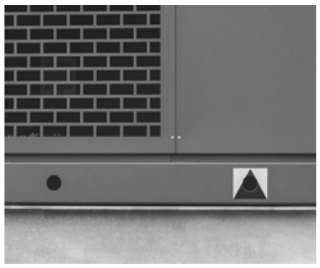











HVAC

PRODUCT GUIDE
2024

ROCCHEGGIANI®
care for air

Since 1958, a long history of passion for air conditioning in commercial, industrial and residential applications.

The product guide offers an organised collection of technical information useful for choosing the most appropriate products and solutions according to various application needs.

For further information and updates please refer to the digital documents on the website www.roccheggiani.it.

THE COMPANY

HAS BEEN DEVELOPING AND PRODUCING
INNOVATIVE HVAC&R SOLUTIONS SINCE 1958

Roccheggiani started business in the metal construction and system engineering component sectors. Thanks to the passion, commitment and intuition that has always been a part of the company, it has become market leader in the production of ducts and ventilation components, stainless steel flues, air handling units, heat recovery units and terminal units. A wide and diversified production which well represents the professional expertise of a company with a history lasting more than 60 years.

3 production units

approximately 40.000 sq.m. of production area

30 countries throughout the world

1958 year of foundation of the company

ROCCHEGGIANI®
care for air

INTERNATIONAL STANDARDS

PRODUCTS, SYSTEMS AND APPLICATIONS
A COMPANY FOCUS WHICH OFFERS VALUE
FOR THE MOST PRESTIGIOUS PROJECTS

With its significant package of regulations, Europe is the area in the world with the greatest attention paid to air conditioning and its effects on the energy and climate balance.

In the years to come, the market will see the progressive affirmation of a model based on a building-plant relationship, which will use extremely high energy performance solutions, consistent with the 2019 and 2021 deadlines provided by the Energy Performance Building Directive (EPBD - currently 2018/844/EU directive and previously the 2010/31/EU directive). With this directive, the European Union intends to give a strong boost to the production of buildings with an extremely high energy performance, minimising consumption for heating, cooling, ventilation and DHW production by using renewable-energy sources, passive heating and cooling elements, shading systems and by ensuring an adequate indoor air quality. This trend will lead to the progressive reduction of the energy demand per square metre, to a significant migration of the demand from space heating towards space cooling, to a steadily-increasing thermo-electric convergence and to the conversion of power generation from fossil fuels to renewable sources, thus promoting heat pump use in several different applications. In this context the concept of “Nearly Zero Energy Building” (NZEB) emerges. In particular, from 1 January 2019, according to the EPBD European Directive, newly-built buildings belonging to public bodies or occupied by Public Administrations must be NZEB; all other buildings must be so from 1 January 2021. By 2050, all European buildings must be de-carbonised and aligned with the NZEB level. To ensure this outcome, all Member States are required to prepare redevelopment strategies for their buildings which involve measurable progress indicators in order to verify trends in 2030 and 2040.

PRODUCTION

THE ROCCHEGGIANI APPROACH AND THE EXCELLENCE OF THE PRODUCTION INFRASTRUCTURES

Roccheggiani has always been sensitive to market changes and customer needs and has been investing in human capital and technological research for years. The aim is to manufacture increasingly innovative and qualitatively-evolved products. The company boasts a highly-qualified technical, research and development department and has modern automatic warehouses and production systems with an extremely high level of automation: production lines for profiling, extrusion, moulding, punching, robotised panelling and press-forming and laser cutting and welding. The integration between warehouses and production processes is managed through an advanced management system. These distinctive features, coupled with the technical and IT support offered to customers, have led Roccheggiani to success and meant that its brand is renowned both in Italy and overseas.

CORE VALUES

KEY WORDS: RESEARCH AND DEVELOPMENT

GOAL: QUALITY AND CUSTOMER SATISFACTION

Precision, efficiency and maximum reliability. Virtues which ensure that Roccheggiani achieves significant production and commercial performance levels. Professional expertise that was already confirmed in 1996 with the award of the UNI EN ISO 9001 Quality Management System certification and with several product certifications (MIP Consortium - Milan Polytechnic University).
In order to be competitive in the market and ensure the high quality of its products, Roccheggiani has, over the years, established a number of co-operative projects with accredited research institutes. The goal is the total customer satisfaction, obtained through continuous exchange of expertise and the constant improvement of our work procedures.

DNV-GL ISO 9001

DNV-GL ISO 14001

ACHILLES

ROCCHEGGIANI®
care for air

SOLUTIONS BY ROCCHEGGIANI

COMPLETE AND ADVANTAGEOUS SYSTEMS IN TERMS OF: QUALITY, ENERGY EFFICIENCY AND QUICK INSTALLATION.

Roccheggiani provides complete systems, taking care of their production and, upon request, of the installation of all components. The aim is to offer our customers the most appropriate solution so as to satisfy every need related to air quality and to the wellness of users in several application fields.

The Roccheggiani solutions are capable of guaranteeing excellent values in terms of Total Life Cost and they represent the best choice for those who are making investments in the construction or use of buildings.

ALL AIR SOLUTION

AIR CONDITIONING FOR MEDIUM-TO-LARGE SHARED SPACES

The ideal solution for air conditioning in medium-to-large spaces. The combination of very-high efficiency Roof Top units and high-induction micro-perforated ducts enables the handling, renewal, purification and distribution of air inside spaces, ensuring high levels of comfort.

A High-efficiency Roof Top unit in the NHE-RTU range and high-induction micro-perforated duct in the INDUTAIR range.

B High-efficiency Roof Top unit in the HE-RTU range and high-induction micro-perforated duct in the INDUTAIR range.

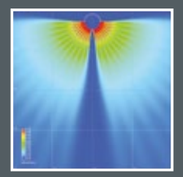
	Air handling system		Air distribution system
A	NHE-RTU 	+	INDUTAIR 
B	HE-RTU 	+	INDUTAIR 

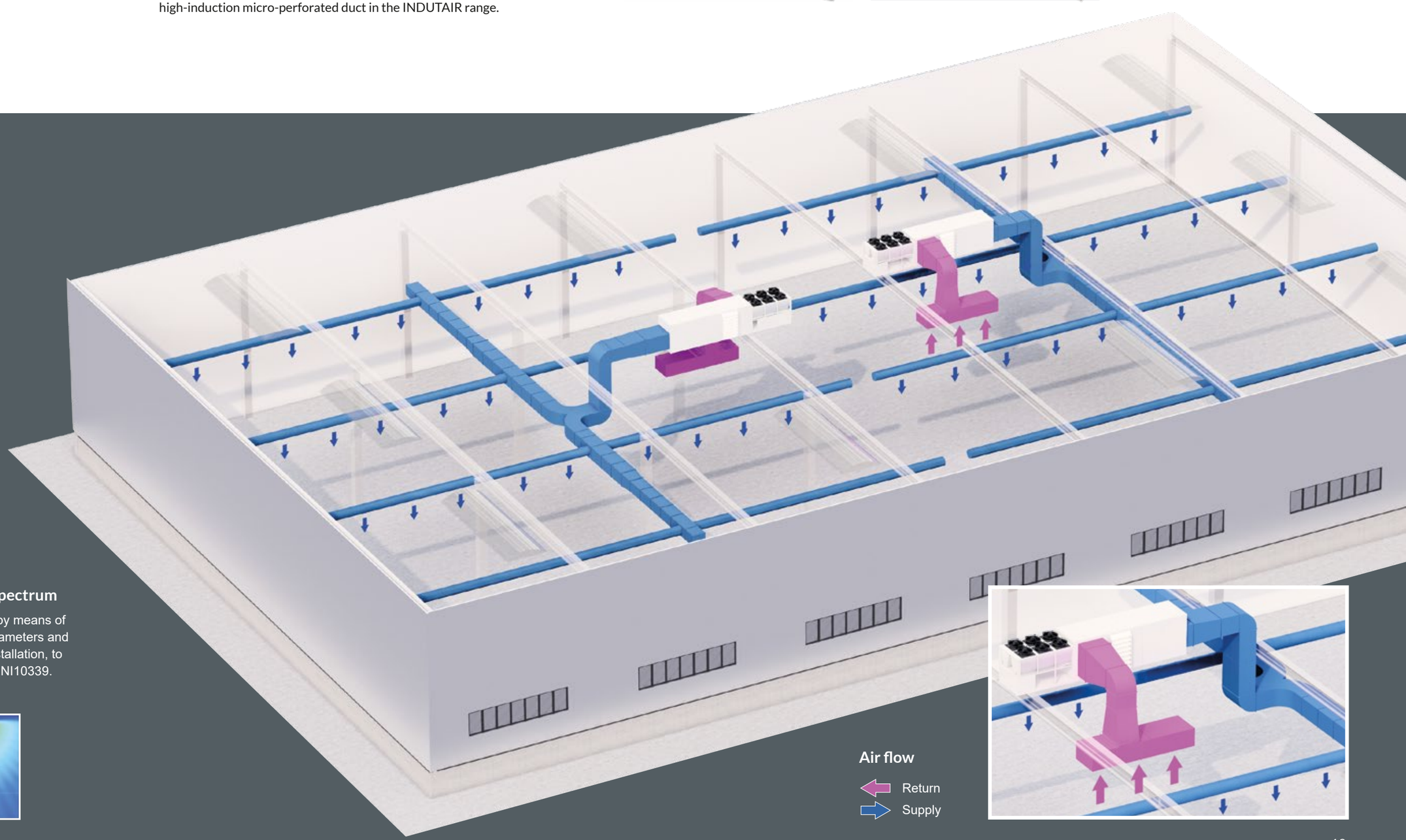
Recommended applications

- Sports facilities
- Industrial
- Airports
  Railway stations
- Tertiary sector
- Restaurants/Catering
- Supermarkets
- Medium-to-large sized shopping centres
- Cinemas/Theatres

INDUTAIR Diffusion thermal spectrum

The INDUTAIR metal ducts are sized by means of a software which identifies the ideal diameters and shapes of the holes for each single installation, to ensure comfort and compliance with UNI10339.





Air flow

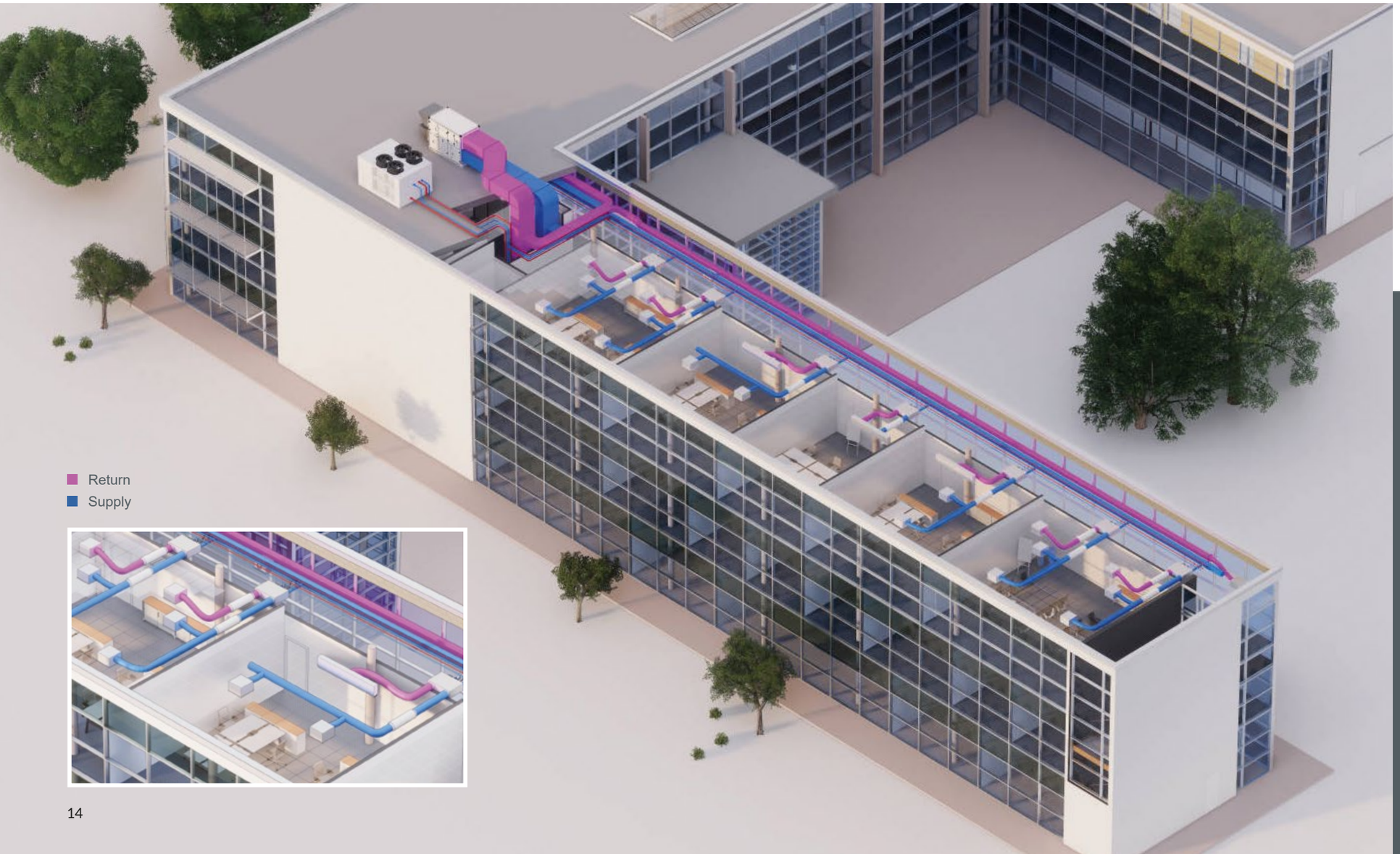
Return
Supply

HIGH EFFICIENCY HYDRONIC SOLUTION WITH FAN COIL TCU TERMINAL UNITS

AIR CONDITIONING FOR INDEPENDENT INDIVIDUAL SPACES

The ideal solution for air conditioning in offices. The system consists of an heat pump unit for the generation of hot and cold fluids, a heat recovery unit with a control system on board the machine, capable of renewing the air required by the structure and by the TCU ductable terminal units which ensure heat regulation inside the rooms.

The compactness, silent operation, the high static pressure available and the high air flow are all features that make the TCU ductable terminal unit particularly suitable for office applications.



ROCCHEGGIANI® care for air
SOLUTIONS
HIGH EFFICIENCY HYDRONIC SOLUTION WITH FAN COIL TCU TERMINAL UNITS

	System for the generation of hot and cold fluids		Primary air handling system		Air handling and distribution system
A	NRE-HDP	+	RRU	+	TCU
B	NRE-HDP	+	HE-HRU	+	TCU
C	NRE-HDP	+	HRU	+	TCU

Three system proposals:

A The System includes an heat pump unit from the NRE-HDP range, a high-efficiency heat-recovery unit from the RRU range and the terminal air handling unit from the TCU range.

B The System includes an heat pump unit from the NRE-HDP range, a high-efficiency heat-recovery unit from the HE-HRU range and a terminal air handling unit from the TCU range.

C The System includes an heat pump unit from the NRE-HDP range, a high-efficiency heat-recovery unit from the HRU range and a terminal air handling unit from the TCU range.

Recommended applications

- Schools and Colleges
- Tertiary sector
- Offices
- Shops
- Hotels
- Wellness centers
- Nursing homes
- Medium-to-large sized shopping centres
- Multifamily housing

Any type of diffuser connected to the TCU unit by means of thermally and acoustically-isolated flexible ducts can be used for the supply and return air sections. We recommend using a diffuser from the DER range (supply) and the DIF range (return).

VERY-HIGH EFFICIENCY HYDRONIC SOLUTION WITH CHILLED BEAMS

AIR CONDITIONING FOR INDEPENDENT INDIVIDUAL SPACES

The ideal solution for cooling, heating and air exchange inside divided or open-space offices.

The system includes: the multi-purpose unit from the NRE-MPU range, for the generation of hot and cold fluids, the integrated air handling unit of the RRU-FA range, and chilled beams from the TFS2/TFS2-L range (for false ceiling installation) or TFP1 (for wall installation) as room terminal.

The proposed solution provides the best in comfort, optimises heat and cold generation according to specific needs and ensures maximum overall energy efficiency. The temperature of each room can be managed autonomously and independently using the control panel.

Recommended applications

- Schools and Colleges
- Offices
- Hotels
- Nursing homes
- Medium-to-large sized shopping centres
- Multifamily housing

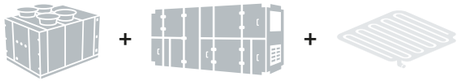
The air handling unit is the motor behind the chilled-beam system. It provides air renewal inside the spaces while guaranteeing correct humidity values.

ROCCHEGGIANI® care for air
SOLUTIONS
VERY-HIGH EFFICIENCY HYDRONIC SOLUTION WITH CHILLED BEAMS

	System for the generation of hot and cold fluids		Primary air handling system		Air handling and distribution system
A	NRE-MPU	+	RRU-FA	+	TFS2
B	NRE-MPU	+	RRU-FA	+	TFI
C	NRE-MPU	+	RRU-FA	+	TFP1

HIGH EFFICIENCY HYDRONIC SOLUTION WITH RADIANT TERMINAL UNITS

AIR CONDITIONING FOR INDEPENDENT INDIVIDUAL SPACES



The ideal solution for cooling, heating and air exchange inside divided or open-space offices.

The system includes: the multi-purpose unit from the NRE-MPU range for the generation of hot and cold fluids, the integrated air handling unit from the RRU-FA range and the radiant system as room terminal unit.

The proposed solution guarantees best in comfort, low energy consumption and ensures low noise levels and perfect integration with the architecture of the interior thanks to the radiant system.

Recommended applications

- Schools and Colleges
- Offices
- Hotels
- Nursing homes
- Medium-to-large sized shopping centres
- Multifamily housing

The air handling unit provides air renewal inside the rooms while guaranteeing correct humidity values.

ROCCHEGGIANI® care for air
SOLUTIONS
HIGH EFFICIENCY HYDRONIC SOLUTION WITH RADIANT TERMINAL UNITS

Generation of the hot and cold fluids

NRE-MPU

+

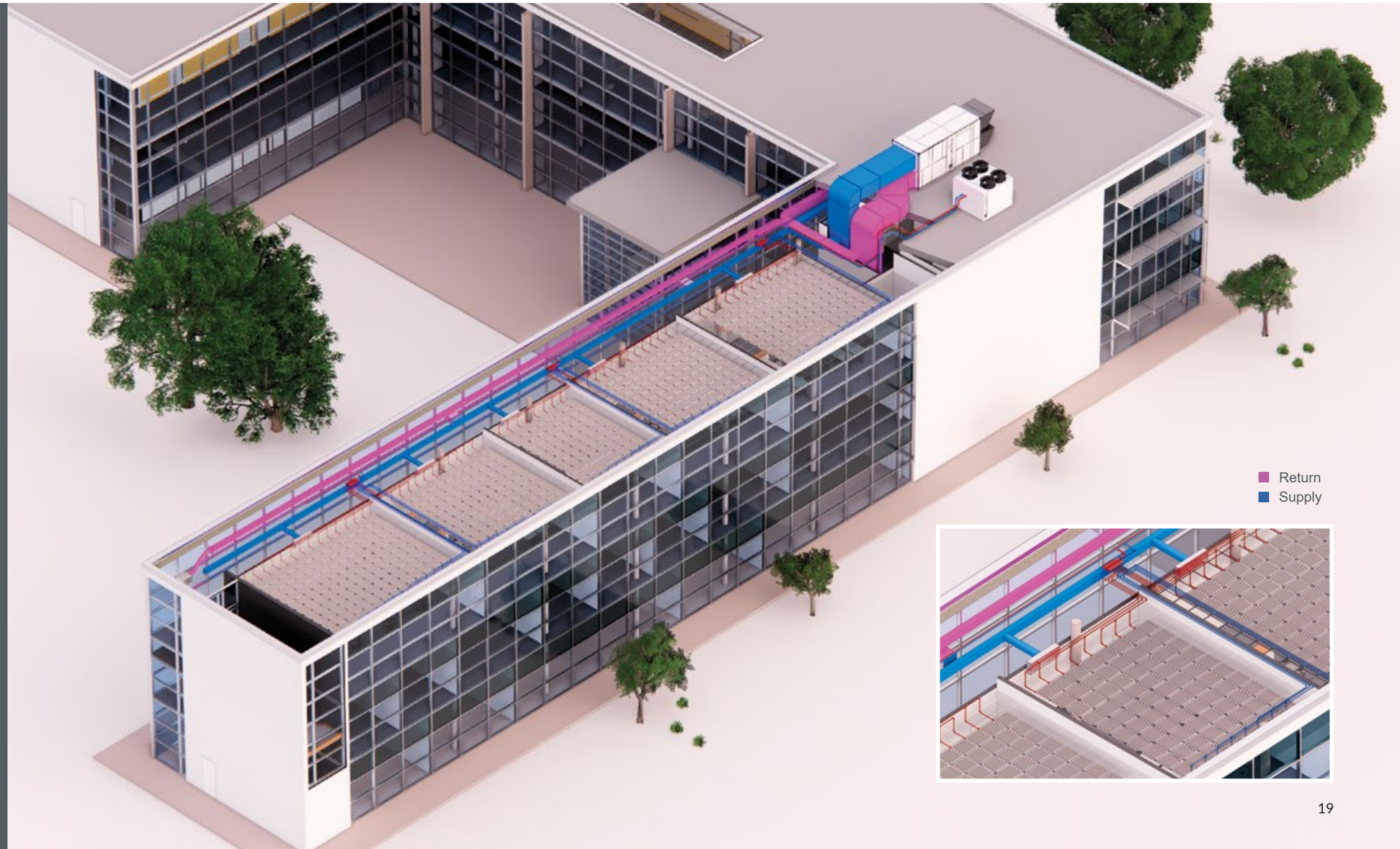
Primary air handling system

RRU-FA

+

Modular radiant system

RADIANT TERMINAL UNIT



ROCCHEGGIANI®
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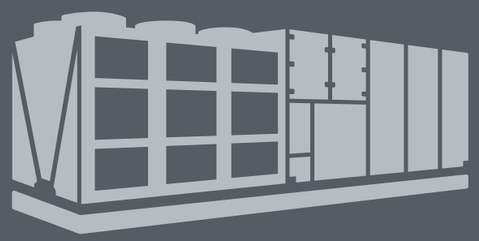
Roof top packaged air conditioning systems



NHE-RTU INVERTER

HIGH-EFFICIENCY ROOF TOP UNITS

- Air-to-Air type heat pump
- Nominal air flows from 9.000 to 20.000 m³/h
- Cooling capacities from 50 to 114 kW
- Heating capacities from 52 to 120 kW

ErP 2021 COMPLIANT

BIM READY

R410A

R452B

R454B

The high efficiency Roof Top Inverter units in the NHE-RTU range by Roccheggiani are designed (based on their chosen configuration and accessories) to guarantee the handling, renewal and purification of air inside buildings, especially in small and medium service applications, where an air system is likely to be the best solution for quick installation and commissioning and engineering simplicity.

New energy regulations pose a variety of challenges to air conditioning systems used over an annual cycle, that are increasingly based on the use of heat pumps, and may provide opportunities for improved comfort while reducing running costs, thanks to the use of variable speed technologies. These come in addition to an increasingly pressing approach focusing on reduced energy consumption as a component in new, more efficient small service facilities. Compared to the use of non-inverter Roof Top units, the NHE-RTU Inverter units make it much easier to satisfy current energy standards and also provide numerous other advantages for both the owner and the user of the system.

The NHE-RTU Inverter units by Roccheggiani offer benefits such as precision in the generation and use of heating and cooling power, low energy use when they are switched on and general energy efficiency. These units are also fitted with specifically-designed features for small service applications, offering a high quality solution which enables ample exploitation of renewable energy heat pump technology and the intelligent use of free cooling, a standard feature on all NHE-RTU Inverter units equipped with air discharge and renewal sections.
These characteristics make the high-efficiency Roof Top units in the NHE-RTU range by Roccheggiani an efficient and “cost effective” solution in terms of the system's service life.

