
Factor load [kg]	1.5	3.0	4.5	6.0	7.5	9.0	17.0	20.0	25.5	28.5	34.0	40.0
Adjustment steps	Smooth regulation of cooling capacity											
Electrical data												
Voltage [V]	230V/50hZ	400V/50Hz										
Maximum power [kW]	3.40	6.2	9.6	12.40	15.80	18.60	24.80	31.10	34.00	40.70	49.60	62.00
Full load current [A]	19.00	14.00	33.00	28.00	47.00	42.00	52.00	70.00	78.00	92.00	104.00	132.00
Acoustic data												
Acoustic power LWA [db]	65.00	74.00	74.00	74.00	74.00	74.00	74.00	74.00	74.00	74.00	74.00	74.00
Sound pressure at a distance of 1 m dB [A]	62.00	66.00	66.00	66.00	66.00	66.00	66.00	66.00	66.00	66.00	66.00	66.00
Weight [kg]	52.80	124.30	188.30	248.60	355,20	373.90	559.50	689.00	808.10	932.40	1119.00	1489.00

*Cooling T internal 27°C DB/19°C WB, T external 35°C DB/24°C WB

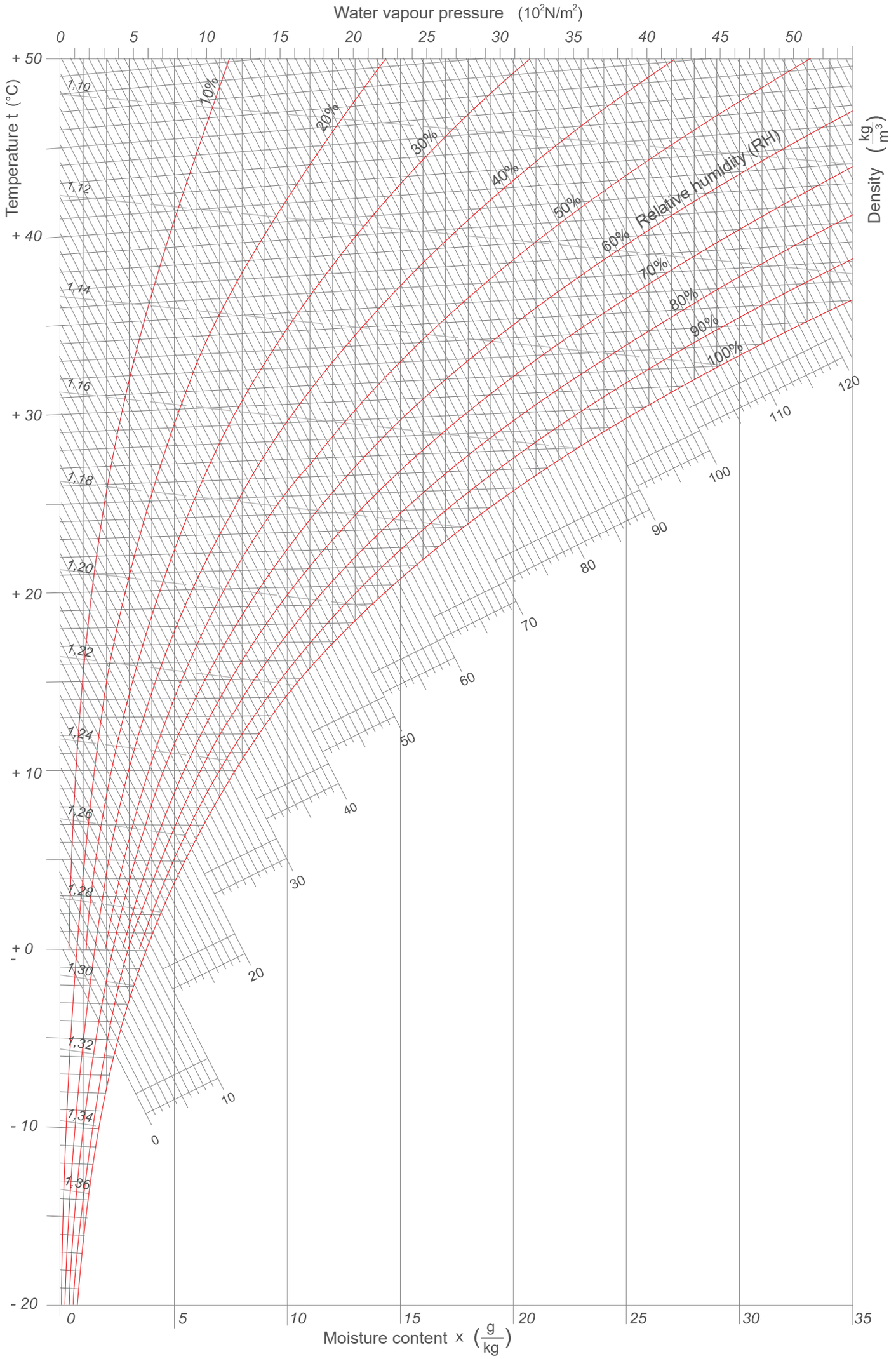
**Heating T internal 20°C DB/15°C WB, T external 7°C DB/6°C WB

*The above table is for information purposes only. To obtain data tailored to your needs, contact your Sales Representative


HVAC
Ratherm


HVAC
Ratherm


HVAC
Ratherm


Water vapour pressure (10²N/m²)
0 5 10 15 20 25 30 35 40 45 50
Temperature t (°C)
+ 50
+ 40
+ 30
+ 20
+ 10
+ 0
- 10
- 20
1,10
1,12
1,14
1,16
1,18
1,20
1,22
1,24
1,26
1,28
1,30
1,32
1,34
1,36
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Relative humidity (RH)
120
110
100
90
80
70
60
50
40
30
20
10
0
Density (kg/m³)
0 5 10 15 20 25 30 35
Moisture content x (g/kg)

MORE PRODUCTION SPACE
MORE POSSIBILITIES

NEW LOCATION

REKCIN near Gdańsk

VISIT US

HVAC Ratherm

info@ratherm.pl

www.ratherm.pl

RATHERM Sp. z o.o. ul. Kościerska 8d 83-330 Żukowo near Gdańsk