Download the technical bulletin

VERSIONS

3 versions	
RO	Full recirculation version
RF	Version with mixing box fitted with 2 dampers and fresh air intake for 50% of the nominal flow rate
RFE/RTA	Version with mixing box fitted with 3 dampers and fresh air intake/active thermodynamic recovery for 100% of the nominal flow rate
Free Cooling	
RO	Not included
RF	Fitted with sensitive and enthalpy types, up to a maximum of 50% of nominal capacity
RFE/RTA	Fitted with sensitive and enthalpy types, up to 100% of nominal flow rate

ACCESSORIES

- Summer hot-gas reheating coil with 1 row
- Supplementary hot-water heating coil with 2 rows (provided by external generator)
- 3-way valve (accessory for optional supplementary hot-water heating coil)
- Optional supplementary electric heating coil
- Optional protection for the heat exchange coils
- Optional supplementary heating module with gas combustion hot-air generator

APPLICATIONS

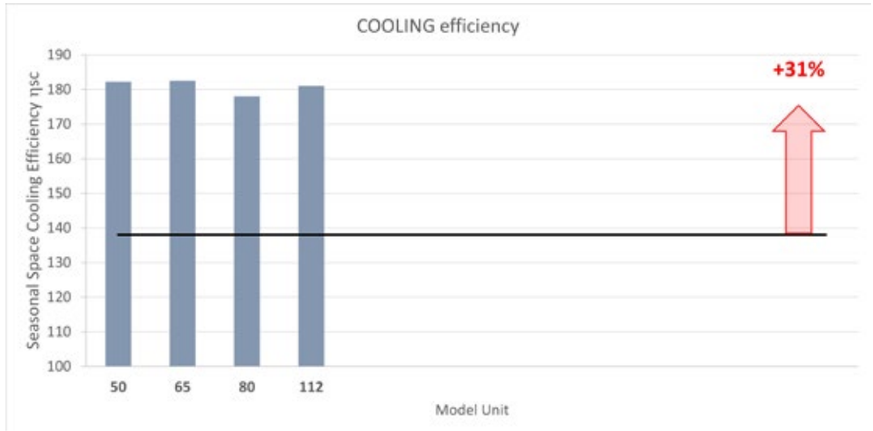
- Industrial
- Tertiary
- Restaurants
- Sports facilities
- Wellness centres
- Supermarkets
- Shops
- Medium-to-large sized shopping centres

ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU INVERTER

NHE-RTU Inverter: the range was developed, already in line with the rigorous ERP 2021 standards

The high-efficiency Roof Top units in the NHE-RTU Inverter range are units designed (based on the chosen configuration and accessories) to guarantee the handling, renewal and purification of air inside buildings and stand apart from a large number of similar products on the market due to their particularly high energy-efficiency levels.

The range was in fact designed with a particular focus on energy efficiency and its values for Minimum Energy Performance Standards under the ECODESIGN Regulation (EU) No. 2016/2281 - ENER LOT 21, not only meet the TIER 1 performance requirements of 01/01/2018, but also the more stringent levels established by TIER 2, which will come into force on 01/01/2021.



Values for Minimum Seasonal Energy Performance Standards under the ECODESIGN Regulation (EU) No. 2016/2281 - ENER LOT 21 for the Roof Top category and ranking of the RO version in the NHE-RTU Inverter range.

Right from the initial conception phase, the focus on energy efficiency was the guiding force behind the overall design of the unit and the selection of components: highly-efficient fans, generous sizing of heat exchange surfaces, maximum exploitation of heat pump technology, thermodynamic and enthalpy recovery systems and free cooling.

All these elements ensured the creation of a range with seasonal energy efficiency values well above the standards required by ErP 2021.

This aspect is undoubtedly crucially important for designers whose main aim is to offer their customers solutions that look ahead to meet the future higher standards and that surpass today's ErP 2018 solutions by an average of +24% to +56% in terms of obtainable energy efficiency.

Air handling section components

The air handling section manages filtration, heating and cooling and summer reheating with hot gas (or alternatively reheating with water), air intake from the rooms, the fresh air intake, the air discharge outlet and ventilation.

While the part for heating, cooling, summer reheating with hot gas (or alternatively reheating with water) and supply ventilation are more or less the same in all 5 versions (RO – RF – RFE/RTA), the sections for air intake from the rooms, fresh air intake and air discharge outlets can have significantly different configurations according to the various versions described below.

RO Version
(Only recirculation)

Air intake in air-conditioned space (R1 - R2 - R3)

The air handling section includes an air return inlet that recaptures the air from the air-conditioned rooms via suitable connections with the air ducts.
The RO version features total recirculation and so it is fitted with only one air intake hole on the side (R2 - R3 model 80-112) or at the bottom (R1 model 80-112) or in the front part (R1 model 50-65).
The units are fitted with variable-speed fans for calibrating the air flow from the air-conditioned rooms, so no damper is needed. If one was required, it can be supplied as an accessory.

RF Version
(Mixing box fitted with 2 dampers - free cooling max 50%)

Air intake in air-conditioned space (R1 - R2)

The air handling section includes a return section that recaptures the air from the air-conditioned rooms through suitable air ducting connections, via the bottom part of the unit (R1 model 80-112), on the side (R2 model 80-112) or in the front part (R1 model 50-65).
There is no need for a damper for the calibration of the air flow from the air-conditioned rooms, as the units are provided with variable-speed fans. If one was required, it can be supplied as an accessory.

Fresh air intake (P.A.E.)

This section has a fresh air intake (P.A.E.), fitted with an aluminium damper and a large-pitch rain-proof grille, which allows the unit to suck in up to 50% of the nominal air flow from the outside.
The fresh air intake damper is equipped with a servo-motor to control the air flow and, in combination with the fan control, can provide free cooling to up to 50% of the total supply air flow.
For the RF version it is possible to invert the side of the external air intake (P.A.E.) and of the lateral intake (R3).

RFE / RTA Version
(Return fans, mixing box fitted with 3 dampers, active thermodynamic recovery - free cooling max 100%)

Air intake in air-conditioned space (R1 - R3)

The air handling section includes a return section that recaptures the air from the air-conditioned rooms through suitable air ducting connections, via the side part of the unit (R3 model 80-112) or in the front part (R1 model 50-65).
There is no need for a damper for the calibration of the air flow from the air-conditioned space, as the units are provided with variable-speed fans, also in the air discharge fan section. If one was required, it can be supplied as an accessory.

Fresh air intake (P.A.E.)

This air intake section has a fresh air intake (P.A.E-), fitted with an aluminium damper and large-pitch rain-proof grille, which allows up to 100% of the nominal air flow to be sucked in from the outside.
The fresh air intake damper is equipped with a servo-motor to control the air flow and, in combination with the fan control, can provide free cooling to up to 100% of the total supply air flow.

Air discharge (EXP)

The discharge of waste air from the rooms (EXP) is fitted with an aluminium damper and enables the air, up to 100% of the nominal air flow, to be discharged outside the unit near the external (condensing – evaporating) heating and cooling generator section so as to take advantage of the energy content in the waste air, through the active thermodynamic recovery system.

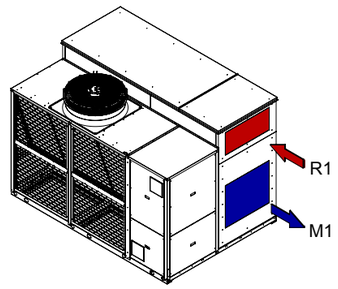
ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU INVERTER

Possible directions and positions of the air distribution connections according to the various versions

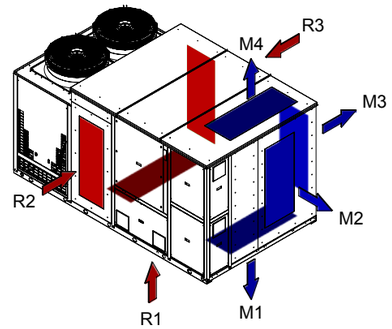
The use of Plug-Fan type fans affords great flexibility in the choice of the position of the supply inlet grille on the unit, which can be on the side, at the front or at the bottom on all versions.

RO Version
(Only recirculation)

MODEL 50-65

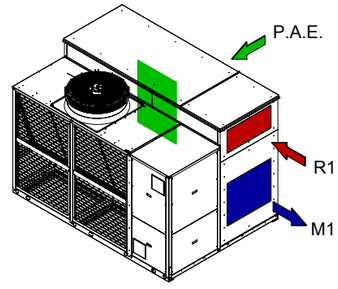


MODEL 80-112

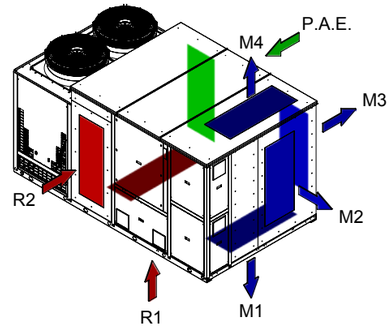


RF Version
(Mixing box fitted with 2 dampers - free cooling max 50%)

MODEL 50-65

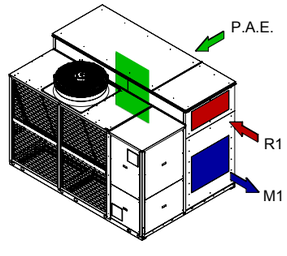


MODEL 80-112

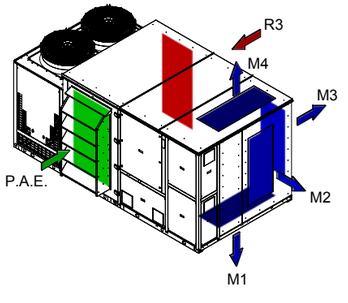


RFE / RTA Version
(Return fans, mixing box fitted with 3 dampers, active thermodynamic recovery - free cooling max 100%)

MODEL 50-65



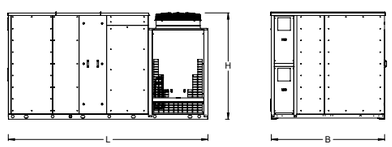
MODEL 80-112



SUPPLY RETURN FRESH AIR

General technical specifications - RO Version

Model NHE-RTU Inverter			50	65	80	112
Version			RO	RO	RO	RO
Free Cooling			-	-	-	-
Active Thermodynamic Heat Recovery (RTA)			-	-	-	-
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance						
Total Cooling Capacity	(1) (2)	kW	50.08	63.57	84.22	113.87
Sensible Cooling Capacity	(1) (2)	kW	37.47	46.93	63.79	85.15
Absorbed power	(1) (2)	kW	12.02	16.93	18.49	30.64
EER Compressors only	(1) (2) (3)		4.17	3.75	4.55	3.72
SEER Seasonal Energy Efficiency Ratio	(4)		4.63	4.64	4.53	4.59
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182	183	178	181
Energy Efficiency Class			A	A	A	A
Total Heating Capacity	(7) (8)	kW	51.78	66.18	84.91	119.7
Absorbed power	(7) (8)	kW	11.13	14.29	17.35	27.72
COP Compressor only	(7) (8) (9)		4.7	4.6	4.9	4.3
SCOP Seasonal Coefficient of Performance	(4)		3.46	3.53	3.46	3.61
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	138	135	141
Bivalent Temperature	(5)	° C	-7.0	-7.0	-7.0	-7.0
Energy Efficiency Class			A+	A+	A+	A+
Reheating						
Total Heating Capacity	(10)	kW	19.9	25.0	32.8	43.7
Fans						
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	1	1	2	2
Airflow		m^3/h	9000	12000	15000	20000
Supply fan section (High static pressure)						
Supply Fan Motor Rating		kW	5.0	5.0	4.5	5.0
Supply Fan Nominal Current		A	7.7	7.7	6.8	7.7
External Static Pressure	(11)	Pa	660	490	740	570
Supply fan section (Low static pressure)						
Supply Fan Motor Rating		kW	3.5	4.4	2.9	4.2
Supply Fan Nominal Current		A	5.3	6.6	4.5	6.4
External Static Pressure	(11)	Pa	350	300	320	370
External Fan Section (Condensing- Evaporating)						
Fan Type			Axial	Axial	Axial	Axial
Fan Quantity		no.	1	1	2	2
Airflow		m^3/h	22825	22825	24000	24000
Single fan Airflow		kW	2.56	2.56	2.56	2.56
Single fan nominal current		A	3.9	3.9	3.9	3.9
Compressors						
Compressor			Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	1	1	2	2
Modulation Control			Inverter	Inverter	Inverter	Inverter
Refrigeration Circuit		no.	1	1	2	2
Compressor per Circuit		no.	1	1	1	1
Capacity step		no.	30-100%	30-100%	30-100%	30-100%
Refrigerant			R410A	R410A	R410A	R410A
Dimensions						
Length (L)	(L)	mm	3200	3200	3950	3950
Height	(H)	mm	2200	2200	2100	2100
Width	(B)	mm	2240	2240	2240	2240
Transport and operating weight of standard unit		kg	1700	1700	1950	1950

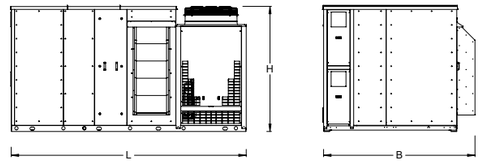


NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU INVERTER

General technical specifications - RF Version

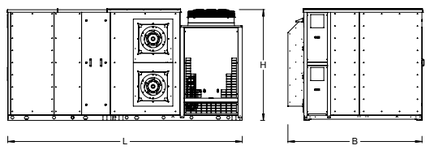
Model NHE-RTU Inverter			50	65	80	112
Version			RF	RF	RF	RF
Free Cooling			50%	50%	50%	50%
Active Thermodynamic Heat Recovery (RTA)			-	-	-	-
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance						
Total Cooling Capacity	(1) (2)	kW	52.76	66.87	88.63	119.8
Sensible Cooling Capacity	(1) (2)	kW	39.66	49.65	67.47	90.05
Absorbed power	(1) (2)	kW	12.13	17.15	18.58	31
EER Compressors only	(1) (2) (3)		4.35	3.90	4.77	3.86
SEER Seasonal Energy Efficiency Ratio	(4)		4.63	4.64	4.53	4.59
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182.2	182.5	178.2	180.8
Energy Efficiency Class			A	A	A	A
Total Heating Capacity	(7) (8)	kW	52.48	66.91	86.03	121.07
Absorbed power	(7) (8)	kW	10.35	13.24	16.12	25.77
COP Compressor only	(7) (8) (9)		5.07	5.05	5.34	4.70
SCOP Seasonal Coefficient of Performance	(4)		3.46	3.53	3.46	3.61
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	138	135	141
Bivalent Temperature	(5)	° C	-7.0	-7.0	-7.0	-7.0
Energy Efficiency Class			A+	A+	A+	A+
Reheating						
Total Heating Capacity	(10)	kW	19.9	25.0	32.8	43.7
Fans						
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	1	1	2	2
Airflow		m^3/h	9000	12000	15000	20000
Supply fan section (High static pressure)						
Supply Fan Motor Rating		kW	5.0	5.0	4.5	5.0
Return Fan Nominal Current		A	7.7	7.7	6.8	7.7
External Static Pressure	(11)	Pa	660	490	740	570
Supply fan section (Low static pressure)						
Supply Fan Motor Rating		kW	3.5	4.4	2.9	4.2
Return Fan Nominal Current		A	5.3	6.6	4.5	6.4
External Static Pressure	(11)	Pa	350	300	320	370
Fresh air intake						
Airflow		m^3/h	4500	6000	7500	10000
External Fan Section (Condensing- Evaporating)						
Fan Type			Axial	Axial	Axial	Axial
Fan Quantity		no.	1	1	2	2
Airflow		m^3/h	22825	22825	24000	24000
Single fan Airflow		kW	2.56	2.56	2.56	2.56
Single fan nominal current		A	3.9	3.9	3.9	3.9
Compressors						
Compressor			Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	1	1	2	2
Modulation Control			Inverter	Inverter	Inverter	Inverter
Refrigeration Circuit		no.	1	1	2	2
Compressor per Circuit		no.	1	1	1	1
Capacity step		no.	30-100%	30-100%	30-100%	30-100%
Refrigerant			R410A	R410A	R410A	R410A
Dimensions						
Length (L)	(L)	mm	3200	3200	3950	3950
Height	(H)	mm	2200	2200	2100	2100
Width	(B)	mm	2240	2240	2238	2238
Transport and operating weight of standard unit		kg	1700	1700	1975	1975



NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Fresh Air 30%; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

General technical specifications - RFE/RTA Version

Model NHE-RTU Inverter			50	65	80	112
Version			RFE/RTA	RFE/RTA	RFE/RTA	RFE/RTA
Free Cooling			100%	100%	100%	100%
Active Thermodynamic Heat Recovery (RTA)			Included	Included	Included	Included
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance						
Total Cooling Capacity	(1) (2)	kW	53.1	67.4	89.2	120.8
Sensible Cooling Capacity	(1) (2)	kW	39.8	49.8	67.7	90.4
Absorbed power	(1) (2)	kW	11.9	16.9	18.3	30.5
EER Compressors only	(1) (2) (3)		4.45	4	4.87	3.97
SEER Seasonal Energy Efficiency Ratio	(4)		4.63	4.64	4.53	4.59
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182	183	178	181
Energy Efficiency Class			A	A	A	A
Total Heating Capacity	(7) (8)	kW	53.4	68.2	87.5	123.9
Absorbed power	(7) (8)	kW	10.4	13.4	16.2	26.1
COP Compressor only	(7) (8) (9)		5.12	5.10	5.40	4.75
SCOP Seasonal Coefficient of Performance	(4)		3.46	3.53	3.46	3.61
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	138	135	141
Bivalent Temperature	(5)	°C	-7.0	-7.0	-7.0	-7.0
Energy Efficiency Class			A+	A+	A+	A+
Reheating						
Total Heating Capacity	(10)	kW	19.9	25.0	32.8	43.7
Fans						
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	1	1	2	2
Airflow		m^3/h	9000	12000	15000	20000
Supply fan section (High static pressure)						
Supply Fan Motor Rating		kW	4.4	4.4	3.3	3.3
Supply Fan Nominal Current		A	6.6	6.6	5.1	5.1
External Static Pressure	(11)	Pa	750	540	580	480
Supply fan section (Low static pressure)						
Supply Fan Motor Rating		kW	3.5	4.4	2.9	4.2
Supply Fan Nominal Current		A	5.30	6.60	4.50	6.40
External Static Pressure	(11)	Pa	350	300	320	370
Fresh air intake						
Airflow		m^3/h	9000	12000	15000	20000
External Fan Section (Condensing- Evaporating)						
Fan Type			Axial EC	Axial EC	Axial EC	Axial EC
Fan Quantity		no.	1	1	2	2
Airflow		m^3/h	22825	22825	24000	24000
Single fan Airflow		kW	2.56	2.56	2.56	2.56
Single fan nominal current		A	3.9	3.9	3.9	3.9
Compressors						
Compressor			Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	1	1	2	2
Modulation Control			Inverter	Inverter	Inverter	Inverter
Refrigeration Circuit		no.	1	1	2	2
Compressor per Circuit		no.	1	1	1	1
Capacity step		no.	30-100%	30-100%	30-100%	30-100%
Refrigerant			R410A	R410A	R410A	R410A
Dimensions						
Length (L)	(L)	mm	3200	3200	4450	4450
Height	(H)	mm	2200	2200	2100	2100
Width	(B)	mm	2240	2240	2240	2240
Transport and operating weight of standard unit		kg	1800	1800	2158	2158



NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Fresh Air 30%; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU INVERTER

General technical specifications calculated with Gas R452B

R452B is a zeotropic mixture, that does not harm the ozone layer, developed as an alternative to the reduced GWP of R410A in air-conditioning and heating applications, in heat pump mode in volumetric displacement systems. A basic feature of R452B is the 67% reduction of GWP, with comparable efficiency and capacity to R410A.

RO Version

Model NHE-RTU			50	65	80	112
Performance-R452B						
Total Cooling Capacity	(1) (2)	kW	48.6	62.6	82.7	110.9
Sensible Cooling Capacity	(1) (2)	kW	37.6	48.9	64.2	85.1
Absorbed power	(1) (2)	kW	11.4	16.0	21.4	32.2
EER Compressors only	(1) (2) (3)		4.25	3.92	3.87	3.44
SEER Seasonal Energy Efficiency Ratio	(4)		4.27	4.05	3.81	3.80
ηs,c Seasonal Space Cooling Efficiency	(5)	%	167.7	158.8	149.5	148.9
Energy Efficiency Class			A	A	A	A
Total Heating Capacity	(7) (8)	kW	47.1	62.4	83.9	117.7
Absorbed power	(7) (8)	kW	9.3	13.1	18.3	28.7
COP Compressor only	(7) (8) (9)		5.09	4.75	4.58	4.11
SCOP Seasonal Coefficient of Performance	(4)		3.76	3.95	3.42	3.50
ηs,h Seasonal Space Heating Efficiency	(5)	%	147.0	155.0	134.0	137.0
Bivalent Temperature	(5)	°C	-7	-7	-7	-7
Energy Efficiency Class			A+	A++	A+	A++
Reheating R452B						
Total Heating Capacity	(10)	kW	14.6	18.8	24.8	33.3

RF Version

Performance-R452B						
Total Cooling Capacity	(1) (12)	kW	53.1	68.0	86.8	116.1
Sensible Cooling Capacity	(1) (12)	kW	40.4	52.3	67.3	89.0
Absorbed power	(1) (12)	kW	12.6	17.4	21.9	32.8
EER Compressors only	(1) (12) (3)		4.23	3.90	3.97	3.54
SEER Seasonal Energy Efficiency Ratio	(4)		4.27	4.05	3.81	3.80
ηs,c Seasonal Space Cooling Efficiency	(5)	%	167.7	158.8	149.5	148.9
Energy Efficiency Class			A	A	A	A
Total Heating Capacity	(7) (12)	kW	49.8	66.0	84.7	119.1
Absorbed power	(7) (12)	kW	9.4	13.3	17.2	26.8
COP Compressor only	(7) (12) (9)		5.30	4.98	4.93	4.44
SCOP Seasonal Coefficient of Performance	(4)		3.76	3.95	3.42	3.50
ηs,h Seasonal Space Heating Efficiency	(5)	%	147.0	155.0	134.0	137.0
Bivalent Temperature	(5)	°C	-7	-7	-7	-7
Energy Efficiency Class			A+	A++	A+	A++
Reheating						
Total Heating Capacity	(10)	kW	15.9	20.4	26.0	34.8

RFE/RTA Version

Performance-R452B						
Total Cooling Capacity	(1) (2)	kW	53.3	68.4	87.2	116.8
Sensible Cooling Capacity	(1) (2)	kW	40.4	52.5	67.5	89.3
Absorbed power	(1) (2)	kW	12.4	17.2	21.6	32.3
EER Compressors only	(1) (2) (3)		4.30	3.98	4.04	3.61
SEER Seasonal Energy Efficiency Ratio	(4)		4.27	4.05	3.81	3.80
ηs,c Seasonal Space Cooling Efficiency	(5)	%	167.7	158.8	149.5	148.9
Energy Efficiency Class	(6)		A	A	A	A
Total Heating Capacity	(7) (8)	kW	50.8	67.3	86.3	121.3
Absorbed power	(7) (8)	kW	9.5	13.4	17.3	27.1
COP Compressor only	(7) (8) (9)		5.36	5.03	4.98	4.48
SCOP Seasonal Coefficient of Performance	(4)		3.76	3.95	3.42	3.50
ηs,h Seasonal Space Heating Efficiency	(5)	%	147.0	155.0	134.0	137.0
Bivalent Temperature	(5)	°C	-7	-7	-7	-7
Energy Efficiency Class			A+	A++	A+	A++
Reheating R452B						
Total Heating Capacity	(10)	kW	16.0	20.5	26.2	35.0

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

General technical specifications calculated with Gas R454B

R454B is a zeotropic mixture, that does not harm the ozone layer, developed as an alternative to the reduced GWP of R410A in air-conditioning and heating applications, in heat pump mode in volumetric displacement systems. A basic feature of R454B is the 78% reduction of GWP, with comparable efficiency and capacity to R410A.

Model NHE-RTU			50	65	80	112
RO Version						
Performance-R454B						
Total Cooling Capacity	(1) (2)	kW	50.1	63.6	84.2	112.0
Sensible Cooling Capacity	(1) (2)	kW	38.3	49.4	64.9	85.6
Absorbed power	(1) (2)	kW	13.7	15.6	23.8	32.5
EER Compressors only	(1) (2) (3)		3.67	4.07	3.53	3.45
SEER Seasonal Energy Efficiency Ratio	(4)		3.60	3.79	3.61	4.91
ηs,c Seasonal Space Cooling Efficiency	(5)	%	140.5	148.0	141.0	191.8
Energy Efficiency Class			A	A	n.a	n.a
Total Heating Capacity	(7) (8)	kW	50.8	63.0	87.8	118.5
Absorbed power	(7) (8)	kW	11.9	13.5	21.7	29.4
COP Compressor only	(7) (8) (9)		4.25	4.68	4.05	4.04
SCOP Seasonal Coefficient of Performance	(4)		3.41	3.38	3.41	4.15
ηs,h Seasonal Space Heating Efficiency	(5)	%	133.0	132.0	133.0	162.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A++
Reheating R454B						
Total Heating Capacity	(10)	kW	15.0	19.1	25.3	33.6
RF Version						
Performance-R454B						
Total Cooling Capacity	(1) (12)	kW	52.6	66.6	88.4	117.1
Sensible Cooling Capacity	(1) (12)	kW	40.1	51.5	67.8	96.4
Absorbed power	(1) (12)	kW	13.9	15.9	24.2	31.6
EER Compressors only	(1) (12) (3)		3.79	4.19	3.66	3.71
SEER Seasonal Energy Efficiency Ratio	(4)		3.60	3.79	3.61	4.97
ηs,c Seasonal Space Cooling Efficiency	(5)	%	140.5	148.0	141.0	194.0
Energy Efficiency Class			A	A	A	A
Total Heating Capacity	(7) (12)	kW	51.0	63.2	88.3	119.3
Absorbed power	(7) (12)	kW	11.2	12.7	20.6	27.5
COP Compressor only	(7) (12) (9)		4.54	4.99	4.29	4.34
SCOP Seasonal Coefficient of Performance	(4)		3.41	3.38	3.41	4.28
ηs,h Seasonal Space Heating Efficiency	(5)	%	133.0	132.0	133.0	167.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A++
Reheating						
Total Heating Capacity	(10)	kW	15.0	19.1	25.3	33.6
RFE/RTA Version						
Performance-R454B						
Total Cooling Capacity	(1) (2)	kW	52.8	66.8	88.6	117.6
Sensible Cooling Capacity	(1) (2)	kW	40.2	51.6	67.9	96.6
Absorbed power	(1) (2)	kW	13.8	15.7	24.0	31.2
EER Compressors only	(1) (2) (3)		3.82	4.26	3.69	3.77
SEER Seasonal Energy Efficiency Ratio	(4)		3.60	3.79	3.61	4.97
ηs,c Seasonal Space Cooling Efficiency	(5)	%	140.5	148.0	141.0	194.0
Energy Efficiency Class	(6)		A	A	A	A
Total Heating Capacity	(7) (12)	kW	51.8	64.6	89.4	121.0
Absorbed power	(7) (12)	kW	11.3	12.7	20.7	27.7
COP Compressor only	(7) (12) (9)		4.57	5.10	4.32	4.37
SCOP Seasonal Coefficient of Performance	(4)		3.41	3.38	3.41	4.28
ηs,h Seasonal Space Heating Efficiency	(5)	%	133.0	132.0	133.0	167.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A++
Reheating R454B						
Total Heating Capacity	(10)	kW	15.0	19.1	25.3	33.6

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

NHE-RTU

HIGH-EFFICIENCY ROOF TOP UNITS

- Air-to-Air type heat pump
- Air flows from 26.000 to 66.000 m³/h
- Cooling Capacities from 146 to 411 kW
- Heating Capacities from 145 to 402 kW

ErP 2021 COMPLIANT

BIM READY

R410A

R454B

R452B

Download the technical bulletin

The high-efficiency Roof Top units in the NHE-RTU range by Roccheggiani are designed to guarantee the handling, renewal and purification of air inside buildings and are particularly suited for use in large production, storage and distribution areas in industry and in the tertiary sector.
The high-efficiency Roof Top Units in the NHE-RTU range are packaged units, designed to be installed outdoors (typically on the roof) and use heat pump technology enabling the units to be compact and highly efficient. The NHE-RTU range is highly effective in the way it exploits free cooling (also available for 100% of the treated air flow) and also heat recovery through two separate technologies: active thermodynamic recovery and sensitive and latent heat recovery through a high-efficiency enthalpy wheel.
Thanks to all these solutions, the high-efficiency Roof Top units ensure high seasonal energy efficiency also at partial loads, with performances that contribute towards achieving the best energy classification levels in the building where they are installed. Upon request the units can be supplied together with a “Product Compliance Report”, to assist the heating engineer, architectural designer or facility manager, in understanding the contribution provided by the NHE-RTU units in terms of certification points for the major world protocols in the field of Green Buildings (LEED®, BREEAM®, Home Quality Mark®, Estidama®, HK Beam Plus®, etc.).
The Roccheggiani Roof Top units are manufactured in compliance with the UNI EN 12100 standard and the CE marking directives, following an ISO 9001-certified quality assurance system and use R410A or R452B Gas as the refrigerant, in line with the applicable legislation.

VERSIONS

5 versions	
RO	Full recirculation version
RF	Version with mixing box fitted with 2 dampers and fresh air intake for 50% of the nominal flow rate
RF/RTA	Version with mixing box fitted with 2 dampers and fresh air intake/active thermodynamic recovery for 50% of the nominal flow rate
RFE/RTA	Version with mixing box fitted with 3 dampers and fresh air intake/active thermodynamic recovery for 100% of the nominal flow rate
RFE/RTA/RRE	Version with mixing box fitted with 3 dampers, active thermodynamic recovery and sensitive and latent heat recovery with enthalpy wheel
Free Cooling	
RO	Not included
RF	Fitted with sensitive and enthalpy types, up to a maximum of 50% of nominal capacity
RF/RTA	Fitted with sensitive and enthalpy types, up to a maximum of 50% of nominal capacity
RFE/RTA	Fitted with sensitive and enthalpy types, up to 100% of nominal flow rate
RFE/RTA/RRE	Fitted with sensitive and enthalpy types, up to 100% of nominal flow rate

ACCESSORIES

- Optional summer hot-gas reheating coil with 1 row
- Optional supplementary hot-water heating coil with 2 rows (provided by external generator)
- 3-way valve (accessory for optional supplementary hot-water heating coil)
- Optional supplementary electric heating coil
- Optional supplementary heating module with gas combustion hot-air generator
- Optional protection for the heat exchange coils

APPLICATIONS

- Industrial
- Tertiary
- Restaurants
- Sports facilities
- Cinemas/Theatres
- Supermarkets
- Airports
  Railway stations
- Medium-to-large sized shopping centres
- Logistics

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ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU

Presentation of the Packaged Air System

The high-efficiency Roof Top units in the NHE-RTU range by Roccheggiani are the driving force behind the “Packaged Air System” consisting of the following 3 basic elements:

- High-efficiency Roof Top units from the NHE-RTU range
- High-efficiency INDUTAIR and/or conventional, perforated metal ducts for air distribution
- Modular interconnectors between NHE-RTU unit and INDUTAIR and/or conventional ducts.

Roccheggiani recommends the supply of a fully-integrated “Packaged Air System” as the most favourable option for the customer and the works supervisor in terms of overall air-system quality and for saving time and costs in the construction of the complete HVAC system.

The fully-integrated “Packaged Air System” by Roccheggiani stands apart in the market for the following two important advantages:

- Roccheggiani manufactures and, on request, installs all 3 system components (Roof-Top units, metal ducts and “Roof Curb” connectors). This means that a high degree of integration can be achieved in all preparation phases of the various system components, thus enabling a fast and efficient organisation of the works contract in line with the general progress at the construction site. The advantage for the customer and the works supervisor lies in the fact that, with a fully-integrated system of this kind provided by a single supplier, managing the various availability, delivery and installation requirements (for the various system components) is simpler and more efficient.
- The air side connection between the Roof Top units and ducting is a delicate and sometimes underestimated point, where airtight sealing and perfect coupling between units and ducts are essential in ensuring optimum air system cost and efficiency levels.

Especially on installations with a high number of Roof Top units and above all where the air flows exceed 20,000-30,000 m³/h, this aspect can lead to issues with air side connections requiring costly on-site adaptation works leading to construction quality standards that differ significantly from those achieved with fully-integrated industrial design and manufacturing.

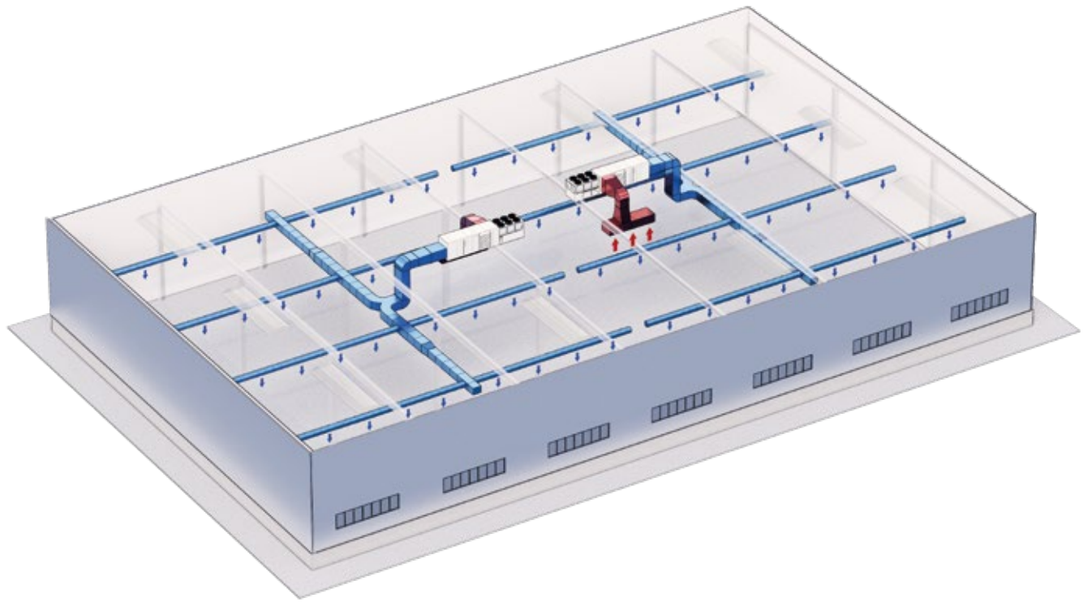
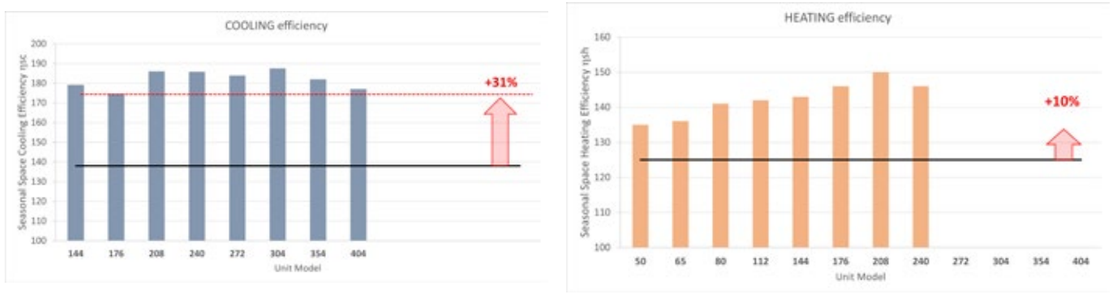


Illustration of a Packaged Air System solution.

NHE-RTU: the range was developed already in line with the rigorous ERP 2021 standards

The high-efficiency Roof Top units in the NHE-RTU range are units designed to guarantee the handling, renewal and purification of air inside buildings and stand apart from a large number of similar products on the market due to their particularly high energy-efficiency levels.

The range was in fact designed with a particular focus on energy efficiency and its values for Minimum Energy Performance Standards under the ECODESIGN Regulation (EU) No. 2016/2281 - ENER LOT 21, not only meet the TIER 1 performance requirements of 01/01/2018, but also the more stringent levels established by TIER 2, which will come into force on 01/01/2021.



Values for Minimum Seasonal Energy Performance Standards under the ECODESIGN Regulation (EU) No. 2016/2281 - ENER LOT 21 for the Roof Top category and ranking of the RO version in the NHE-RTU range

Right from the initial conception phase, the focus on energy efficiency was the guiding force behind the overall design of the unit and the selection of components: highly-efficient fans, generous sizing of heat exchange surfaces, maximum exploitation of heat pump technology, thermodynamic and enthalpy recovery systems and free cooling.

All these elements ensured the creation of a range with seasonal energy efficiency values well above the standards required by ErP 2021.

This aspect is undoubtedly crucially important for designers whose main aim is to offer their customers solutions that look ahead to meet the future higher standards and that surpass today's ErP 2018 solutions by an average of +24% to +56% in terms of obtainable energy efficiency.

Composition of the units: 3 main sections

To achieve the best levels of seasonal energy performance, every effort was taken to design all the devices required to minimise energy consumption and maximise heating and cooling capacities, through an innovative approach in the layout of the units and in their conception.
The high-efficiency Roof Top units in the NHE-RTU range are made in 3 main sections:

Air handling section (*)

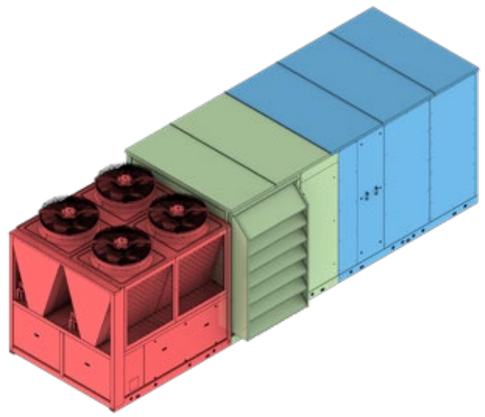
Equipped with reduced pressure-drop filters, heat exchange coils for the various heating and cooling modes, and high efficiency fans, etc., this section has been designed with a special focus on limiting all possible pressure drops, enabling high performances from the air-system and energy point of view.

Heating and cooling energy generation section (*)

Based on the high-efficiency heat pump principle and the use of air as a renewable energy source (according to European Directive 2009/28/EC, known as the RED: RENEWABLE ENERGY DIRECTIVE), it contains both the cooling components and heat recovery equipment that exchanges heat with the outside environment.

Heat recovery and free cooling section (**)

In appropriate conditions, this enables up to 100% of nominal air flow to be used for free cooling and in the heat recovery versions it can accommodate both active thermodynamic recovery and enthalpy recovery using a high-efficiency enthalpy wheel.



(*) Included in all 5 versions: RO – RF – RF / RTA – RFE / RTA – RFE / RTA / RRE; **(**)** Included only in the following versions: RFE / RTA (free-cooling 100% + thermodynamic recovery) RFE / RTA / RRE (free-cooling 100% + thermodynamic recovery + enthalpy recovery).

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Air handling section components

The air handling section manages filtration, heating and cooling and summer reheating with hot gas (or alternatively reheating with water), air intake from the rooms, the fresh air intake, the air discharge outlet and ventilation.

While the sections for heating, cooling, summer reheating with hot gas (or alternatively reheating with water) and supply ventilation are more or less the same in all 5 versions (RO – RF – RF/RTA – RFE/RTA – RFE/ RTA/RRE), the sections for air intake from the rooms, fresh air intake and air discharge outlets can have significantly different configurations according to the various versions described below.

RO Version

(Only recirculation)

Air intake in air-conditioned space (R1 - R2 - R3)

The air handling section includes an air return inlet that recaptures the air from the air-conditioned rooms via suitable connections with the air ducts.
The RO version features total recirculation and so it is fitted with only one air intake hole on the side (R2 - R3) or at the bottom (R1).
The units are fitted with variable-speed fans for calibrating the air flow from the air-conditioned rooms, so no damper is needed. If one was required, it can be supplied as an accessory.

RF Version

(Mixing box fitted with 2 dampers - free cooling max 50%)

Air intake in air-conditioned space (R1 - R3)

The air handling section includes a return section that recaptures the air from the air-conditioned rooms through suitable air ducting connections, via the bottom part of the unit (R1 - R3).
There is no need for a damper for the calibration of the air flow from the air-conditioned rooms, as the units are provided with variable-speed fans. If one was required, it can be supplied as an accessory.

Fresh air intake (P.A.E.)

This section has a fresh air intake (P.A.E.), fitted with an aluminium damper and a large-pitch rain-proof grille, which allows the unit to suck in up to 50% of the nominal air flow from the outside.
The fresh air intake damper is equipped with a servo-motor to control the air flow and, in combination with the fan control, can provide free cooling to up to 50% of the total supply air flow.
For the RF version it is possible to invert the side of the external air intake (P.A.E.) and of the lateral intake (R3).

RF / RTA Version

(Return fans, mixing box fitted with 2 dampers, active thermodynamic recovery - free cooling max 50%)

Air intake in air-conditioned space (R1)

The air handling section includes a return section that recaptures the air from the air-conditioned rooms through suitable air ducting connections, via the bottom part of the unit (R1).
There is no need for a damper for the calibration of the air flow from the air-conditioned rooms, as the units are provided with variable-speed fans. If one was required, it can be supplied as an accessory.

Fresh air intake (P.A.E.)

This air intake section has a fresh air intake (P.A.E.), fitted with an aluminium damper and large-pitch rain-proof grille, which allows up to 50% of the nominal air flow to be sucked in from the outside.
The fresh air intake damper is equipped with a servo-motor to control the air flow and, in combination with the fan control, can provide free cooling to up to 50% of the total supply air flow.

Air discharge (EXP1)

Up to 50% of the nominal air flow taken from the rooms (EXP 1) can be used for thermodynamic recovery.

RFE / RTA Version

(Return fans, mixing box fitted with 3 dampers, active thermodynamic recovery - free cooling max 100%)

Air intake in air-conditioned space (R1)

The air handling section includes a return section that recaptures the air from the air-conditioned rooms through suitable air ducting connections, via the side part of the unit (R1).
There is no need for a damper for the calibration of the air flow from the air-conditioned rooms, as the units are provided with variable-speed fans, also in the air discharge fan section. If one was required, it can be supplied as an accessory.

Fresh air intake (P.A.E.)

This air intake section has a fresh air intake (P.A.E.), fitted with an aluminium damper and large-pitch rain-proof grille, which allows up to 100% of the nominal air flow to be sucked in from the outside.
The fresh air intake damper is equipped with a servo-motor to control the air flow and, in combination with the fan control, can provide free cooling to up to 100% of the total supply air flow.

Air discharge (EXP1)

Up to 100% of the nominal air flow taken from the rooms (EXP 1) can be used for thermodynamic recovery.

RFE / RTA / RRE Version

(Return fans, mixing box fitted with 3 dampers, active thermodynamic recovery, thermal wheel - free cooling max 100%)

In addition to air return from the air-conditioned space (R1), the fresh air intake (P.A.E.) and the discharge of waste air from the rooms (EXP1), which all provide the same functions as with the RFE/RTA Version, this version has an additional fresh air intake (P.A.E.1) and an additional air discharge outlet (EXP2). These items, housed inside the unit, enable the waste air to be discharged outside the unit near the external (condensing – evaporating) heating and cooling generator section so as to take advantage of the energy content in the waste air. P.A.E.1 and EXP2 are equipped with motorised dampers which regulate the air flow in the section fitted with a high-efficiency enthalpy rotary recovery unit (RRE).

Fresh air intake (P.A.E.1)

The fresh air intake section (P.A.E. 1) is fitted with an aluminium damper and large-pitch rain-proof grille, which allows up to 100% of the nominal air flow to be sucked in from the outside for the sizes 144-176-208; 89% of the nominal air flow of the unit for size 240; 80% of the nominal air flow of the unit for size 272; 71% of the nominal air flow of the unit for size 304; 67% of the nominal air flow of the unit for size 354; 61% of the nominal air flow of the unit for size 404.
The fresh air intake damper is fitted with a servo-motor to control the air flow.

Air discharge (EXP1 - EXP2)

The discharge outlets of waste air from the rooms, EXP2 and EXP1, are fitted with 2 aluminium dampers and enable the air to be discharged outside the unit near the external (condensing – evaporating) heating and cooling generator section so as to take advantage of the energy content in the waste air.

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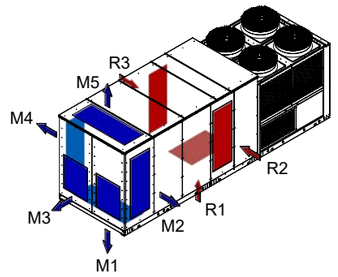
Possible directions and positions of the air distribution connections according to the various versions

The use of Plug-Fan type fans affords great flexibility in the choice of the position of the supply inlet grille on the unit, which can be on the side, at the front or at the bottom on all versions.

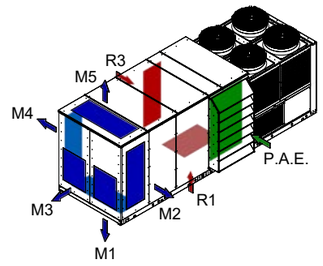
RO Version

(Only recirculation)



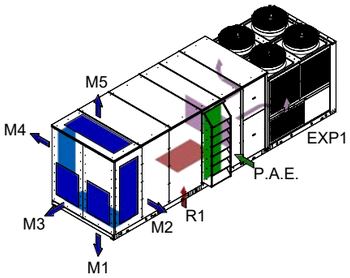
RF Version

(Mixing box fitted with 2 dampers - free cooling max 50%)



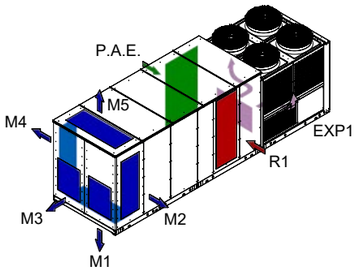
RF / RTA Version

(Return fans, mixing box fitted with 2 dampers, active thermodynamic recovery - free cooling max 50%)



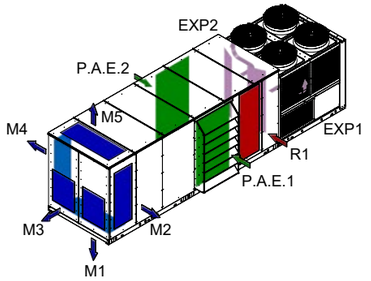
RFE / RTA Version

(Return fans, mixing box fitted with 3 dampers, active thermodynamic recovery - free cooling max 100%)



RFE / RTA / RRE Version

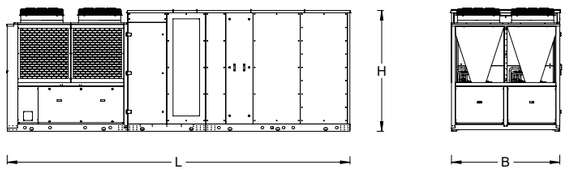
(Return fans, mixing box fitted with 3 dampers, active thermodynamic recovery, thermal wheel - free cooling max 100%)



SUPPLY
RETURN
FRESH AIR
AIR DISCHARGE

General technical specifications - RO Version

Model NHE-RTU			**144**	**176**	**208**	**240**	**272**	**304**	**354**	**404**
Version			RO	RO	RO	RO	RO	RO	RO	RO
Free Cooling			-	-	-	-	-	-	-	-
Active Thermodynamic Heat Recovery (RTA)			-	-	-	-	-	-	-	-
Enthalpy Wheel Heat Recovery (RRE)			-	-	-	-	-	-	-	-
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance-R410A										
Total Cooling Capacity	(1) (2)	kW	145.8	172.5	201.5	237.5	266.8	302.9	355.6	374.1
Sensible Cooling Capacity	(1) (2)	kW	110.3	132.5	159.3	185.5	207.0	233.1	260.0	288.2
Absorbed power	(1) (2)	kW	28.1	36.8	41.9	53.9	55.3	66.9	88.3	105.9
EER Compressors only	(1) (2) (3)		5.19	4.71	4.81	4.40	4.83	4.53	3.80	3.53
SEER Seasonal Energy Efficiency Ratio	(4)		4.56	4.44	4.72	4.72	4.67	4.76	4.63	4.51
ηs,c Seasonal Space Cooling Efficiency	(5)	%	179	175	186	186	184	188	182	177
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	144.9	177.0	197.7	235.6	264.2	302.4	340.3	388.4
Absorbed power	(7) (8)	kW	26.9	34.3	36.2	45.9	49.8	59.7	67.9	82.4
COP Compressor only	(7) (8) (9)		5.39	5.16	5.46	5.13	5.31	5.07	5.01	4.71
SCOP Seasonal Coefficient of Performance	(4)		3.45	3.47	3.60	3.61	3.64	3.72	3.84	3.73
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	136	141	142	143	146	150	146
Bivalent Temperature	(5)	° C	-7.0	-8.0	-6.0	-8.0	-8.0	-8.0	-8.0	-8.0
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating										
Total Heating Capacity	(10)	kW	57.4	67.0	77.6	90.1	99.8	110.9	118.7	134.4
Fans										
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	4	4	4	6	6	6	6	6
Airflow		m³/h	26000	32000	39000	45000	50000	56000	60000	66000
Supply fan section (High static pressure)										
Supply Fan Motor Rating		kW	5.4	5.4	5.7	5.4	5.4	5.7	5.7	5.7
Single fan nominal current		A	8.0	8.0	9.0	8.0	8.0	9.0	9.0	9.0
External Static Pressure	(11)	Pa	1000	900	750	950	830	820	750	500
Supply fan section (Low static pressure)										
Supply Fan Motor Rating		kW	2.9	3.5	4.2	2.9	3.5	4.2	4.2	4.2
Single fan nominal current		A	4.5	5.3	6.4	4.5	5.3	6.4	6.4	6.4
External Static Pressure	(11)	Pa	450	410	410	340	400	440	360	170
External Fan Section (Condensing- Evaporating)										
Fan Type			Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC
Fan Quantity		no.	4	4	4	4	6	6	6	6
Single fan Airflow		m³/h	22500	22500	24000	24000	22500	22500	22500	22500
Single fan nominal current		A	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Compressors										
Compressor			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	4	4	4	4	4	4	4	4
Tandem			even	uneven	uneven	uneven	uneven	uneven	uneven	uneven
Refrigeration Circuit		no.	2	2	2	2	2	2	2	2
Compressor per Circuit		no.	2	2	2	2	2	2	2	2
Capacity step		no.	4	6	6	6	6	6	6	6
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Dimensions										
Length (L)	(L)	mm	7100	7100	8860	8860	9800	9800	9800	9800
Height	(H)	mm	2550	2550	2750	2750	2750	2750	2750	2750
Width	(B)	mm	2240	2240	2240	2240	2240	2240	2240	2240
Transport and operating weight of standard unit		kg	4002	4002	4533	4533	5473	5473	5533	5533



NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

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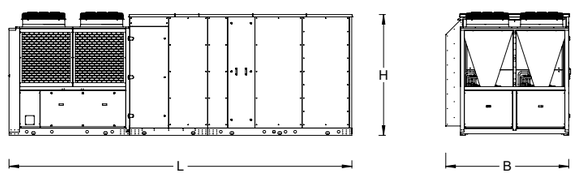
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU

General technical specifications - RF Version

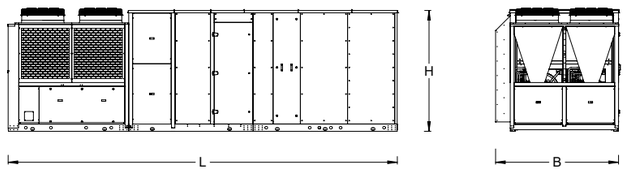
Model NHE-RTU			**144**	**176**	**208**	**240**	**272**	**304**	**354**	**404**
Version			RF	RF	RF	RF	RF	RF	RF	RF
Free Cooling			50%	50%	50%	50%	50%	50%	50%	50%
Active Thermodynamic Heat Recovery (RTA)			-	-	-	-	-	-	-	-
Enthalpy Wheel Heat Recovery (RRE)			-	-	-	-	-	-	-	-
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance-R410A										
Total Cooling Capacity	(1) (2)	kW	153.4	182.8	211.3	249.7	280.6	319.1	351.4	391.9
Sensible Cooling Capacity	(1) (2)	kW	116.6	140.2	168.2	196.1	218.9	246.7	274.3	304.1
Absorbed power	(1) (2)	kW	28.4	37.3	42.4	54.7	55.9	67.8	89.9	107.7
EER Compressors only	(1) (2) (3)		5.41	4.91	4.98	4.56	5.02	4.71	3.91	3.64
SEER Seasonal Energy Efficiency Ratio	(4)		4.56	4.44	4.72	4.72	4.67	4.76	4.63	4.51
ηs,c Seasonal Space Cooling Efficiency	(5)	%	179	175	186	186	184	188	182	177
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	147.2	179.6	200.6	239.2	268.3	307.2	344.8	393.5
Absorbed power	(7) (8)	kW	24.7	31.7	33.6	42.8	46.3	55.6	63.1	77.0
COP Compressor only	(7) (8) (9)		5.96	5.66	5.97	5.59	5.80	5.53	5.46	5.11
SCOP Seasonal Coefficient of Performance	(4)		3.45	3.47	3.60	3.61	3.64	3.72	3.84	3.73
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	136	141	142	143	146	150	146
Bivalent Temperature	(5)	° C	-7.0	-8.0	-6.0	-8.0	-8.0	-8.0	-8.0	-8.0
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating										
Total Heating Capacity	(10)	kW	57.4	67.0	77.6	90.1	99.8	110.9	118.7	134.4
Fans										
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	4	4	4	6	6	6	6	6
Airflow		m³/h	26000	32000	39000	45000	50000	56000	60000	66000
Supply fan section (High static pressure)										
Supply Fan Motor Rating		kW	5.3	5.3	5.7	5.3	5.3	5.7	5.7	5.7
Single fan nominal current		A	8.0	8.0	9.0	8.0	8.0	9.0	9.0	9.0
External Static Pressure	(11)	Pa	1000	900	750	950	830	820	750	500
Supply fan section (Low static pressure)										
Supply Fan Motor Rating		kW	2.9	3.5	4.2	2.9	3.5	4.2	4.2	4.2
Single fan nominal current		A	4.5	5.3	6.4	4.5	5.3	6.4	6.4	6.4
External Static Pressure	(11)	Pa	450	410	410	340	400	440	360	170
Fresh air intake										
Airflow		m³/h	13000	16000	19500	22500	25000	28000	30000	33000
External Fan Section (Condensing- Evaporating)										
Fan Type			Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC
Fan Quantity		no.	4	4	4	4	6	6	6	6
Airflow		m³/h	90000	90000	96000	96000	135000	135000	135000	135000
Single fan Airflow		kW	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Single fan nominal current		A	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Compressors										
Compressor			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	4	4	4	4	4	4	4	4
Tandem			even	uneven	uneven	uneven	uneven	uneven	uneven	uneven
Refrigeration Circuit		no.	2	2	2	2	2	2	2	2
Compressor per Circuit		no.	2	2	2	2	2	2	2	2
Capacity step		no.	4	6	6	6	6	6	6	6
Dimensions										
Length (L)	(L)	mm	7100	7100	8860	8860	9800	9800	9800	9800
Height	(H)	mm	2550	2550	2750	2750	2750	2750	2750	2750
Width	(B)	mm	2240	2240	2240	2240	2240	2240	2240	2240
Transport and operating weight of standard unit		kg	4149	4149	4680	4680	5591	5591	5651	5651



NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Fresh Air 30 %; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Fresh Air 30%; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

General technical specifications - RF/RTA Version

Model NHE-RTU			144	176	208	240	272	304	354	404
Version			RF-RTA	RF-RTA	RF-RTA	RF-RTA	RF-RTA	RF-RTA	RF-RTA	RF-RTA
Free Cooling			50%	50%	50%	50%	50%	50%	50%	50%
Active Thermodynamic Heat Recovery (RTA)			Included	Included	Included	Included	Included	Included	Included	Included
Enthalpy Wheel Heat Recovery (RRE)			-	-	-	-	-	-	-	-
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance-R410A										
Total Cooling Capacity	(1) (2)	kW	159.6	190.8	219.9	261.2	292.24	333.5	366.5	411.2
Sensible Cooling Capacity	(1) (2)	kW	120.6	145.2	174.3	203.2	226.4	255.6	284.5	316.6
Absorbed power	(1) (2)	kW	28	36.6	41.5	53.6	55	66.6	87.8	105.1
EER Compressors only	(1) (2) (3)		5.71	5.21	5.3	4.87	5.32	5.01	4.18	3.91
SEER Seasonal Energy Efficiency Ratio	(4)		4.56	4.44	4.72	4.72	4.67	4.76	4.63	4.51
ηs,c Seasonal Space Cooling Efficiency	(5)	%	179	175	186	186	184	188	182	177
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	153.1	188.1	209.5	252.5	281.1	323.6	361.3	401.9
Absorbed power	(7) (8)	kW	23.8	30.8	32.6	41.8	45	54.4	61.4	74.2
COP Compressor only	(7) (8) (9)		6.44	6.1	6.42	6.04	6.24	5.95	5.89	5.42
SCOP Seasonal Coefficient of Performance	(4)		3.45	3.47	3.6	3.61	3.64	3.72	3.84	3.73
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	136	141	142	143	146	150	146
Bivalent Temperature	(5)	° C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating										
Total Heating Capacity	(10)	kW	57.4	67	77.6	90.1	99.8	110.9	118.7	134.4
Fans										
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	4	4	4	6	6	6	6	6
Airflow		m³/h	26000	32000	39000	45000	50000	56000	60000	66000
Supply fan section (High static pressure)										
Supply Fan Motor Rating		kW	5.4	5.4	5.7	5.4	5.4	5.7	5.7	5.7
Single fan nominal current		A	8	8	9	8	8	9	9	9
External Static Pressure	(11)	Pa	1000	900	750	950	830	820	750	500
Supply fan section (Low static pressure)										
Supply Fan Motor Rating		kW	2.9	3.5	4.2	2.9	3.5	4.2	4.2	4.2
Single fan nominal current		A	4.5	5.3	6.4	4.5	5.3	6.4	6.4	6.4
External Static Pressure	(11)	Pa	450	410	410	340	400	440	360	170
Fresh air intake										
Airflow		m³/h	13000	16000	19500	22500	25000	28000	30000	33000
External Fan Section (Condensing- Evaporating)										
Fan Type			Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC
Fan Quantity		no.	4	4	4	4	6	6	6	6
Airflow		m³/h	90000	90000	96000	96000	135000	135000	135000	135000
Single fan Airflow		kW	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Single fan nominal current		A	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Compressors										
Compressor			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	4	4	4	4	4	4	4	4
Tandem			even	uneven	uneven	uneven	uneven	uneven	uneven	uneven
Refrigeration Circuit		no.	2	2	2	2	2	2	2	2
Compressor per Circuit		no.	2	2	2	2	2	2	2	2
Capacity step		no.	4	6	6	6	6	6	6	6
Dimensions										
Length (L)	(L)	mm	8060	8060	9820	9820	10760	10760	10760	10760
Height	(H)	mm	2550	2550	2750	2750	2750	2750	2750	2750
Width	(B)	mm	2240	2240	2240	2240	2240	2240	2240	2240
Transport and operating weight of standard unit		kg	4590	4590	5131	5131	5955	5955	6015	6015

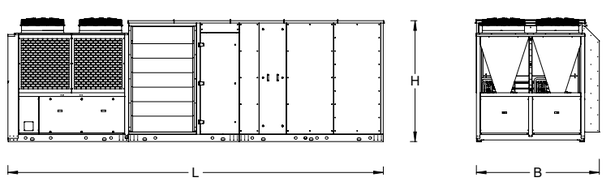


NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Fresh Air 30%; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Fresh Air 30%; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU

General technical specifications - RFE/RTA Version

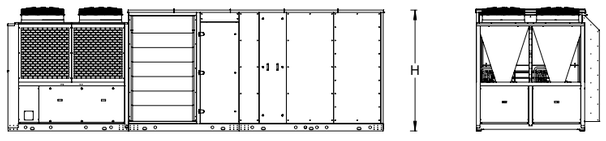
Model NHE-RTU			144	176	208	240	272	304	354	404
Version			RFE	RFE	RFE	RFE	RFE	RFE	RFE	RFE
Free Cooling			100%	100%	100%	100%	100%	100%	100%	100%
Active Thermodynamic Heat Recovery (RTA)			Included	Included	Included	Included	Included	Included	Included	Included
Enthalpy Wheel Heat Recovery (RRE)			-	-	-	-	-	-	-	-
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance-R410A										
Total Cooling Capacity	(1) (2)	kW	154.1	184.3	213.3	252	283.1	321.9	355.4	396.7
Sensible Cooling Capacity	(1) (2)	kW	116.9	140.8	169	197	219.8	247.8	275.8	305.9
Absorbed power	(1) (2)	kW	28.1	36.5	41.6	53.7	54.9	66.5	88.1	105.5
EER Compressors only	(1) (2) (3)		5.49	5.04	5.12	4.69	5.16	4.84	4.03	3.76
SEER Seasonal Energy Efficiency Ratio	(4)		4.56	4.44	4.72	4.72	4.67	4.76	4.63	4.51
ηs,c Seasonal Space Cooling Efficiency	(5)	%	179	175	186	186	184	188	182	177
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	150.3	183.5	204.8	244.4	274	313.7	353.2	403.3
Absorbed power	(7) (8)	kW	25	32.1	34	43.2	46.7	56.2	64.8	77.9
COP Compressor only	(7) (8) (9)		6.02	5.72	6.03	5.66	5.86	5.59	5.45	5.17
SCOP Seasonal Coefficient of Performance	(4)		3.45	3.47	3.6	3.61	3.64	3.72	3.84	3.73
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	136	141	142	143	146	150	146
Bivalent Temperature	(5)	° C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating										
Total Heating Capacity	(10)	kW	57.4	67	77.6	90.1	99.8	110.9	118.7	134.4
Fans										
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	4	4	4	6	6	6	6	6
Airflow		m³/h	26000	32000	39000	45000	50000	56000	60000	66000
Supply fan section (High static pressure)										
Supply Fan Motor Rating		kW	5.4	5.4	5.7	5.4	5.4	5.7	5.7	5.7
Single fan nominal current		A	8	8	9	8	8	9	9	9
External Static Pressure	(11)	Pa	1000	900	750	950	830	820	750	500
Supply fan section (Low static pressure)										
Supply Fan Motor Rating		kW	2.9	3.5	4.2	2.9	3.5	4.2	4.2	4.2
Single fan nominal current		A	4.5	5.3	6.4	4.5	5.3	6.4	6.4	6.4
External Static Pressure	(11)	Pa	450	410	410	340	400	440	360	170
Fresh air intake										
Airflow		m³/h	26000	32000	39000	45000	50000	56000	60000	66000
External Fan Section (Condensing- Evaporating)										
Fan Type			Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC
Fan Quantity		no.	4	4	4	4	6	6	6	6
Airflow		m³/h	90000	90000	96000	96000	135000	135000	135000	135000
Single fan Airflow		kW	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Single fan nominal current		A	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Compressors										
Compressor			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	4	4	4	4	4	4	4	4
Tandem			even	uneven	uneven	uneven	uneven	uneven	uneven	uneven
Refrigeration Circuit		no.	2	2	2	2	2	2	2	2
Compressor per Circuit		no.	2	2	2	2	2	2	2	2
Capacity step		no.	4	6	6	6	6	6	6	6
Dimensions										
Length (L)	(L)	mm	7770	7770	9530	9530	10770	10770	10770	10770
Height	(H)	mm	2550	2550	2750	2750	2750	2750	2750	2750
Width	(B)	mm	2240	2240	2240	2240	2240	2240	2240	2240
Transport and operating weight of standard unit		kg	4532	4532	5174	5174	6316	6316	6376	6376



NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Fresh Air 30%; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP);**(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Fresh Air 30%; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

General technical specifications - RFE/RTA/RRE Version

Model NHE-RTU			144	176	208	240	272	304	354	404
Version			RRE	RRE	RRE	RRE	RRE	RRE	RRE	RRE
Free Cooling			100%	100%	100%	100%	100%	100%	100%	100%
Active Thermodynamic Heat Recovery (RTA)			Included	Included	Included	Included	Included	Included	Included	Included
Enthalpy Wheel Heat Recovery (RRE)			Included	Included	Included	Included	Included	Included	Included	Included
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021
Performance-R410A										
Total Cooling Capacity	(1) (2)	kW	154.1	184.3	213.3	252	283.1	321.9	355.4	396.69
Sensible Cooling Capacity	(1) (2)	kW	116.9	140.8	169	197	219.8	247.8	275.8	305.9
Cooling capacity from enthalpy recovery	(1) (12)	kW	80.6	96.2	116.0	130.0	140.8	152.9	160.4	170.6
Absorbed power	(1) (2)	kW	28.1	36.5	41.6	53.7	54.9	66.5	88.1	105.5
EER Compressors only	(1) (2) (3)		5.49	5.04	5.12	4.69	5.16	4.84	4.03	3.76
SEER Seasonal Energy Efficiency Ratio	(4)		4.56	4.44	4.72	4.72	4.67	4.76	4.63	4.51
ηs,c Seasonal Space Cooling Efficiency	(5)	%	179	175	186	186	184	188	182	177
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	150.3	183.5	204.8	244.4	274	313.7	353.2	403.3
Absorbed power	(7) (8)	kW	25	32.1	34	43.2	46.7	56.2	64.8	77.9
COP Compressor only	(7) (8) (9)		6.02	5.72	6.03	5.66	5.86	5.59	5.45	5.17
SCOP Seasonal Coefficient of Performance	(4)		3.45	3.47	3.6	3.61	3.64	3.72	3.84	3.73
ηs,h Seasonal Space Heating Efficiency	(5)	%	135	136	141	142	143	146	150	146
Bivalent Temperature	(5)	°C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating										
Total Heating Capacity	(10)	kW	57.4	67	77.6	90.1	99.8	110.9	118.7	134.4
Fans										
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	4	4	4	6	6	6	6	6
Airflow		m^3/h	26000	32000	39000	45000	50000	56000	60000	66000
Supply fan section (High static pressure)										
Supply Fan Motor Rating		kW	5.4	5.4	5.7	5.4	5.4	5.7	5.7	5.7
Single fan nominal current		A	8	8	9	8	8	9	9	9
External Static Pressure	(11)	Pa	760	590	450	660	520	510	430	200
Supply fan section (Low static pressure)										
Supply Fan Motor Rating		kW	3.4	3.5	5.7	4.5	4.5	5.3	5.3	5.3
Single fan nominal current		A	5.2	5.3	9	6.8	6.8	8	8	8
External Static Pressure	(11)	Pa	260	330	330	430	310	360	200	200
Fresh air intake										
Maximum free cooling air flow		m^3/h	26000	32000	39000	45000	50000	56000	60000	66000
Maximum air flow with active thermodynamic recovery		m^3/h	26000	32000	39000	45000	50000	56000	60000	66000
Maximum air flow with enthalpy recovery		m^3/h	26000	32000	39000	40000	40000	40000	40000	40000
External Fan Section (Condensing- Evaporating)										
Fan Type			Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC
Fan Quantity		no.	4	4	4	4	6	6	6	6
Airflow		m^3/h	90000	90000	96000	96000	135000	135000	135000	135000
Single fan Airflow		kW	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Single fan nominal current		A	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Compressors										
Compressor			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	4	4	4	4	4	4	4	4
Tandem			even	uneven	uneven	uneven	uneven	uneven	uneven	uneven
Refrigeration Circuit		no.	2	2	2	2	2	2	2	2
Compressor per Circuit		no.	2	2	2	2	2	2	2	2
Capacity step		no.	4	6	6	6	6	6	6	6
Dimensions										
Length (L)	(L)	mm	8820	8820	10950	10950	11790	11790	11790	11790
Height	(H)	mm	2550	2550	2750	2750	2750	2750	2750	2750
Width	(B)	mm	2240	2240	2240	2240	2240	2240	2240	2240
Transport and operating weight of standard unit		kg	5390	5390	6026	6026	6986	6986	7046	7046



NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Fresh Air 30%; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Fresh Air 30%; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 14°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU

General technical specifications calculated with Gas R452B

R452B is a zeotropic mixture, that does not harm the ozone layer, developed as an alternative to the reduced GWP of R410A in air-conditioning and heating applications, in heat pump mode in volumetric displacement systems. A basic feature of R452B is the 67% reduction of GWP, with comparable efficiency and capacity to R410A.

RO Version

Model NHE-RTU			144	176	208	240	272	304	354	404
Performance-R452B										
Total Cooling Capacity	(1) (2)	kW	136.6	161.7	188.9	222.7	250.1	283.9	314.6	350.7
Sensible Cooling Capacity	(1) (2)	kW	107.1	128.7	154.7	180.1	201.0	226.4	252.5	279.9
Absorbed power	(1) (2)	kW	25.9	34.0	38.7	49.8	51.0	61.7	81.5	97.7
EER Compressors only	(1) (2) (3)		5.27	4.76	4.88	4.47	4.90	4.60	3.86	3.59
SEER Seasonal Energy Efficiency Ratio	(4)		4.66	4.54	4.84	4.84	4.79	4.87	4.74	4.61
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182.0	177.0	189.0	189.0	187.0	190.0	185.0	180.0
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	129.7	158.4	177.0	211.0	236.6	270.7	304.6	347.7
Absorbed power	(7) (8)	kW	24.1	30.8	32.5	41.2	44.7	53.6	60.9	74.0
COP Compressor only	(7) (8) (9)		5.38	5.14	5.45	5.12	5.29	5.05	5.00	4.70
SCOP Seasonal Coefficient of Performance	(4)		3.49	3.51	3.64	3.66	3.69	3.77	3.87	3.77
ηs,h Seasonal Space Heating Efficiency	(5)	%	136.0	137.0	142.0	143.0	144.0	147.0	151.0	147.0
Bivalent Temperature	(5)	°C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating R452B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

RF Version

Performance-R452B										
Total Cooling Capacity	(1) (12)	kW	143.8	171.3	198.1	234.1	263.0	299.1	329.4	367.4
Sensible Cooling Capacity	(1) (12)	kW	113.3	136.1	163.4	190.5	212.5	239.6	266.4	295.3
Absorbed power	(1) (12)	kW	26.2	34.4	39.1	50.5	51.6	62.6	83.0	99.4
EER Compressors only	(1) (12) (3)		5.49	4.98	5.07	4.64	5.10	4.78	3.97	3.70
SEER Seasonal Energy Efficiency Ratio	(4)		4.66	4.54	4.84	4.84	4.79	4.87	4.74	4.61
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182.0	177.0	189.0	189.0	187.0	190.0	185.0	180.0
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	131.8	160.8	179.6	214.1	240.2	275	308.7	352.3
COP Compressor only	(7) (12) (9)		5.94	5.64	5.95	5.58	5.77	5.51	5.44	5.10
SCOP Seasonal Coefficient of Performance	(4)		3.49	3.51	3.64	3.66	3.69	3.77	3.87	3.77
ηs,h Seasonal Space Heating Efficiency	(5)	%	136.0	137.0	142.0	143.0	144.0	147.0	151.0	147.0
Bivalent Temperature	(5)	°C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

RF/RTA Version

Performance-R452B										
Total Cooling Capacity	(1) (2)	kW	149.6	178.9	206.1	244.9	274.0	312.6	343.6	385.5
Sensible Cooling Capacity	(1) (2)	kW	117.1	141.0	169.2	197.3	219.8	248.2	276.2	307.4
Absorbed power	(1) (2)	kW	25.8	33.8	38.3	49.4	50.7	61.4	81.0	97.0
EER Compressors only	(1) (2) (3)		5.80	5.29	5.38	4.96	5.40	5.09	4.24	3.97
SEER Seasonal Energy Efficiency Ratio	(4)		4.66	4.54	4.84	4.84	4.79	4.87	4.74	4.61
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182.0	177.0	189.0	189.0	187.0	190.0	185.0	180.0
Energy Efficiency Class	(6)		A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	137.1	168.4	187.6	226	251.6	289.8	323.5	359.8
Absorbed power	(7) (8)	kW	21.4	27.7	29.3	37.6	40.5	48.8	55.1	66.7
COP Compressor only	(7) (8) (9)		6.41	6.08	6.40	6.01	6.21	5.94	5.87	5.39
SCOP Seasonal Coefficient of Performance	(4)		3.49	3.51	3.64	3.66	3.69	3.77	3.87	3.77
ηs,h Seasonal Space Heating Efficiency	(5)	%	136.0	137.0	142.0	143.0	144.0	147.0	151.0	147.0
Bivalent Temperature	(5)	°C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating R452B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

Model NHE-RTU			144	176	208	240	272	304	354	404

RFE/RTA Version

Performance-R452B										
Total Cooling Capacity	(1) (12)	kW	144.4	172.8	199.9	236.2	265.4	301.7	333.1	371.9
Sensible Cooling Capacity	(1) (12)	kW	113.5	136.7	164.1	191.3	213.5	240.6	267.8	297.0
Absorbed power	(1) (12)	kW	25.9	33.7	38.4	49.6	50.6	61.4	81.3	97.3
EER Compressors only	(1) (12) (3)		5.58	5.13	5.21	4.76	5.25	4.91	4.10	3.82
SEER Seasonal Energy Efficiency Ratio	(4)		4.66	4.54	4.84	4.84	4.79	4.87	4.74	4.61
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182.0	177.0	189.0	189.0	187.0	190.0	185.0	180.0
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	134.6	164.3	183.3	218.8	245.3	280.9	316.2	361.1
Absorbed power	(7) (12)	kW	22.4	28.8	30.5	38.8	42	50.4	58.2	70
COP Compressor only	(7) (12) (9)		6.01	5.70	6.01	5.64	5.84	5.57	5.43	5.16
SCOP Seasonal Coefficient of Performance	(4)		3.49	3.51	3.64	3.66	3.69	3.77	3.87	3.77
ηs,h Seasonal Space Heating Efficiency	(5)	%	136.0	137.0	142.0	143.0	144.0	147.0	151.0	147.0
Bivalent Temperature	(5)	° C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating R452B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

RFE/RTA/RRE Version

Performance-R452B										
Total Cooling Capacity	(1) (12)	kW	144.4	172.8	199.9	236.2	265.4	301.7	333.1	371.9
Sensible Cooling Capacity	(1) (12)	kW	113.5	136.7	164.1	191.3	213.5	240.6	267.8	297.0
Cooling capacity from enthalpy recovery	(1) (12)	kW	80.6	96.2	116.0	130.0	140.8	152.9	160.4	170.6
Absorbed power	(1) (12)	kW	25.9	33.7	38.4	49.6	50.6	61.4	81.3	97.3
EER Compressors only	(1) (12) (3)		5.58	5.13	5.21	4.76	5.25	4.91	4.10	3.82
SEER Seasonal Energy Efficiency Ratio	(4)		4.66	4.54	4.84	4.84	4.79	4.87	4.74	4.61
ηs,c Seasonal Space Cooling Efficiency	(5)	%	182.0	177.0	189.0	189.0	187.0	190.0	185.0	180.0
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	134.6	164.3	183.3	218.8	145.3	280.9	316.2	361.1
Absorbed power	(7) (12)	kW	22.4	28.8	30.5	38.8	42.0	50.4	58.2	70.0
Heating capacity from enthalpy recovery	(1) (12)	kW	89.1	107.4	130.0	147.2	160.9	176.7	186.8	201.5
COP Compressor only	(7) (12) (9)		6.01	5.70	6.01	5.64	3.46	5.57	5.43	5.16
SCOP Seasonal Coefficient of Performance	(4)		3.49	3.51	3.64	3.66	3.69	3.77	3.87	3.77
ηs,h Seasonal Space Heating Efficiency	(5)	%	136.0	137.0	142.0	143.0	144.0	147.0	151.0	147.0
Bivalent Temperature	(5)	° C	-7	-8	-6	-8	-8	-8	-8	-8
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A++	A+
Reheating R452B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
NHE-RTU

General technical specifications calculated with Gas R454B

R454B is a zeotropic mixture, that does not harm the ozone layer, developed as an alternative to the reduced GWP of R410A in air-conditioning and heating applications, in heat pump mode in volumetric displacement systems. A basic feature of R454B is the 78% reduction of GWP, with comparable efficiency and capacity to R410A.

Model NHE-RTU			144	176	208	240	272	304	354	404

RO Version

Performance-R454B										
Total Cooling Capacity	(1) (2)	kW	147.8	177.7	189.2	223.9	251.7	288.3	334.8	369.7
Sensible Cooling Capacity	(1) (2)	kW	112.9	128.7	153.3	175.9	197.7	222.8	253.0	278.0
Absorbed power	(1) (2)	kW	26.6	34.3	38.5	51.0	51.8	63.3	75.4	87.1
EER Compressors only	(1) (2) (3)		5.56	5.19	4.91	4.39	4.86	4.56	4.44	4.25
SEER Seasonal Energy Efficiency Ratio	(4)		4.76	5.03	4.89	4.74	4.63	4.50	4.43	4.20
ηs,c Seasonal Space Cooling Efficiency	(5)	%	185.9	196.1	190.9	185.1	180.5	175.7	172.8	163.9
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	139.2	166.7	186.7	211.0	250.1	294.0	347.2	386.5
Absorbed power	(7) (8)	kW	23.5	29.3	32.7	41.2	46.1	57.4	68.4	78.1
COP Compressor only	(7) (8) (9)		5.92	5.69	5.70	5.12	5.43	5.12	5.08	4.95
SCOP Seasonal Coefficient of Performance	(4)		3.62	3.79	3.74	3.74	3.54	3.41	3.49	3.21
ηs,h Seasonal Space Heating Efficiency	(5)	%	141.2	148.0	146.0	146.0	138.0	133.0	136.0	125.4
Bivalent Temperature	(5)	° C	-7	-8	-7	-8	-7	-7	-8	-8
Energy Efficiency Class			A+	A++	A++	A+	A+	A+	A+	A+
Reheating R454B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

RF Version

Performance-R454B										
Total Cooling Capacity	(1) (12)	kW	154.5	185.7	197.7	234.0	263.1	301.3	349.9	386.4
Sensible Cooling Capacity	(1) (12)	kW	118.1	134.6	160.3	184.0	206.8	233.1	264.7	290.8
Absorbed power	(1) (12)	kW	27.3	35.1	39.5	52.3	53.1	64.9	77.3	89.3
EER Compressors only	(1) (12) (3)		5.66	5.29	5.01	4.48	4.95	4.64	4.53	4.33
SEER Seasonal Energy Efficiency Ratio	(4)		4.76	5.03	4.89	4.74	4.63	4.50	4.43	4.20
ηs,c Seasonal Space Cooling Efficiency	(5)	%	185.9	196.1	190.9	185.1	180.5	175.7	172.8	163.9
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	140.3	168.0	188.2	212.7	252.1	296.3	349.9	389.5
COP Compressor only	(7) (12) (9)		6.42	6.17	6.19	5.56	5.89	5.56	5.52	5.37
SCOP Seasonal Coefficient of Performance	(4)		3.62	3.79	3.74	3.74	3.54	3.41	3.49	3.21
ηs,h Seasonal Space Heating Efficiency	(5)	%	141.2	148.0	146.0	146.0	138.0	133.0	136.0	125.4
Bivalent Temperature	(5)	° C	-7	-8	-7	-8	-7	-7	-8	-8
Energy Efficiency Class			A+	A++	A++	A+	A+	A+	A+	A+
Reheating										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

RF/RTA Version

Performance-R454B										
Total Cooling Capacity	(1) (2)	kW	155.1	186.4	198.5	235.0	264.1	302.5	351.3	387.9
Sensible Cooling Capacity	(1) (2)	kW	118.4	134.9	160.6	184.4	207.2	233.6	265.2	291.4
Absorbed power	(1) (2)	kW	26.9	34.7	39.0	51.7	52.5	64.1	76.4	88.2
EER Compressors only	(1) (2) (3)		5.76	5.37	5.09	4.55	5.03	4.72	4.60	4.40
SEER Seasonal Energy Efficiency Ratio	(4)		4.76	5.03	4.89	4.74	4.63	4.50	4.43	4.20
ηs,c Seasonal Space Cooling Efficiency	(5)	%	185.9	196.1	190.9	185.1	180.5	175.7	172.8	163.9
Energy Efficiency Class	(6)		A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	142.8	171.0	191.5	216.4	256.5	301.5	356.1	396.4
Absorbed power	(7) (8)	kW	22.0	27.4	30.6	38.6	43.1	53.7	64.0	73.1
COP Compressor only	(7) (8) (9)		6.48	6.23	6.25	5.61	5.95	5.61	5.57	5.42
SCOP Seasonal Coefficient of Performance	(4)		3.62	3.79	3.74	3.74	3.54	3.41	3.49	3.21
ηs,h Seasonal Space Heating Efficiency	(5)	%	141.2	148.0	146.0	146.0	138.0	133.0	136.0	125.4
Bivalent Temperature	(5)	° C	-7	-8	-7	-8	-7	-7	-8	-8
Energy Efficiency Class			A+	A++	A++	A+	A+	A+	A+	A+
Reheating R454B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

Model NHE-RTU			144	176	208	240	272	304	354	404
RFE/RTA Version										
Performance-R454B										
Total Cooling Capacity	(1) (12)	kW	155.1	186.4	198.5	235.0	264.1	302.5	351.3	387.9
Sensible Cooling Capacity	(1) (12)	kW	118.4	134.9	160.6	184.4	207.2	233.6	265.2	291.4
Absorbed power	(1) (12)	kW	26.9	34.7	39.0	51.7	52.5	64.1	76.4	88.2
EER Compressors only	(1) (12) (3)		5.76	5.37	5.09	4.55	5.03	4.72	4.60	4.40
SEER Seasonal Energy Efficiency Ratio	(4)		4.76	5.03	4.89	4.74	4.63	4.50	4.43	4.20
ηs,c Seasonal Space Cooling Efficiency	(5)	%	185.9	196.1	190.9	185.1	180.5	175.7	172.8	163.9
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	142.8	171.0	191.5	216.4	256.5	301.5	356.1	396.4
Absorbed power	(7) (12)	kW	22.0	27.4	30.6	38.6	43.1	53.7	64.0	73.1
COP Compressor only	(7) (12) (9)		6.48	6.23	6.25	5.61	5.95	5.61	5.57	5.42
SCOP Seasonal Coefficient of Performance	(4)		3.62	3.79	3.74	3.74	3.54	3.41	3.49	3.21
ηs,h Seasonal Space Heating Efficiency	(5)	%	141.2	148.0	146.0	146.0	138.0	133.0	136.0	125.4
Bivalent Temperature	(5)	° C	-7	-8	-7	-8	-7	-7	-8	-8
Energy Efficiency Class			A+	A++	A++	A+	A+	A+	A+	A+
Reheating R454B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3
RFE/RTA/RRE Version										
Performance-R454B										
Total Cooling Capacity	(1) (12)	kW	155.1	186.4	198.5	235.0	264.1	302.5	351.3	387.9
Sensible Cooling Capacity	(1) (12)	kW	118.4	134.9	160.6	184.4	207.2	233.6	265.2	291.4
Cooling capacity from enthalpy recovery	(1) (12)	kW	80.6	96.2	116.0	130.0	140.8	152.9	160.4	170.6
Absorbed power	(1) (12)	kW	26.9	34.7	39.0	51.7	52.5	64.1	76.4	88.2
EER Compressors only	(1) (12) (3)		5.76	5.37	5.09	4.55	5.03	4.72	4.60	4.40
SEER Seasonal Energy Efficiency Ratio	(4)		4.76	5.03	4.89	4.74	4.63	4.50	4.43	4.20
ηs,c Seasonal Space Cooling Efficiency	(5)	%	185.9	196.1	190.9	185.1	180.5	175.7	172.8	163.9
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	142.8	171.0	191.5	216.4	256.5	301.5	356.1	396.4
Heating capacity from enthalpy recovery	(1) (12)	kW	89.1	107.4	130.0	147.2	160.9	176.7	186.8	201.5
COP Compressor only	(7) (12) (9)		6.48	6.23	6.25	5.61	5.95	5.61	5.57	5.42
SCOP Seasonal Coefficient of Performance	(4)		3.62	3.79	3.74	3.74	3.54	3.41	3.49	3.21
ηs,h Seasonal Space Heating Efficiency	(5)	%	141.2	148.0	146.0	146.0	138.0	133.0	136.0	125.4
Bivalent Temperature	(5)	° C	-7	-8	-7	-8	-7	-7	-8	-8
Energy Efficiency Class			A+	A++	A++	A+	A+	A+	A+	A+
Reheating R454B										
Total Heating Capacity	(10)	kW	51.4	60.0	69.5	80.6	89.4	99.3	106.3	120.3

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

HE-RTU

HIGH-EFFICIENCY ROOF TOP UNITS

- Air-to-Air type heat pump
- Air flows from 18.000 to 60.000 m³/h
- Cooling capacities from 115 to 306 kW
- Heating capacities from 121 to 327 kW

ErP 2021 COMPLIANT
R410A
BIM READY
R452B
R454B

Download the technical bulletin

The High-Efficiency Roof Top Units from the Roccheggiani HE-RTU range are units designed to guarantee (based on the chosen configuration and accessories) air handling, renewal and purification inside buildings and are particularly beneficial in large production, storage and distribution areas within Industry and the Tertiary sector.
The units in the HE-RTU range are packaged units, designed to be installed outdoors (typically on the roof) and use heat pump technology enabling the units to be extremely compact and efficient.
The units in the HE-RTU range ensure high seasonal energy efficiency also at partial loads, with performances that contribute towards achieving the best energy classification levels in the building where they are installed. Upon request the units can be supplied together with a “Product Compliance Report”, to assist the heating engineer, architectural designer or facility manager, in understanding the contribution provided by the HE-RTU units in terms of certification points for the major world protocols in the field of Green Buildings, such as LEED®, BREEAM®, Home Quality Mark®, Estidama® and HK Beam Plus®.
From a technical point of view, compared to traditional hydronic solutions consisting typically of plants with UTA, chillers and heat generators (which normally use fossil fuels), the use of high-efficiency Roof Top units from the HE-RTU range can provide better system efficiencies, reduced energy for pumping the various media fluids and lower primary energy consumption, thus facilitating better energy assessments for the plant-building system, based on the various relevant standards.
The Roccheggiani high-efficiency Roof Top units are manufactured in compliance with the UNI EN 12100 standard and the CE marking directives, following an ISO 9001/2000-certified quality assurance system and use R410A Gas as the refrigerant, in line with the applicable legislation.

ACCESSORIES

- Optional summer hot-gas reheating coil with 1 row
- Optional supplementary hot-water heating coil with 2 rows (provided by external generator)
- 3-way valve (accessory for optional supplementary hot-water heating coil)
- Optional supplementary electric heating coil
- Optional supplementary heating module with gas combustion hot-air generator
- Optional protection for the heat exchange coils

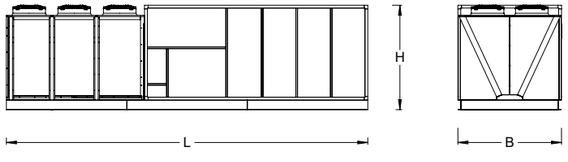
APPLICATIONS

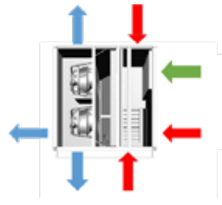
- Industrial
- Tertiary
- Restaurants
- Sports facilities
- Cinemas/Theatres
- Supermarkets
- Airports/Railway stations
- Medium-to-large sized shopping centres
- Logistics

ROCCHEGGIANI care for air
ROOF TOP PACKAGED AIR CONDITIONING SYSTEMS
HE-RTU

General technical data

Model HE-RTU			125	150	200	250	300	350	400
Utility fan section									
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	4	4	6	6	8	8	8
Impeller Diameter		mm	450	450	450	450	450	450	450
Airflow		m³/h	20000	26000	37000	46000	56000	60000	60000
Single fan motor rating		m³/h	5.2	5.2	5.2	5.2	5.2	5.2	5.2
External Static Pressure	(8)	Pa	1200	1100	1100	1000	1000	1000	1000
Waste air fan section									
Fan Type			Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC	Radial EC
Fan Quantity		no.	2	2	2	2	2	2	2
Impeller Diameter		mm	500	500	560	560	560	560	560
Airflow		m³/h	10000	13000	18500	23000	28000	28000	28000
Single fan motor rating		kW	3.5	3.5	5.0	5.0	5.0	5.0	5.0
Fresh air intake									
Airflow		m³/h	10000	13000	18500	23000	28000	30000	30000
External Fan Section (Condensing- Evaporating)									
Fan Type			Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC	Axial EC
Fan Quantity		no.	4	4	4	4	6	6	6
Rotor diameter		mm	800	800	800	800	800	800	800
Airflow		m³/h	64000	64000	88000	88000	132000	132000	132000
Nominal electric power of the supply fan		kW	1.95	1.95	3.1	3.1	3.1	3.1	3.1
Compressors									
Compressor			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Total Compressor Number		no.	2	4	4	4	4	4	4
Tandem			uneven	uneven	uneven	uneven	uneven	uneven	uneven
Refrigeration Circuit		no.	1	2	2	2	2	2	2
Capacity step		no.	4	6	6	6	6	6	6
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	R410A
Dimensions									
Length (L)	(L)	mm	5600	5600	7555	7555	9000	9000	9000
Height	(H)	mm	2500	2500	2500	2500	2500	2500	2500
Width	(B)	mm	2240	2240	2240	2240	2240	2240	2240
Weight		kg	2710	2787	3490	3580	4287	4287	4287





SUPPLY RETURN FRESH AIR

NOTES: **(8)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter.

General technical specifications calculated with Gas R410A

Model NHE-RTU			125	150	200	250	300	350	400
RO Version									
Performance-R410A									
Supply Airflow		m³/h	26000	32000	40000	48000	56000	60000	66000
Total Cooling Capacity	(1) (2)	kW	144.4	171.5	227.4	252.6	296.4	351.6	386.6
Sensible Cooling Capacity	(1) (2)	kW	108.1	129.4	180.3	198.8	228.3	263.7	289.6
Absorbed power	(1) (2)	kW	29.9	38.1	54.9	63.8	72.4	84.1	98.2
EER Compressors only	(1) (2) (3)		4.82	4.50	4.14	3.96	4.09	4.18	3.94
SEER Seasonal Energy Efficiency Ratio	(4)		4.24	4.15	4.38	4.31	4.25	4.31	4.13
ηs,c Seasonal Space Cooling Efficiency	(5)	%	165.3	162.0	171.0	168.0	166.0	168.0	161.0
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	145.8	175.6	235.6	264.14	303.3	360.3	401.4
Absorbed power	(7) (8)	kW	27.9	34.8	47.4	53.53	61.0	72.3	82.8
COP Compressor only	(7) (8) (9)		5.22	5.04	4.97	4.93	4.97	4.99	4.85
SCOP Seasonal Coefficient of Performance	(4)		3.28	3.38	3.51	3.41	3.36	3.38	3.28
ηs,h Seasonal Space Heating Efficiency	(5)	%	128.0	132.0	137.0	133.0	131.0	132.0	128.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R410A									
Total Heating Capacity	(10)	kW	47.6	56.6	75.1	83.4	97.8	116.0	127.6
RF Version									
Performance-R410A									
Supply Airflow		m³/h	26000	32000	40000	48000	56000	60000	66000
Total Cooling Capacity	(1) (12)	kW	151.4	179.7	238.5	268.5	310.2	368.1	404.4
Sensible Cooling Capacity	(1) (12)	kW	113.0	135.2	187.6	207.5	238.8	275.4	302.2
Absorbed power	(1) (12)	kW	30.4	38.7	55.9	65.0	73.5	85.3	99.7
EER Compressors only	(1) (12) (3)		4.99	4.65	4.27	4.13	4.22	4.31	4.06
SEER Seasonal Energy Efficiency Ratio	(4)		4.24	4.15	4.38	4.31	4.25	4.31	4.13
ηs,c Seasonal Space Cooling Efficiency	(5)	%	165.3	162.0	171.0	168.0	166.0	168.0	161.0
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	147.63	177.76	238.27	267.41	306.97	364.68	406.17
Absorbed power	(7) (12)	kW	26.05	32.41	44.16	49.94	56.5	67.001	76.65
COP Compressor only	(7) (12) (9)		5.67	5.48	5.40	5.35	5.43	5.44	5.30
SCOP Seasonal Coefficient of Performance	(4)		3.28	3.38	3.51	3.41	3.36	3.38	3.28
ηs,h Seasonal Space Heating Efficiency	(5)	%	128.0	132.0	137.0	133.0	131.0	132.0	128.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R410A									
Total Heating Capacity	(10)	kW	47.6	56.6	75.1	83.4	97.8	116.0	127.6
RF/RTA Version									
Performance-R410A									
Supply Airflow		m³/h	26000	32000	40000	48000	56000	60000	66000
Maximum externail Airflow		m³/h	13000	16000	20000	24000	28000	30000	33000
Total Cooling Capacity	(1) (12)	kW	152.2	180.6	239.8	270.2	312.1	370.3	407.0
Sensible Cooling Capacity	(1) (12)	kW	113.3	135.6	188.1	208.1	239.5	276.1	303.1
Absorbed power	(1) (12)	kW	30.0	38.2	55.2	64.3	72.5	84.3	98.4
EER Compressors only	(1) (12) (3)		5.07	4.73	4.34	4.20	4.30	4.40	4.14
SEER Seasonal Energy Efficiency Ratio	(4)		4.24	4.15	4.38	4.31	4.25	4.31	4.13
ηs,c Seasonal Space Cooling Efficiency	(5)	%	165.3	162.0	171.0	168.0	166.0	168.0	161.0
Energy Efficiency Class	(6)		A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	149.64	180.28	241.63	270.96	311.33	369.63	411.91
Absorbed power	(7) (12)	kW	26.25	32.66	44.51	50.28	56.9	67.47	77.21
COP Compressor only	(7) (12) (9)		5.70	5.52	5.43	5.39	5.47	5.48	5.33
SCOP Seasonal Coefficient of Performance	(4)		3.28	3.38	3.51	3.41	3.36	3.38	3.28
ηs,h Seasonal Space Heating Efficiency	(5)	%	128.0	132.0	137.0	133.0	131.0	132.0	128.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R410A									
Total Heating Capacity	(10)	kW	47.6	56.6	75.1	83.4	97.8	116.0	127.6

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

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HE-RTU

General technical specifications calculated with Gas R452B

R452B is a zeotropic mixture, that does not harm the ozone layer, developed as an alternative to the reduced GWP of R410A in air-conditioning and heating applications, in heat pump mode in volumetric displacement systems. A basic feature of R452B is the 67% reduction of GWP, with comparable efficiency and capacity to R410A.

Model HE-RTU			125	150	200	250	300	350	400
RO Version									
Performance-R452B									
Supply Airflow		m³/h	26000	32000	40000	48000	56000	60000	66000
Total Cooling Capacity	(1) (2)	kW	136.4	162.2	220.0	243.1	284.1	335.8	370.1
Sensible Cooling Capacity	(1) (2)	kW	104.6	125.4	174.5	192.2	222.8	256.5	281.8
Absorbed power	(1) (2)	kW	27.9	36.6	52.2	60.8	67.4	78.1	91.5
EER Compressors only	(1) (2) (3)		4.89	4.43	4.22	4.00	4.22	4.30	4.04
SEER Seasonal Energy Efficiency Ratio	(4)		4.28	4.12	4.44	4.25	4.33	4.44	4.19
ηs,c Seasonal Space Cooling Efficiency	(5)	%	168.3	161.9	174.4	167.2	170.3	174.5	164.7
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	136.9	162.6	224.9	248.7	288.2	341.9	379.2
Absorbed power	(7) (8)	kW	25.6	31.8	44.4	49.76	56.4	66.6	76.1
COP Compressor only	(7) (8) (9)		5.36	5.12	5.06	5.00	5.11	5.13	4.99
SCOP Seasonal Coefficient of Performance	(4)		3.37	3.23	3.59	3.43	3.38	3.41	3.32
ηs,h Seasonal Space Heating Efficiency	(5)	%	132.0	126.0	141.0	134.0	132.0	133.0	130.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R452B									
Total Heating Capacity	(10)	kW	40.9	48.7	66.0	72.9	85.2	100.7	111.0
RF Version									
Performance-R452B									
Supply Airflow		m³/h	26000	32000	40000	48000	56000	60000	66000
Total Cooling Capacity	(1) (12)	kW	143.2	170.1	230.9	254.6	297.7	351.8	387.9
Sensible Cooling Capacity	(1) (12)	kW	110.0	131.7	182.5	201.8	234.1	269.1	295.6
Absorbed power	(1) (12)	kW	28.4	37.2	53.1	61.9	68.4	79.2	93.0
EER Compressors only	(1) (12) (3)		5.05	4.58	4.35	4.11	4.35	4.44	4.17
SEER Seasonal Energy Efficiency Ratio	(4)		4.28	4.12	4.44	4.25	4.33	4.44	4.19
ηs,c Seasonal Space Cooling Efficiency	(5)	%	168.3	161.9	174.4	167.2	170.3	174.5	164.7
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	138.4	164.1	227.2	251.7	291.2	345.6	387.7
Absorbed power	(7) (12)	kW	23.7	29.4	41.3	46.3	52.2	61.5	70.0
COP Compressor only	(7) (12) (9)		5.84	5.58	5.50	5.43	5.58	5.62	5.54
SCOP Seasonal Coefficient of Performance	(4)		3.37	3.23	3.59	3.43	3.38	3.41	3.32
ηs,h Seasonal Space Heating Efficiency	(5)	%	132.0	126.0	141.0	134.0	132.0	133.0	130.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R452B									
Total Heating Capacity	(10)	kW	43.0	51.0	69.3	76.4	89.3	105.5	116.4
RF/RTA Version									
Performance-R452B									
Supply Airflow		m³/h	26000	32000	40000	48000	56000	60000	66000
Maximum externail Airflow		m³/h	13000	16000	20000	24000	28000	30000	33000
Total Cooling Capacity	(1) (12)	kW	144.1	171.2	232.4	256.4	299.7	354.2	390.5
Sensible Cooling Capacity	(1) (12)	kW	110.3	132.0	183.1	202.4	234.8	270.0	296.5
Absorbed power	(1) (12)	kW	27.9	36.6	52.3	60.9	67.3	77.9	91.4
EER Compressors only	(1) (12) (3)		5.16	4.68	4.44	4.21	4.46	4.54	4.27
SEER Seasonal Energy Efficiency Ratio	(4)		4.28	4.12	4.44	4.25	4.33	4.44	4.19
ηs,c Seasonal Space Cooling Efficiency	(5)	%	168.3	161.9	174.4	167.2	170.3	174.5	164.7
Energy Efficiency Class	(6)		A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	140.8	166.9	231.0	256.1	296.0	351.3	389.5
Absorbed power	(7) (12)	kW	23.9	29.7	41.7	46.7	52.6	62.0	70.6
COP Compressor only	(7) (12) (9)		5.89	5.62	5.55	5.49	5.63	5.66	5.51
SCOP Seasonal Coefficient of Performance	(4)		3.37	3.23	3.59	3.43	3.38	3.41	3.32
ηs,h Seasonal Space Heating Efficiency	(5)	%	132.0	126.0	141.0	134.0	132.0	133.0	130.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R452B									
Total Heating Capacity	(10)	kW	43.2	51.4	69.7	76.9	89.9	106.3	117.2

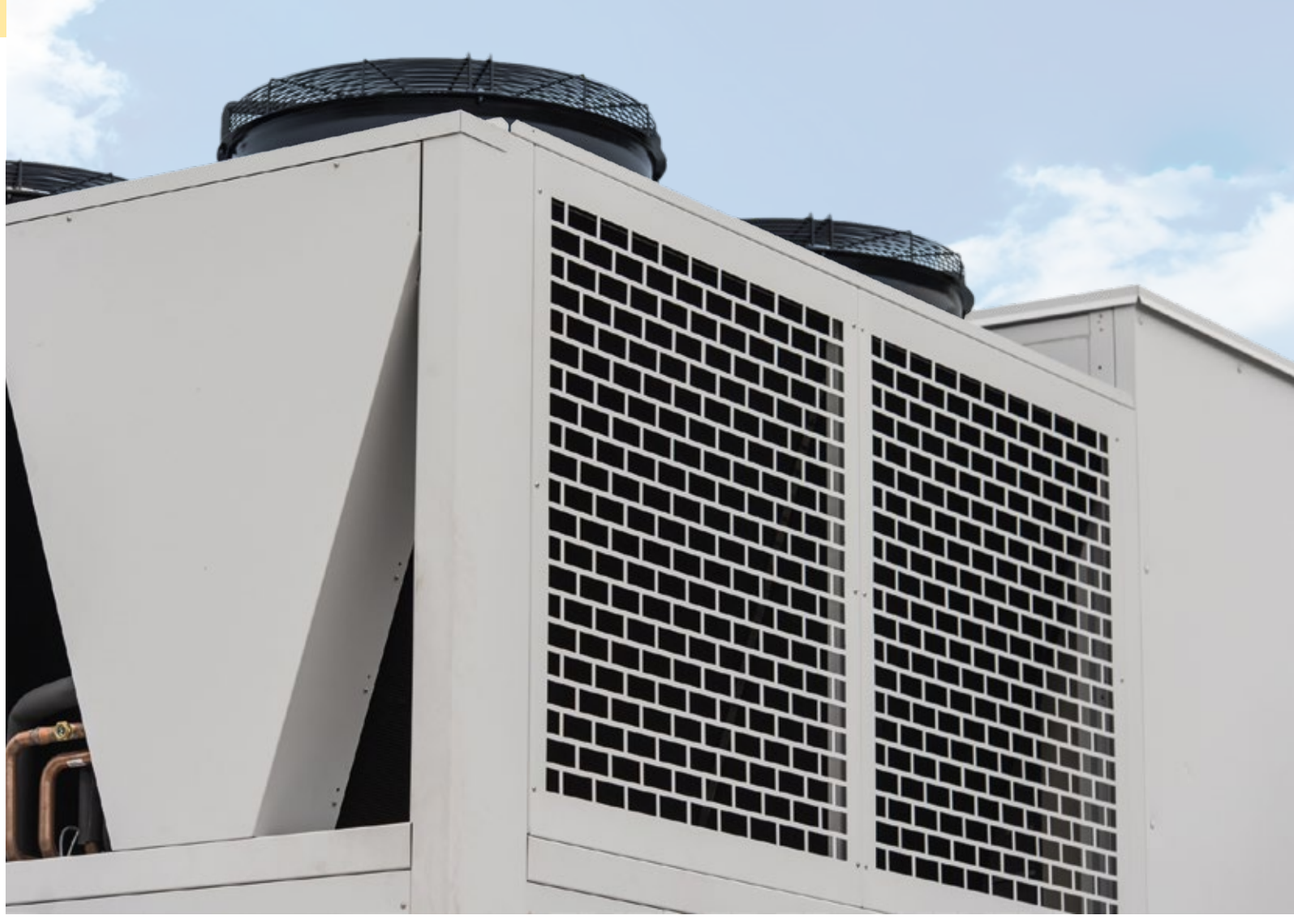
NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.

General technical specifications calculated with Gas R454B

R454B is a zeotropic mixture, that does not harm the ozone layer, developed as an alternative to the reduced GWP of R410A in air-conditioning and heating applications, in heat pump mode in volumetric displacement systems. A basic feature of R454B is the 78% reduction of GWP, with comparable efficiency and capacity to R410A.

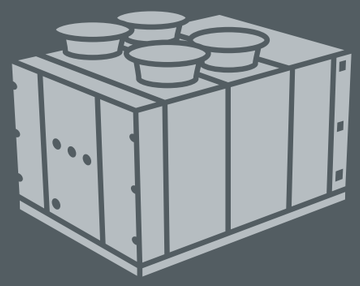
Model HE-RTU			125	150	200	250	300	350	400
RO Version									
Performance-R454B									
Supply Airflow		m^3/h	26000	32000	40000	48000	56000	60000	66000
Total Cooling Capacity	(1) (2)	kW	136.1	162.8	218.0	243.3	281.6	342.9	378.6
Sensible Cooling Capacity	(1) (2)	kW	104.6	125.7	174.0	192.5	221.9	259.6	285.6
Absorbed power	(1) (2)	kW	27.0	34.7	51.1	60.8	66.3	77.4	89.9
EER Compressors only	(1) (2) (3)		5.03	4.69	4.27	4.00	4.25	4.43	4.21
SEER Seasonal Energy Efficiency Ratio	(4)		4.21	4.32	4.39	4.13	4.31	4.42	4.19
ηs,c Seasonal Space Cooling Efficiency	(5)	%	164.3	168.6	171.5	161.0	168.2	172.6	163.5
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (8)	kW	135.7	164.6	223.1	248.9	286.3	345.9	384.5
Absorbed power	(7) (8)	kW	24.6	31.1	43.6	49.74	55.6	66.0	75.1
COP Compressor only	(7) (8) (9)		5.52	5.29	5.12	5.00	5.15	5.24	5.12
SCOP Seasonal Coefficient of Performance	(4)		3.23	3.33	3.46	3.31	3.31	3.33	3.25
ηs,h Seasonal Space Heating Efficiency	(5)	%	126.0	130.0	135.0	129.0	129.0	130.0	127.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R454B									
Total Heating Capacity	(10)	kW	44.9	53.7	71.9	80.3	92.9	113.1	124.9
RF Version									
Performance-R454B									
Supply Airflow		m^3/h	26000	32000	40000	48000	56000	60000	66000
Total Cooling Capacity	(1) (12)	kW	142.7	170.0	228.4	254.4	294.6	358.7	396.1
Sensible Cooling Capacity	(1) (12)	kW	109.5	131.3	181.4	201.3	232.4	271.2	298.2
Absorbed power	(1) (12)	kW	27.5	35.5	51.9	61.9	67.3	78.4	91.2
EER Compressors only	(1) (12) (3)		5.19	4.79	4.40	4.11	4.38	4.57	4.34
SEER Seasonal Energy Efficiency Ratio	(4)		4.21	4.32	4.39	4.13	4.31	4.42	4.19
ηs,c Seasonal Space Cooling Efficiency	(5)	%	164.3	168.6	171.5	161.0	168.2	172.6	163.5
Energy Efficiency Class			A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	137.6	166.3	225.9	251.8	289.9	348.8	388.0
Absorbed power	(7) (12)	kW	22.9	28.9	40.6	46.5	51.7	61.2	69.6
COP Compressor only	(7) (12) (9)		6.00	5.76	5.56	5.42	5.61	5.70	5.58
SCOP Seasonal Coefficient of Performance	(4)		3.23	3.33	3.46	3.31	3.31	3.33	3.25
ηs,h Seasonal Space Heating Efficiency	(5)	%	126.0	130.0	135.0	129.0	129.0	130.0	127.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R454B									
Total Heating Capacity	(10)	kW	47.1	56.6	75.1	83.4	97.8	116.0	127.6
RF/RTA Version									
Performance-R454B									
Supply Airflow		m^3/h	26000	32000	40000	48000	56000	60000	66000
Maximum externail Airflow		m^3/h	13000	16000	20000	24000	28000	30000	33000
Total Cooling Capacity	(1) (12)	kW	143.4	170.9	229.8	255.9	296.4	360.5	398.0
Sensible Cooling Capacity	(1) (12)	kW	109.8	131.6	181.9	201.8	233.0	271.8	298.9
Absorbed power	(1) (12)	kW	27.1	35.0	51.2	61.1	66.4	77.4	90.0
EER Compressors only	(1) (12) (3)		5.29	4.88	4.48	4.19	4.47	4.66	4.42
SEER Seasonal Energy Efficiency Ratio	(4)		4.21	4.32	4.39	4.13	4.31	4.42	4.19
ηs,c Seasonal Space Cooling Efficiency	(5)	%	164.3	168.6	171.5	161.0	168.2	172.6	163.5
Energy Efficiency Class	(6)		A	A	n.a.	n.a.	n.a.	n.a.	n.a.
Total Heating Capacity	(7) (12)	kW	139.6	168.7	229.1	255.4	293.9	353.8	393.5
Absorbed power	(7) (12)	kW	23.1	29.1	40.9	46.8	52.0	61.6	70.0
COP Compressor only	(7) (12) (9)		6.04	5.80	5.60	5.46	5.65	5.74	5.62
SCOP Seasonal Coefficient of Performance	(4)		3.23	3.33	3.46	3.31	3.31	3.33	3.25
ηs,h Seasonal Space Heating Efficiency	(5)	%	126.0	130.0	135.0	129.0	129.0	130.0	127.0
Bivalent Temperature	(5)	° C	-7	-7	-7	-7	-7	-7	-7
Energy Efficiency Class			A+	A+	A+	A+	A+	A+	A+
Reheating R454B									
Total Heating Capacity	(10)	kW	47.3	56.6	75.1	83.4	97.8	116.0	127.6

NOTES: **(1)** Internal Air Temperature 27°C B.S./19°C B.U. Fresh Air Temperature 35°C B.S./24°C B.U. (According to EN14511-Table 4-cooling Mode); **(2)** Performance with Total recirculation Air 27°C B.S./19°C B.U.; **(3)** EER referring only to cooling compressors; **(4)** According to EN 14825:2016; **(5)** According to ECODESIGN Regulation (EU) no. 2016/2281–ENER LOT 21 (ERP); **(7)** Internal Air Temperature 20°CB.S./12°C B.U. Fresh Air Temperature 7°C B.S./6°C B.U. (According to EN14511-Table 3-Heating Mode); **(8)** Performance with Total recirculation Air 20°C B.S./12°C B.U.; **(9)** COP referring only to cooling compressors; **(10)** Heating capacity in summer reheating mode with hot gas, referring to temperature of air entering the reheating coil of 16°C and external air temperature of 35°C; **(11)** Total available static pressure (maximum available) for the return of air from the rooms and for supply, with clean standard G4 filter; **(12)** Performance with Fresh Air 30%.



ROCCHEGGIANI®
care for air

Multi-purpose heat pumps



NRE-MPU

MULTI-PURPOSE UNITS WITH R290 NATURAL REFRIGERANT FOR 4-TUBE HYDRONIC SYSTEMS

- Air-to-Water type heat pump
- Independent, hot and cold production at the same time
- Cooling capacities from 63 to 413 kW
- Heating capacities from 59 to 508 kW

ErP 2021 COMPLIANT

R290

BIM READY

The multi-purpose Units with R290 natural coolant for 4-tube hydronic systems in Roccheggiani NRE-MPU range are units designed to ensure (based on the chosen configuration and accessories) the efficient and independent contemporary production of fluids suitable for winter heating and summer air conditioning of buildings, maximising heat recovery and ensuring maximum seasonal yield. The Units are designed for all commercial applications, multifamily housing and service industries requiring simultaneous loads for heating and cooling, even with ratios that may differ and vary over time.
The multi-purpose units in the NRE-MPU range enable reduced consumption of primary energy from non-renewable sources with minimum impact on global warming.
Maximum efficiency is achieved through the smart use of heat pump technology, exploiting the request for contemporary loads to ensure heating and cooling demands from the various areas in the building. In high-efficiency buildings, often characterised by opposing, concurrent thermal loads, the multi-purpose units in NRE-MPU range are the most efficient solution compared to conventional systems (e.g. Chillers and Boilers). The distinctive feature which makes the Multi-purpose units by Roccheggiani a truly “long-term green solution” is the use of R290 natural refrigerant. In compliance with the EU F-gas regulations (that have for some time opened the way, in commercial refrigeration, to natural coolants such as R290, NH3 and CO2), this coolant is highly efficient and also future-proof because, with a GWP value of 3 and an ODP of 0, it is already in line with the deadline of 2025 as regards F-gas.
The multi-purpose Units with R290 natural coolant for 4-tube hydronic systems in Roccheggiani NRE-MPU range are manufactured in compliance with the UNI EN 12100 Standard and the CE mark directives, according to an ISO 9001-certified quality assurance system.

Download the technical bulletin

APPLICATIONS

- Tertiary
- Hotel
- Hospitals, clinics and nursing homes
- Schools and Colleges
- Medium-to-large sized shopping centres
- Multifamily housing
- Offices

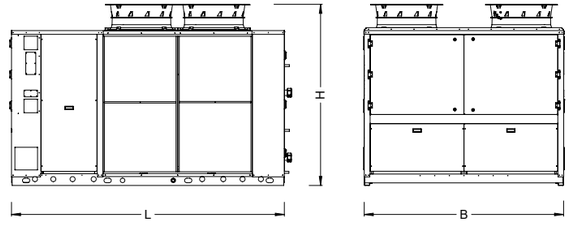
ACCESSORIES

- Loading unit
- Antifreeze heating element
- Double setpoint from digital input
- Serial interface RS485
- Remote user terminal
- Soft-starter
- Compensation of the set point based on outdoor temperature
- Maximum and minimum voltage relay
- Water pressure gauges
- Vibration dampers
- Low water temperature kit

ROCCHEGGIANI care for air
MULTI-PURPOSE HEAT PUMPS
NRE-MPU

General technical data

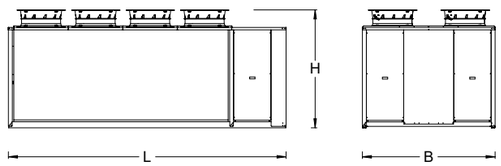
Model NRE-MPU			61	74	86	114	138
Natural Refrigerant			R290	R290	R290	R290	R290
Independent Hot/Cold Storages			Dual	Dual	Dual	Dual	Dual
Water flow rate Modulation Hot side (Min-Max)			30-100%	30-100%	30-100%	30-100%	30-100%
Water flow rate Modulation Cold side (Min-Max)			30-100%	30-100%	30-100%	30-100%	30-100%
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021
Total recovery (W15-W30) (7)							
Total Cooling Capacity	(3)	kW	63.9	77.3	90.0	119.9	145.0
Total Heating Capacity	(3)	kW	77.0	92.8	107.6	145.9	175.8
TCOP			10.79	11.02	11.24	10.23	10.43
Absorbed power		kW	13.1	15.4	17.6	26.0	30.8
Cooling (W15-A35)							
Total Cooling Capacity	(1)	kW	61.0	73.6	86.2	114.5	138.0
Absorbed power	(1)	kW	14.9	17.5	20.0	29.6	34.7
EER EN 14511			4.05	4.17	4.27	3.81	3.92
ESEER			4.70	4.70	4.56	4.67	4.56
IPLV			4.64	4.83	4.37	4.60	4.69
SEER Seasonal Energy Efficiency Ratio	(2)		4.21	4.18	4.13	4.52	4.37
Energy Efficiency ηs,c	(3)	%	165.4	164.2	162.4	177.6	170.4
Heating (W30-A7)							
Total Heating Capacity	(4)	kW	50.4	60.6	70.1	100.8	121.2
Absorbed power	(4)	kW	12.8	14.9	16.9	25.5	29.7
COP EN 14511			3.87	3.99	4.07	3.89	4.01
SCOP Seasonal Coefficient of Performance	(5)		4.12	4.78	4.60	4.44	4.40
Energy Efficiency ηs,c	(6)	%	162.0	188.0	181.0	175.0	172.0
Compressors							
Compressor			Semi-herm.	Semi-herm.	Semi-herm.	Semi-herm.	Semi-herm.
Total Compressor Number		no.	1	1	1	2	2
Number of Refrigeration Circuit		no.	1	1	1	2	2
Capacity step		%.	40-100	40-100	40-100	20-100	20-100
Refrigerant GWP		no.	3	3	3	3	3
Cold hydronic circuit							
Chilled Water Storage Volume		l	200	200	200	200	200
Waterflow		m³/h	10.50	12.66	14.82	19.69	23.73
Coil ΔP		kPa	7.6	7.9	8.1	20.1	21.2
Heat Exchanger			Mono circuit plates			Dual circuit plates	
Heat Exchanger Number		no.	1	1	1	1	1
Hot hydronic circuit							
Chilled Water Storage Volume		l	200	200	200	200	200
Waterflow		m³/h	8.67	10.42	12.05	17.34	20.85
Coil ΔP		kPa	49.4	49.3	51.9	49.0	50.5
Heat Exchanger			Mono circuit plates			Dual circuit plates	
Heat Exchanger Number		no.	1	1	1	1	1
Dimensions							
B		mm	1700	1700	1700	2200	2200
H		mm	2000	2000	2000	2000	2000
L		mm	3500	3500	3500	3500	3500
Weight		kg	1445	1474	1500	2363	2384



NOTES: **(1)** Water evaporator (in/out) = 20/15°C; Air condenser (in) = 35°C; **(2)** According to EN 14825:2019; **(3)** According to ECODESIGN Regulation (EU) no. 2016/2281 – ENER LOT 21 (ERP); **(4)** Water condenser (in/out) = 30/35°C; Air evaporator (in) = 7°C RH 87%; **(5)** According to EN 14825:2019; **(6)** According to ECODESIGN Regulation (EU) no. 2016/2281 – ENER LOT 21 (ERP); **(7)** Water evaporator (in/out) = 20/15°C; Water heat recovery unit (in/out) = 30/35°C.

General technical data

Model NRE-MPU			**170**	**194**	**246**	**272**	**335**	**402**
Natural Refrigerant			R290	R290	R290	R290	R290	R290
Independent Hot/Cold Storages			Dual	Dual	Dual	Dual	Dual	Dual
Water flow rate Modulation Hot side (Min-Max)			30-100%	30-100%	30-100%	30-100%	30-100%	30-100%
Water flow rate Modulation Cold side (Min-Max)			30-100%	30-100%	30-100%	30-100%	30-100%	30-100%
Compliance with Reg. EU 2016/2281 - ENER LOT 21 - TIER 2			ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021	ERP 2021
Total recovery (W15-W30) (7)								
Total Cooling Capacity	(3)	kW	175.8	201.2	255.3	282.2	342.6	413.4
Total Heating Capacity	(3)	kW	214.7	244.7	312.0	344.8	426.1	508.3
TCOP			10.05	10.25	10.01	10.00	9.20	9.71
Absorbed power		kW	38.9	43.5	56.7	62.7	83.5	94.9
Cooling (W15-A35)								
Total Cooling Capacity	(1)	kW	170.1	194.1	246.4	272.4	334.6	402.2
Absorbed power	(1)	kW	44.8	49.9	65.0	71.4	97.7	108.6
EER EN 14511			3.75	3.84	3.74	3.76	3.38	3.65
ESEER			4.60	4.53	4.50	4.32	4.33	4.01
IPLV			4.65	4.56	4.46	4.16	4.53	4.17
SEER Seasonal Energy Efficiency Ratio	(2)		4.52	4.49	4.48	4.29	4.33	4.10
Energy Efficiency $\eta_{s,c}$	(3)	%	177.6	177.7	176.1	168.4	170.2	161.1
Heating (W30-A7)								
Total Heating Capacity	(4)	kW	148.4	168.0	213.8	236.4	291.2	343.0
Absorbed power	(4)	kW	38.4	42.3	55.3	60.7	82.8	97.4
COP EN 14511			3.81	3.91	3.82	3.85	3.48	3.48
SCOP Seasonal Coefficient of Performance	(5)		4.27	4.22	4.21	4.11	3.97	3.75
Energy Efficiency $\eta_{s,c}$	(6)	%	168.0	166.0	165.0	161.0	156.0	147.0
Compressors								
Compressor			Semi-herm.	Semi-herm.	Semi-herm.	Semi-herm.	Semi-herm.	Semi-herm.
Total Compressor Number		no.	2	2	2	2	2	2
Number of Refrigeration Circuit		no.	2	2	2	2	2	2
Capacity step		%	20-100	20-100	20-100	20-100	20-100	20-100
Refrigerant GWP		no.	3	3	3	3	3	3
Cold hydronic circuit								
Chilled Water Storage Volume		l	400	400	600	600	800	800
Waterflow		m^3/h	29.26	33.39	42.39	46.85	57.56	69.18
Coil ΔP		kPa	22.6	23.9	29.8	31.3	32.4	34.4
Heat Exchanger			Dual circuit plates					
Heat Exchanger Number		no.	1	1	1	1	1	1
Hot hydronic circuit								
Chilled Water Storage Volume		l	400	400	600	600	800	800
Waterflow		m^3/h	25.53	28.90	36.78	40.65	50.09	58.99
Coil ΔP		kPa	50.4	52.5	52.2	50.6	52.3	52.1
Heat Exchanger			Dual circuit plates					
Heat Exchanger Number		no.	1	1	1	1	1	1
Dimensions								
B		mm	2200	2200	2200	2200	2200	2200
H		mm	2000	2000	2000	2000	2450	2450
L		mm	4500	4500	5500	5500	7300	7300
Weight		kg	2677	2755	3344	3397	5320	5500



NOTES: **(1)** Water evaporator (in/out) = 20/15°C; Air condenser (in) = 35°C; **(2)** According to EN 14825:2019; **(3)** According to ECODESIGN Regulation (EU) no. 2016/2281 – ENER LOT 21 (ERP); **(4)** Water condenser (in/out) = 30/35°C; Air evaporator (in) = 7°C RH 87%; **(5)** According to EN 14825:2019; **(6)** According to ECODESIGN Regulation (EU) no. 2016/2281 – ENER LOT 21 (ERP); **(7)** Water evaporator (in/out) = 20/15°C; Water heat recovery unit (in/out) = 30/35°C.

Water chillers & reversible heat pumps

NRE-CWU
NRE-HDP

WATER CHILLERS & REVERSIBLE AIR/WATER HEAT PUMPS FROM 40 TO 600 KW

NRE-CWU
NRE-HDP

WATER CHILLERS & REVERSIBLE AIR/WATER HEAT PUMPS FROM 40 TO 600 KW

- Refrigerant R454B: GWP = 466 (-78% R410a / -31% R32)
- SEASONAL EFFICIENCY very high during cold and hot periods
- Ample possibilities for chilling and hydronic configuration
- Compact size
- High efficiency with partial loads
- Reduced quantities of refrigerant
- Extremely low-noise operation

ErP 2021 COMPLIANT

R454B

BIM READY

The chillers and heat pumps are designed for use in air conditioning and heating systems for commercial and industrial users.
The High Efficiency Units in the NRE-CWU and NRE-HDP series provide unparalleled results in terms of limiting the TLC (Total Life Cost).
By favouring the use of renewable energy sources, they can help the buildings where they are installed to achieve top energy classification levels and best performances under the various global protocols in the field of Green Buildings, such as LEED® and BREEAM®.
Energy efficiency has been a main focus and Minimum Energy Performance Standards have been achieved in line with the ECODESIGN Regulation (EU) no. 2016/2281. Successful compliance with all the energy efficiency indices – SEER, SEPR and SCOP – makes this series suitable for use in any context.
As regards noise emissions, the units are designed to provide effective sound proofing in the compressor section.

VERSIONS

- CWU only chilling
- HDP reversible heat pump
- SL Silencing of up to -6.8 dB(A) compared to Standard
- SLN SuperSilencing up to -9.2 dB(A) compared to Standard
- RP Partial Recovery
- HT High Temperature
- ID Version for industry
- CT/CTS Marine type Onshore/Offshore

ACCESSORIES

- 1/2 PB - 1/2 low head pumps (10-15m)
- 1/2 PA - 1/2 high head pumps (20-25m)
- 1/2 PBS - 1/2 low head pumps (10-15m) + Inertial tank
- 1/2 PAS - 1/2 low head pumps (20-25m) + Inertial tank
- 1/2 PIPC - Inverter pumps with constant pressure operation

APPLICATIONS

- Industrial
- Hospitals
  Nursing homes
- Schools and Colleges
- Sports facilities
- Restaurants / Catering
- Multifamily housing
- Airports
  Railway stations
- Supermarkets
- Hotels
- Tertiary sector
- Shops
- Offices
- Cinemas / Theatres
- Wellness centres
- Marine and Offshore
  Power Plant

ROCCHEGGIANI care for air
WATER CHILLERS & REVERSIBLE HEAT PUMPS
NRE-CWU
NRE-HDP

Refrigerante R454B, Care-for-air for a greener Future

R454B is a zeotropic mixture (69% R-32 + 31% R-1234yf) that does not harm the ozone layer (ODP = 0), developed as an alternative to R410A with a reduced GWP for air-conditioning and heating applications in volumetric displacement systems in heat pump mode.
GWP is equal to 466 (IPCC 5), with a 78% reduction compared to R410A (GWP = 2088) and a 31% reduction compared to R-32 (GWP = 675).
R454B is an odourless, non-toxic, class A2L refrigerant, with low inflammability (in accordance with ISO 817), belonging to the Group 1 fluids (PED).
Refrigerant charge reduced by 30% compared to R410A. Overall carbon footprint reduced by 84.4% compared to R410A (kg CO2,eq)

Main components

Compressor chamber easily accessible for routine maintenance

EC fans Ø 910 mm with special nozzle for noise reduction

Electric panel for outdoor installation
Three-phase power supply 400V/3+N+T/50Hz
Isolation switch with door lock
Graphical display of interface

Minimum presence of components in the lower part of the unit to leave ample surface area for air flow

Reduced refrigerant charge
Operation with full charge up to +46°C
Operation with reduced charge up to +55°C
Testing on 100% production with full refrigerant gas charge

Deep finned coils for high heat exchange coefficients

Struttura
Compact size
Monobloc load-bearing structure in painted galvanised steel
Small parts in stainless steel
Epoxy painting RAL7012
Suitable for external installation
Corrosion resistant
Prepared for vibration dampers to be fitted
Prepared with eyebolts for lifting

Air system circuit
EC fans Ø 910 mm
Coils with multi-V geometry
Air-system compartment can be inspected for maintenance
Noise control for night-time hours

Hydraulic accessories
1/2 low/high head pumps
Inverter pumps with constant pressure operation
Inertial tank
Stainless steel tubes AISI304 or AISI316
Pressure gauges upstream and downstream of the pump(s)
Air release valve
Vacuum/vacuum breaker valves
Automatic loading unit
Water filter (supplied)

Mechanical accessories
Rubber vibration dampers
Coil protection filters

Cooling circuit
SCROLL Compressors in tandem and/or trio configuration
Refrigerant gas with low GWP (466): R454B
Air exchanger with micro tubes: Diameter 5 mm (NRE-HDP)
Air exchanger with micro channels (NRE-CWU)
Single and dual circuit plate evaporator
Electronic expansion valve
Standard gas leak sensor

Hydraulic circuit
Standard setup with evaporator only
Suitable for operation with glycol up to 40%
UV-resistant pipe insulation
Prepared for Free-cooling version with parallel monobloc

Refrigerator accessories
Refrigerant pressure gauges
Tandem/Trio suction and supply taps

Electrical accessories
Antifreeze heating element
Supplementary heating elements
Management relays for 1/2 external pumps
Double set point from digital input
Variable set point from analogical input
Soft Starter compressors
Compressor re-phasing device
Remote user terminal
BMS network boards

Technical specifications – Water chiller

Model NRE-CWU			45.1	55.1	65.1	90.1	110.1	130.1	160.1	190.1
Cooling coil performance	**(1)**	**kW**	**39,3**	**50,4**	**56,4**	**82,6**	**98,0**	**116,0**	**148,0**	**177,0**
Total electrical power absorbed		kW	13,9	17,2	19,7	27,3	34,7	42,7	52,1	64,5
EER (UNI EN 14511-18)			**2,83**	**2,93**	**2,86**	**3,03**	**2,82**	**2,72**	**2,84**	**2,74**
SEER	(4)		3,88	3,85	3,91	4,27	4,20	4,08	4,16	3,99
ηs		%	152,2	150,9	153,3	167,7	165,1	160,1	163,4	156,7
SEPR HT	(4)		5,76	5,13	4,96	5,29	5,23	5,09	5,21	5,06
Compressors										
Number of Circuits		n°	1	1	1	1	1	1	1	1
Number of compressors		n°	2	2	2	2	2	2	2	2
Minimum capacity step		%	50%	50%	44%	40%	38%	32%	41%	45%
Refrigerant charge		kg	3,6	4,6	5,1	7,5	8,9	10,5	13,5	16,1
Tonnes CO2,eq		t,eq	1,7	2,1	2,4	3,5	4,2	4,9	6,3	7,5
Inspection frequency (Reg. 517/2014)			Exempt							
Hydronic										
Nominal water flow rate		m3/h	6,8	8,7	9,7	14,2	16,9	20,0	25,5	30,4
Water pressure drop		kPa	34,2	32,0	34,7	36,4	33,6	36,1	34,7	32,3
H Low Head Pump		m	18,2	17,6	17,2	15,9	15,1	14,2	14,7	13,7
H High Head Pump		m	21,4	21,0	20,7	21,4	21,1	20,7	26,5	26,5
Tank capacity		dm3	150	150	150	200	200	200	250	250
Hydraulic diameters		DN	40	40	40	65	65	65	65	65
Air distribution										
Fan type			Axial EC							
Fan diameter		Ø	910	910	910	910	910	910	910	910
Number of fans		n°	1	1	1	2	2	2	3	3
Noise										
Sound Power Level	(5)	dBA	86	86	86	88	88	88	90	90
Dimensions										
Height		mm	1973	1973	1973	2444	2444	2444	2444	2444
Width		mm	1099	1099	1099	1100	1100	1100	1100	1100
Length		mm	2592	2592	2592	3043	3043	3043	4113	4113
Base unit empty weight (1 pump)		Kg	710	750	755	1070	1080	1140	1415	1450
Power supply			**400 / 3+N+T / 50**							
Max power absorbed (FLI)		kW	22,3	29,3	32,5	48,4	58,8	65,8	88,9	100,9
Max current absorbed (FLA)		A	46,1	50,7	55,1	82,6	98,8	111,8	151,1	169,1
Max starting current (MIC)		A	125,1	152,4	174,4	252,3	255,8	371,8	401,1	383,1

NOTES:
(1) In accordance with standard EN14511-2018: chilled water on entry/exit: 12/7°C, air temperature 35°C DB. **(4) -** In accordance with standard EN14825. **(5) -** ISO 9614-2.

ROCCHEGGIANI care for air
WATER CHILLERS & REVERSIBLE HEAT PUMPS
NRE-CWU

Technical specifications – Water chiller

Model NRE-CWU			220.2	250.2	320.2	390.2	430.2	480.2	520.2	540.2	600.2
Cooling coil performance	**(1)**	**kW**	**196,0**	**231,0**	**294,0**	**352,0**	**394,0**	**430,0**	**473,0**	**490,0**	**490,0**
Total electrical power absorbed		kW	69,2	85,4	103,0	132,0	135,0	158,0	178,0	170,0	170,0
EER (UNI EN 14511-18)			**2,83**	**2,70**	**2,85**	**2,67**	**2,92**	**2,72**	**2,66**	**2,88**	**2,88**
SEER	(4)		4,27	4,12	4,27	4,28	4,19	4,11	4,18	4,22	4,22
ηs		%	167,8	161,9	167,6	168,1	164,7	161,3	164,1	165,8	165,8
SEPR HT	(4)		5,25	5,10	5,25	5,20	5,39	5,20	5,10	5,38	5,38
Compressors											
Number of Circuits		n°	2	2	2	2	2	2	2	2	2
Number of compressors		n°	4	4	4	5	4	6	6	6	6
Minimum capacity step		%	19%	16%	33%	22%	25%	18%	17%	20%	18%
Refrigerant charge		kg	17,8	21,0	26,7	32,0	35,8	39,1	43,0	44,5	48,2
Tonnes CO2,eq		t,eq	8,3	9,8	12,5	14,9	16,7	18,2	20,0	20,8	22,5
Inspection frequency (Reg. 517/2014)			Exempt		24 months						
Hydronic											
Nominal water flow rate		m3/h	33,7	39,7	50,6	60,5	67,8	74,0	81,4	84,3	91,2
Water pressure drop		kPa	36,6	35,2	33,8	37,4	35,8	36,6	35,6	37,3	35,2
H Low Head Pump		m	18,3	17,3	15,4	13,5	15,2	14,4	13,4	13,0	12,5
H High Head Pump		m	25,2	23,7	27,4	27,5	24,5	22,4	21,4	31,0	29,9
Tank capacity		dm3	300	300	300	300	300	300	300	600	600
Hydraulic diameters		DN	80	80	100	100	125	125	100	125	125
Air distribution											
Fan type			Axial EC								
Fan diameter		Ø	910	910	910	910	910	910	910	910	910
Number of fans		n°	4	4	6	6	8	8	8	10	10
Noise											
Sound Power Level	(5)	dBA	91	91	93	93	95	95	95	97	97
Dimensions											
Height		mm	2444	2444	2444	2444	2444	2444	2444	2444	2444
Width		mm	2240	2240	2240	2240	2240	2240	2240	2240	2240
Length		mm	3942	3942	5076	5076	6210	6210	6210	7344	7344
Base unit empty weight (1 pump)		Kg	2430	2450	3000	3085	3570	4000	4000	4250	4310
Power supply			**400 / 3+N+T / 50**								
Max power absorbed (FLI)		kW	117,2	131,2	171,9	197,9	225,0	244,0	264,8	280,7	299,7
Max current absorbed (FLA)		A	196,1	222,1	286,0	335,0	372,6	409,6	447,4	464,2	501,2
Max starting current (MIC)		A	353,1	482,1	500,0	595,0	586,6	623,6	707,4	678,2	715,2

NOTES:
(1) In accordance with standard EN14511-2018: chilled water on entry/exit: 12/7°C, air temperature 35°C DB. **(4) -** In accordance with standard EN14825. **(5) -** ISO 9614-2.

Technical data – Reversible Heat Pump

Model NRE-HDP			45.1	55.1	65.1	90.1	110.1	130.1	160.1	190.1
Cooling coil performance	(1)	**kW**	**39,3**	**50,4**	**56,4**	**82,6**	**98**	**116**	**148**	**177**
Absorbed electrical power	(1)	kW	13,9	17,2	19,7	27,3	34,7	42,7	52,1	64,5
EER (UNI EN 14511-18)	(1)		**2,83**	**2,93**	**2,86**	**3,03**	**2,82**	**2,72**	**2,84**	**2,74**
Heating Capacity	(2)	**kW**	**44,9**	**56,4**	**62,5**	**92,6**	**111**	**131**	**166**	**194**
Absorbed electrical power	(2)	kW	13,9	16,2	18,3	26,3	33,5	39,5	52,1	60,6
COP (UNI EN 14511-18)	(2)		**3,23**	**3,48**	**3,42**	**3,52**	**3,31**	**3,32**	**3,19**	**3,2**
SCOP	(4)		3,72	3,96	4,06	4,2	4,18	4,06	4,05	3,99
ηs		%	145,6	155,3	159,6	165	164,1	159,3	159	156,6
Compressors										
Number of Circuits		n°	1	1	1	1	1	1	1	1
Number of compressors		n°	2	2	2	2	2	2	2	2
Minimum capacity step		%	50%	50%	44%	40%	38%	32%	41%	45%
Refrigerant charge		kg	6,4	8,1	8,9	13,2	15,9	18,7	23,7	27,7
Tonnes CO2,eq		t,eq	3	3,8	4,2	6,2	7,4	8,7	11,1	12,9
Inspection frequency (Reg. 517/2014)			Exempt						24 months	
Hydronic										
Nominal water flow rate		m3/h	7,7	9,7	10,8	15,9	19,1	22,5	28,6	33,4
Water pressure drop		kPa	38	37	41	42	38	41	40	39
H Low Head Pump		m	17,8	17,1	16,6	15,3	14,7	13,7	14,2	13
H High Head Pump		m	21	20,5	20,1	20,8	20,7	20,2	26	25,8
Tank capacity		dm3	150	150	150	200	200	200	250	250
Hydraulic diameters		DN	40	40	40	65	65	65	65	65
Air distribution										
Fan type			Axial EC fans							
Fan diameter		Ø	910	910	910	910	910	910	910	910
Number of fans		n°	1	1	1	2	2	2	3	3
Noise										
Sound Power Level	(5)	dBA	86	86	86	88	88	88	90	90
Dimensions										
Height		mm	1973	1973	1973	2444	2444	2444	2444	2444
Width		mm	1099	1099	1099	1100	1100	1100	1100	1100
Length		mm	2592	2592	2592	3043	3043	3043	4113	4113
Base unit empty weight (1 pump)		Kg	740	785	790	1120	1130	1200	1490	1525
Power supply			**400 / 3+N+T / 50**							
Max power absorbed (FLI)		kW	22,3	29,3	32,5	48,4	58,8	65,8	88,9	100,9
Max current absorbed (FLA)		A	46,1	50,7	55,1	82,6	98,8	111,8	151,1	169,1
Max starting current (MIC)		A	125,1	152,4	174,4	252,3	255,8	371,8	401,1	383,1

NOTES:
(1) In accordance with standard EN14511-2018: chilled water on entry/exit: 12/7°C, air temperature 35°C DB. **(2)** In accordance with standard EN14511-2018: hot water on entry/exit: 40/45°C, air temperature 7°C DB/6°C WB. **(4)** In accordance with standard EN14825. **(5)** ISO 9614-2.

ROCCHEGGIANI care for air
WATER CHILLERS & REVERSIBLE HEAT PUMPS
NRE-HDP

Technical data – Reversible Heat Pump

Model NRE-HDP			220.2	250.2	320.2	390.2	430.2	480.2	520.2	540.2	600.2
Resa frigorifera	(1)	**kW**	**196**	**231**	**294**	**352**	**394**	**430**	**473**	**490**	**530**
Potenza elettrica assorbita	(1)	kW	69,2	85,4	103	132	135	158	178	170	192
EER (UNI EN 14511-18)	(1)		**2,83**	**2,7**	**2,85**	**2,67**	**2,92**	**2,72**	**2,66**	**2,88**	**2,76**
Resa termica	(2)		223	261	334	400	443	489	537	556	606
Potenza elettrica assorbita	(2)	%	66,7	79	99,8	122	135	148	165	169	184
COP (UNI EN 14511-18)	(2)		3,34	3,3	3,35	3,28	3,28	3,3	3,25	3,29	3,29
SCOP	(4)		4,24	3,81	4,24	3,84	4,11	4,15	3,76	4,15	3,71
ηs			166,6	149,4	166,6	150,6	161,5	163	147,4	163,2	147,4
Compressors											
Number of Circuits		n°	2	2	2	2	2	2	2	2	2
Number of compressors		n°	4	4	4	5	4	5	6	5	6
Minimum capacity step		%	19%	16%	33%	22%	25%	18%	17%	20%	18%
Refrigerant charge		kg	31,9	37,3	47,7	57,1	63,3	69,9	76,7	79,4	86,6
Tonnes CO2,eq		t,eq	14,8	17,4	22,2	26,6	29,5	32,6	35,7	37	40,3
Inspection frequency (Reg. 517/2014)			24 months								
Hydronic											
Nominal water flow rate		m3/h	38,4	44,9	57,4	68,8	76,2	84,1	92,4	95,6	104,2
Water pressure drop		kPa	41	40	38	42	41	41	40	42	39
H Low Head Pump		m	17,9	16,8	15	13	14,7	14	13	12,5	12,1
H High Head Pump		m	24,8	23,2	27	27	24	22	21	30,5	29,5
Tank capacity		dm3	300	300	300	300	300	300	300	600	600
Hydraulic diameters		DN	80	80	100	100	125	125	125	125	125
Air distribution											
Fan type			Axial EC fans								
Fan diameter		Ø	910	910	910	910	910	910	910	910	910
Number of fans		n°	4	4	6	6	8	8	8	10	10
Noise											
Sound Power Level	(5)	dBA	91	91	93	93	95	95	95	97	97
Dimensions											
Height		mm	2444	2444	2444	2444	2444	2444	2444	2444	2444
Width		mm	2240	2240	2240	2240	2240	2240	2240	2240	2240
Length		mm	3942	3942	5076	5076	6210	6210	6210	7344	7344
Base unit empty weight (1 pump)		Kg	2530	2550	3130	3290	3740	4030	4030	4480	4540
Power supply			**400 / 3+N+T / 50**								
Max power absorbed (FLI)		kW	117,2	131,2	171,9	197,9	225	244	264,8	280,7	299,7
Max current absorbed (FLA)		A	196,1	222,1	286	335	372,6	409,6	447,4	464,2	501,2
Max starting current (MIC)		A	353,1	482,1	500	595	586,6	623,6	707,4	678,2	715,2

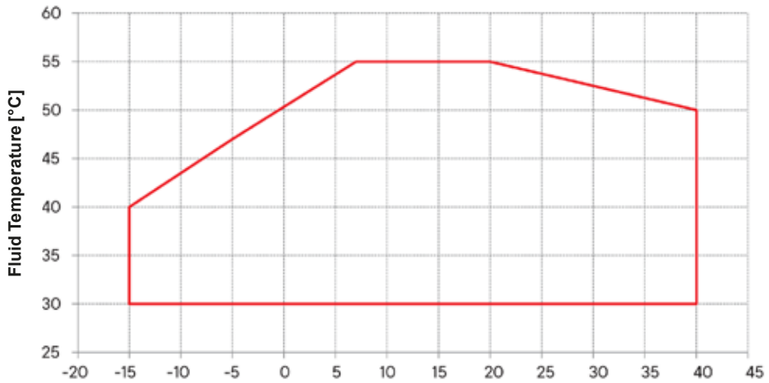
NOTES:
(1) In accordance with standard EN14511-2018: chilled water on entry/exit: 12/7°C, air temperature 35°C DB. **(2)** In accordance with standard EN14511-2018: hot water on entry/exit: 40/45°C, air temperature 7°C DB/6°C WB. **(4)** In accordance with standard EN14825. **(5)** ISO 9614-2.

Technical Specifications – Recovery

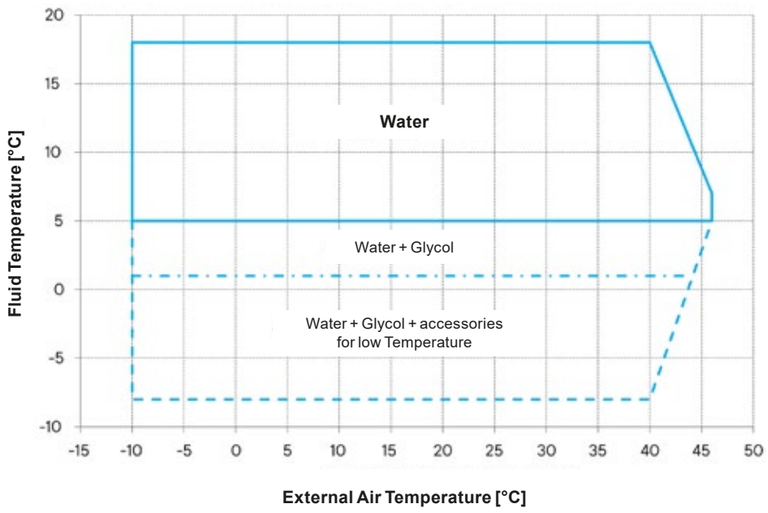
PARTIAL RECOVERY																		
MODEL NRE-		**45.1**	**55.1**	**65.1**	**90.1**	**110.1**	**130.1**	**160.1**	**190.1**	**220.2**	**250.2**	**320.2**	**390.2**	**430.2**	**480.2**	**520.2**	**540.2**	**600.2**
Heating capacity	**kW**	**9,2**	**11,8**	**13,1**	**19,2**	**23,1**	**27,1**	**34,8**	**41,4**	**46,0**	**53,9**	**68,9**	**82,9**	**91,7**	**102,3**	**112,4**	**114,2**	**124,3**
Water flow rate W40/45	m³/h	1,6	2,0	2,2	3,3	4,0	4,7	6,0	7,1	7,9	9,3	11,8	14,3	15,8	17,6	19,3	19,6	21,4
Water pressure drop	kPa	37,0	38,0	40,0	38,0	39,0	42,0	40,0	41,0	38,0	42,0	40,0	41,0	42,0	43,0	45,0	44,0	47,0

Operating limits

HEATING



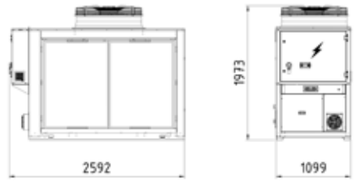
COOLING



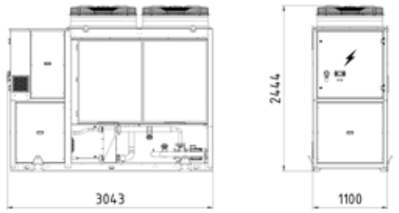
ROCCHEGGIANI care for air
WATER CHILLERS & REVERSIBLE HEAT PUMPS
NRE-CWU
NRE-HDP

Dimensions

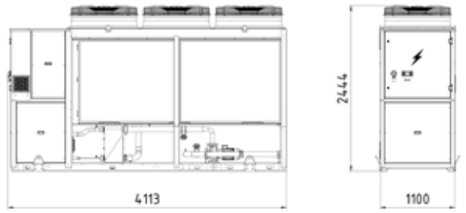
MODEL 45.1 – 55.1 – 65.1



MODEL 90.1 – 110.1 – 130.1



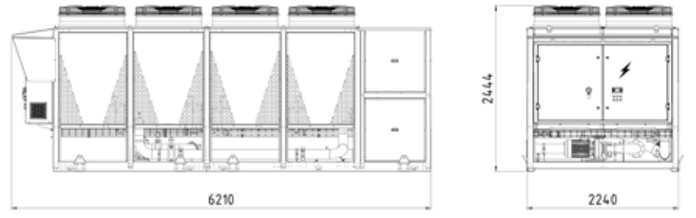
MODEL 160.1 – 190.1



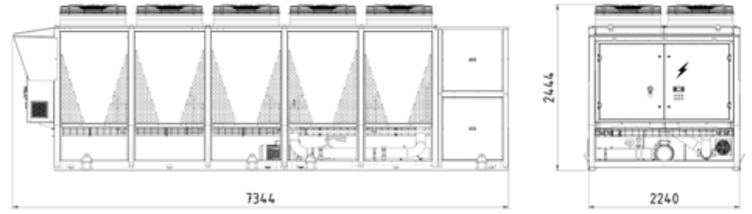
MODEL 220.2 – 250.2

MODEL 320.2 – 390.2

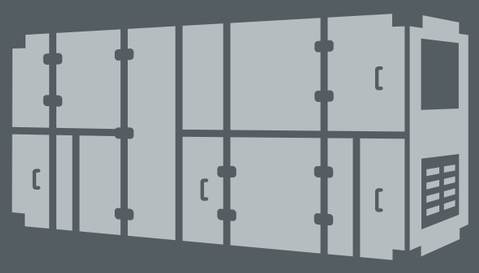
MODEL 430.2 – 480.2 – 520.2



MODEL 540.2 – 600.2



Packaged air renewal and handling units



RRU-FA

INTEGRATED AIR HANDLING UNITS

- Air-to-Air type heat pump
- 100% Fresh air
- Air flows from 2,500 to 25,000 m³/h
- Total cooling capacity from 44.3 to 404 kW
- Total heating capacity from 44.7 to 425 kW
- 4 recovery stages

Steri-Lite Powered by airlite

ErP 2021 COMPLIANT

R410A

BIM READY

The RRU-FA range was conceived by Roccheggiani to meet the growing demand for air quality and energy savings. These units are intended to suit all systems where primary air supply needs to be ensured: systems with hydronic terminals or chilled beams, induction systems, radiant systems and existing systems needing improvement in order to provide the appropriate level of fresh air.
Fresh air handling is initially performed through a first stage of sensitive and latent heat recovery by means of a thermal wheel, with efficiencies exceeding 85%; a second stage of heat recovery is performed through a fully integrated refrigeration/heat pump cycle with R410A ecological refrigerant (thermodynamic recovery). A third stage of heat recovery takes place during cooling using the latent heat in condensation; during the summer dehumidification phase, a fourth heat recovery stage is performed by reheating the air using appropriately drawn hot R410A.
The units can be equipped (as an optional) with a water-filled pre-heating/cooling coil.
This kind of coil can be fed with return water from radiant systems or chilled beams; alternatively, RRU-FA units can also be integrated with geothermal or solar heat sources.
Ten sizes are available with nominal air flows ranging from 2.500 to 25.000 m³/h.

Download the technical bulletin

APPLICATIONS

- Tertiary
- Hotel
- Schools and Colleges
- Medium-to-large sized shopping centres
- Offices
- Nursing homes

ACCESSORIES

- Pre-treatment water coil
- Refrigerant coils
- H10 Electronic filters
- Silencer sections
- Steam humidification sections
- Application for VAV operation
- Operation for UV-C lamps and ionizers
- Steli-Lite

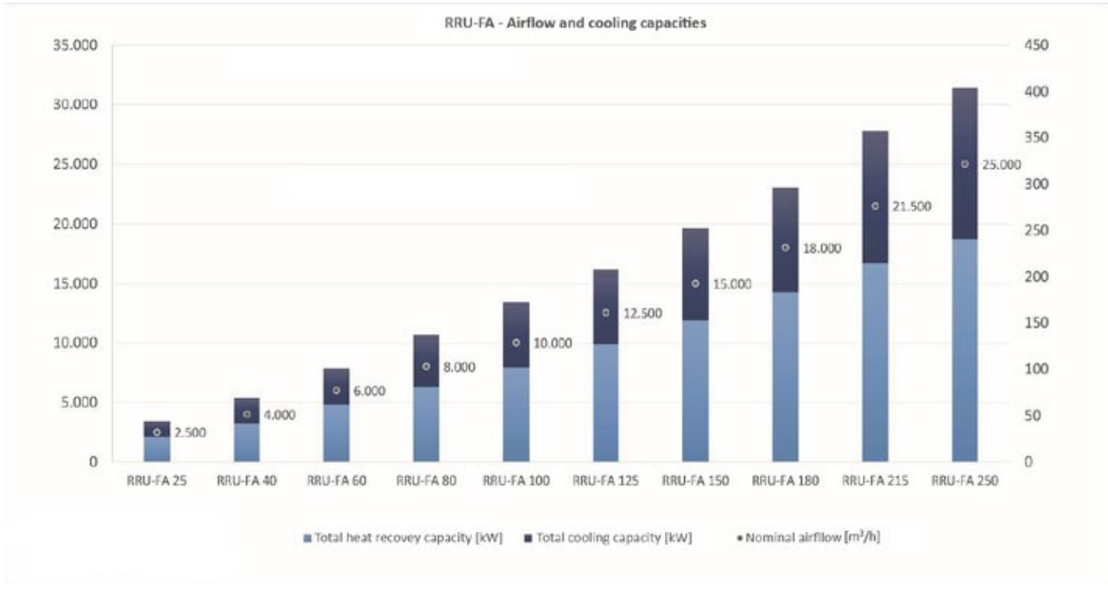
ROCCHEGGIANI care for air
PACKAGED AIR RENEWAL AND HANDLING UNITS
RRU-FA

RRU-FA: The most efficient solution for fresh air handling

With the use of cutting-edge materials and manufacturing techniques, the energy requirements for new buildings are continuing to fall increasingly, in line with the provisions of Directive 2010/31/EU - EPBD (Energy Performance Buildings Directive). Consequently, the energy requirement needed to ensure a correct change of air is becoming a determining factor in overall energy consumption, especially in buildings of recent conception.
The RRU-FA units by Roccheggiani are designed to provide the highest possible energy performance through managing the change of air correctly and efficiently, by having a decisive impact on the improvements to energy performance thanks to the 4 recovery systems within a single unit.

Model RRU-FA			25	40	60	80	100	125	150	180	215	250
Cooling System Efficiency	(1)(3)	η	6,48	7,21	6,33	6,48	6,42	6,76	6,13	6,65	6,19	6,00
Heating System Efficiency	(2)(3)	η	13,54	11,13	10,36	11,38	11,34	10,62	10,58	10,96	10,18	10,37

(1) Internal Air Temperature 26°C/50% RH - Fresh Air Temperature 35°C/60% RH
(2) Internal Air Temperature 21°C/50% RH - Fresh Air Temperature -10°C/80% RH
(3) Pressure drop in Supply ducts 50 Pa - Return 50 Pa



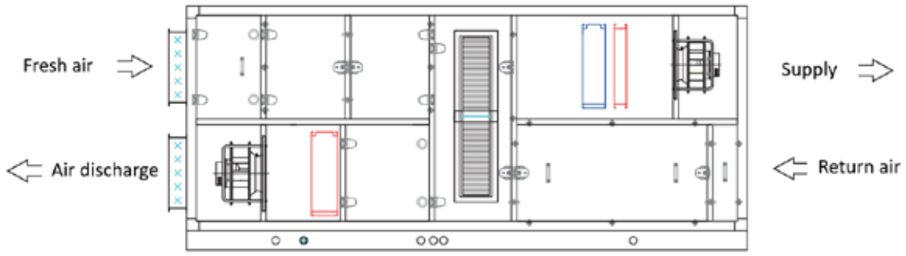
Variable flow rate operation can be achieved through customised control programs developed according to customer requirements, making the unit compatible with different plant configurations, such as VAV systems or based on air quality control (IAQ).

An interface with BMS is also available on request, through various communication protocols (ModBus®, BACnet™, connection to a WebServer).

Operating principles

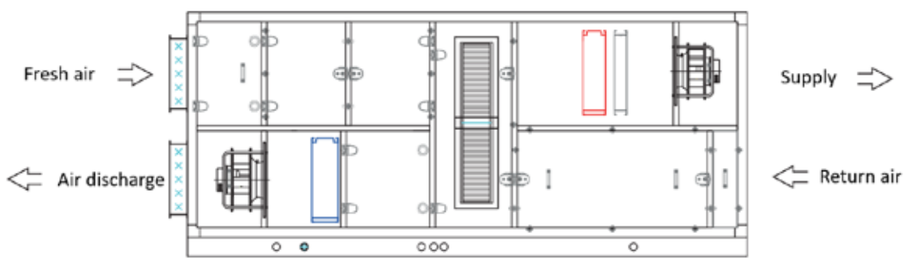
Handling performed by an RRU-FA unit on fresh air is intended to maintain user-defined temperature and relative humidity set-points. The integrated automatic control system modulates the operation of the unit in order to fulfil this objective and optimise overall energy consumption. In general, one can distinguish between summer and winter operations of the unit.

Summer operation



Both sensitive and latent heat exchange occurs between renewal air and return air through the thermal wheel and the renewal air is thus cooled and dehumidified. Further cooling is provided by the evaporator coil in the refrigeration cycle and by the (optional) water coil. Hot gas is circulated through the supply air reheating coil and its drawing allows reheating for free achieving considerable savings in the consumption of the compressor unit.
The refrigerant condenses in the return air; in this way, lower condensation temperatures are used compared to those needed for condensing with fresh air, allowing improved overall efficiency in the refrigeration cycle. A further improvement in the refrigeration cycle is ensured by adiabatic cooling, achieved during discharge by evaporating the condensate water produced by the cooling coil. By maintaining the supply and return air flows unchanged with respect to the space, the booster function on the return fan aims to improve the exchange and lower the condensing pressure when working to achieve standard or particular operating conditions.

Winter operation

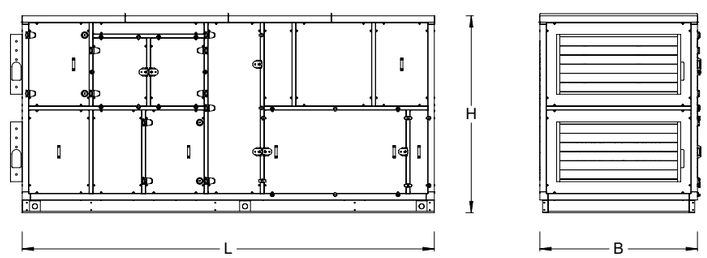


Both sensitive and latent heat exchange occurs between renewal air and return air through the thermal wheel. Thus the renewal air is heated up and humidified. Further heating takes place due to the condenser coil on the heat pump and the (optional) water coil, allowing the desired supply conditions to be achieved.
The refrigerant evaporates on the return air, already cooled down by flowing through the thermal wheel. Evaporation temperatures can therefore be kept at higher values than those required when operating with fresh air, allowing improved overall efficiency in the heat pump cycle.
The cutting-edge regulation system automatically prevents the formation of frost and minimises the need to reverse the direct cycle to perform defrosting operations. Therefore, a high level of indoor comfort can be guaranteed without interruption. When defrosting is required due to particular thermo-hygrometric conditions, the operating and activation logic on the unit's three coils, nevertheless, ensures the supply of neutral air to the space.

ROCCHEGGIANI care for air
PACKAGED AIR RENEWAL AND HANDLING UNITS
RRU-FA

General technical data

Model RRU-FA			25	40	60	80	100	125	150	180	215	250
Supply air flow rate		m^3/h	2500	4000	6000	8000	10000	12500	15000	18000	21500	25000
Return air flow rate		m^3/h	2500	4000	6000	8000	10000	12500	15000	18000	21500	25000
Exhaust Airflow Summer Mode		m^3/h	3750	6000	9000	12000	15000	18750	22500	27000	32250	37500
Fresh Air Airflow Summer Mode		m^3/h	3750	6000	9000	12000	15000	18750	22500	27000	32250	37500
Supply static pressure		Pa	300	300	300	300	300	300	300	300	300	300
Return static pressure		Pa	250	250	250	250	250	250	250	250	250	250
Compliance with 2016-2281 EU - ENER LOT 21												
Cooling												
ηs,c Seasonal Space Cooling Efficiency	(5)	%	203.4	209.2	207.3	208.3	202.9	208.2	204.8	205.3	222.4	206.6
Cooling Energy Efficiency Class	(6)		A	A	A	A	A	A	A	A	A	A
Heating												
ηs,h Seasonal Space Heating Efficiency	(5)	%	173.0	173.0	163.0	160.0	163.0	167.0	154.0	157.0	164.0	158.0
Bivalent Temperature	(5)	° C	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0
Heating Energy Class	(6)		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++
Compliance with 1253-2014 EU - ENER LOT 6			YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Total Heat Recovery Capacity	(1)	kW	26.8	41.6	62.0	81.1	101.3	126.7	152.5	183.6	215.0	240.8
Sensible Heat Recovery Capacity	(1)	kW	6.4	10.1	15.1	19.9	24.9	31.1	37.4	45.0	53.0	60.3
Total Cooling Capacity	(1)	kW	17.5	27.1	38.5	55.8	71.0	81.0	100.2	112.6	142.2	163.3
Sensible Cooling Capacity	(1)	kW	12.0	19.3	27.7	39.0	48.8	58.1	69.6	83.4	99.7	115.9
Air Outlet Temperature	(1)	° C	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Air Outlet Relative Humidity	(1)	g/kg	7.1	6.9	6.9	6.8	6.8	6.8	6.8	6.8	6.7	6.6
Total Cooling Capacity	(1)	kW	44.3	68.7	100.5	136.9	172.3	207.7	252.7	296.2	357.2	404.1
Total Powrm Consumptoni	(1) (3)	kW	7.0	10.3	16.8	22.8	29.1	33.7	44.7	47.7	62.3	72.8
System Efficiency	(1) (3)	η	6.8	7.2	6.3	6.5	6.4	6.8	6.1	6.7	6.2	6.0
Total Heat Recovery Capacity	(2)	kW	34.3	54.0	80.6	105.9	132.7	165.4	199.0	240.0	281.7	320.0
Sensible Heat Recovery Capacity	(2)	kW	22.0	34.9	52.1	68.6	85.8	107.1	128.9	155.2	182.6	207.5
Total heating capacity	(2)	kW	10.4	16.4	23.7	35.4	44.3	52.9	63.2	75.2	90.0	104.7
Air Outlet Temperature	(2)	° C	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Heat Capacity	(2)	kW	44.7	70.4	104.3	141.3	177.0	218.3	262.2	315.2	371.7	424.7
Total Powrm Consumptoni	(2) (3)	kW	3.8	7.0	10.8	13.9	17.4	23.1	27.8	31.5	40.5	45.7
System Efficiency	(2) (3)	η	13.5	11.1	10.4	11.4	11.3	10.6	10.6	11.0	10.2	10.4
Power absorption at full load		kW	15.8	19.8	29.5	37.6	47.3	49.4	65.4	71.4	90.7	103.9
Current absorption at full load		A	20.3	29.7	39.0	59.9	71.3	80.0	103.0	135.0	145.0	155.0
Current absorption at start-up		A	31.8	40.5	61.9	79.7	101.1	105.7	140.8	154.0	196.5	225.5
Dimensions												
B		mm	1.220	1.370	1.600	1.740	1.920	2.110	2.310	2.540	2.770	2.940
H		mm	1.680	1.780	2.030	2.170	2.370	2.520	2.670	2.980	2.980	2.980
L		mm	4.090	4.090	4.490	4.550	4.810	4.810	4.810	4.900	4.900	4.900
Weight		kg	1.175	1.490	1.900	2.100	2.450	2.700	3.050	3.500	3.760	3.980



NOTES: **(1)** Return air temperature 26°C / 50% u.r. - Fresh air temperature 35°C / 60% u.r. ; **(2)** Return air temperature 21°C / 50% u.r. - Fresh air temperature -10°C / 80% u.r. ; **(3)** Total power with 50 Pa Supply external static pressure and 50 Pa Return external static pressure; **(4)** Sound power with 300 Pa Supply external static pressure and 250 Pa Return external static pressure in cooling mode; **(5)** According to (EU) n. 2016/2281 - Ener Lot 21 (ErP); **(6)** According to Eurovent Certification Program (RT) powers up to 200 kW in cooling mode.

ROCCHEGGIANI®
care for air

Heat recovery units

DRU

VERY HIGH-EFFICIENCY HEAT RECOVERY UNIT

- ErP 2018
- Heat recovery efficiency above 90%
- Air flows from 100 to 500 m^3/h
- 5 sizes and 2 configurations available: vertical or horizontal for false ceiling installation

ErP 2018 COMPLIANT

BIM READY

Air quality, and therefore its temperature, humidity and purity are key components for the general wellbeing inside a building. Especially in winter, when the opening of windows for air exchange results in significant heat loss, an integrated ventilation system is the best solution for maintaining thermal performance levels in the building as well as indoor air quality. Recent legislation on energy saving in buildings and new technological achievements in the field of thermal insulation and sealing of windows and doors, have made modern homes more comfortable in terms of heat and sound, but have transformed them into totally-sealed environments, with the risk of turning them into “harmful traps” due to the domestic production of pollution.
The basic principle is to make the building more than just well insulated, but also highly air-tight. An efficient mechanical ventilation system is essential for ensuring adequate change of air and a healthy atmosphere inside the premises. The renewal of air inside rooms is essential for proper sanitation and housing, and even the European Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the Energy Performance of Buildings cited the “need” for ventilation fans for standard use in buildings.
This “need” conflicts, however, with the shared worldwide need, and included in Italian Law 10/91 and with Legislative Decrees 192/05 and 311/06, to improve the energy performance of buildings in order to limit consumption. Controlled mechanical ventilation with a heat recovery unit from the DRU series is, therefore, an ideal solution for reducing the energy requirements of homes and at the same time improves the health and environmental quality of the air inside.

Download the technical bulletin

APPLICATIONS

- Tertiary
- Single-family homes

ACCESSORIES

- Progressive by-pass for antifreeze function
- Electric reheating module
- Post handling module
- Dehumidifier
- Regulation
- Connection systems
- Supply/return grilles + plenum
- Distribution boxes

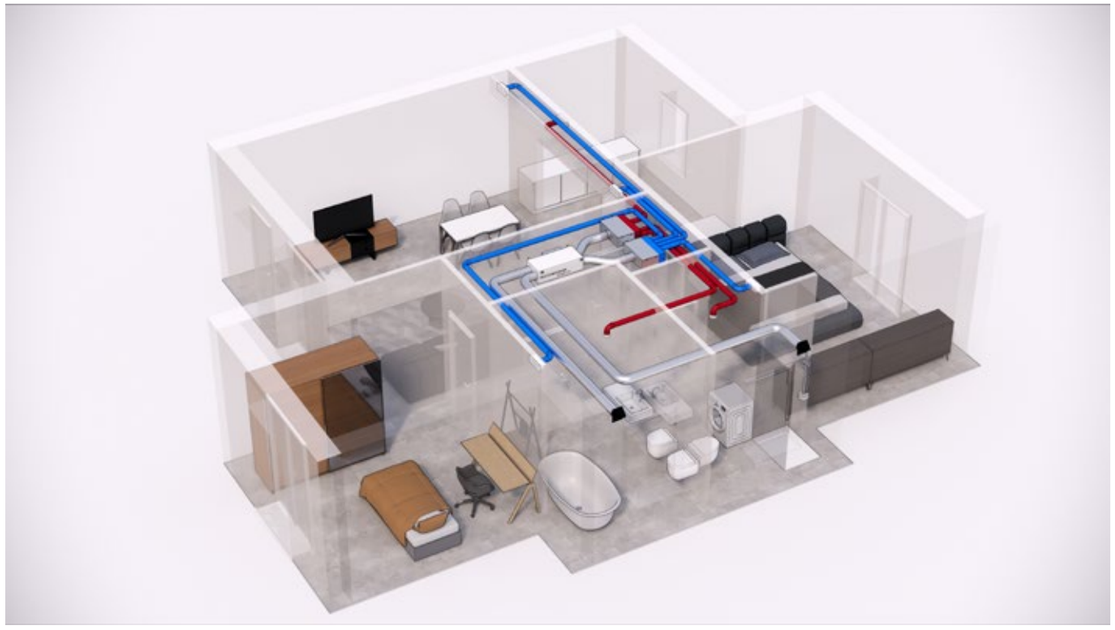
ROCCHEGGIANI care for air
HEAT RECOVERY UNIT
DRU

Presentation of the plant engineering system

Air distribution system

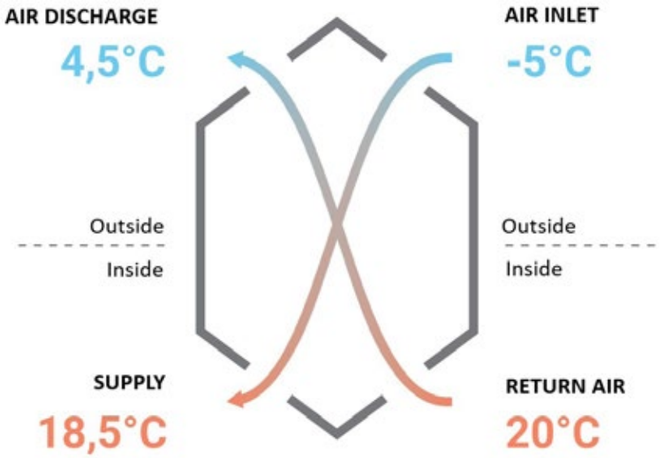
Roccheggiani offers a wide range of accessories for the construction of the whole air distribution system in any environment and to meet any requirement.

Example of DRU installation (vertical)



Example of DRU installation (horizontal)

Operation diagram



Recuperator functioning diagram
(during winter)

Air distribution accessories

Ducts

The dual system of ducts used to move discharge air and return air, consists of high density corrugated DRU CP series polyethylene round pipes, with a double wall, specially designed for air distribution.
They are perfect for installation in walls and ceilings and false ceilings and ensure extremely low pressure drops, mechanical stability, absolute absence of corrosion, low weight, easy handling, fitting and cleaning.
The ducts have an antibacterial and antistatic inner layer to ensure the air sterility.
If the space for distribution is modest, Roccheggiani can supply polyethylene corrugated pipes with oval section and external dimensions of 50x130 mm.

For larger diameters, spiral or flexible metal ducts can be used or rigid synthetic ducts:
- SZ spiral ducts
- SZC double-wall insulated spiral ducts
- TA aluminium flexible ducts
- TA ISO insulated aluminium flexible ducts
- EPP polypropylene rigid ducts

DRU CP050130 corrugated pipes			
Section	External diameter (mm)	Internal diameter (mm)	Flow capacity (m^3/h)
Round	75	63	40
Round	90	76	60
Flat	50 x 130	-	40

Connection systems

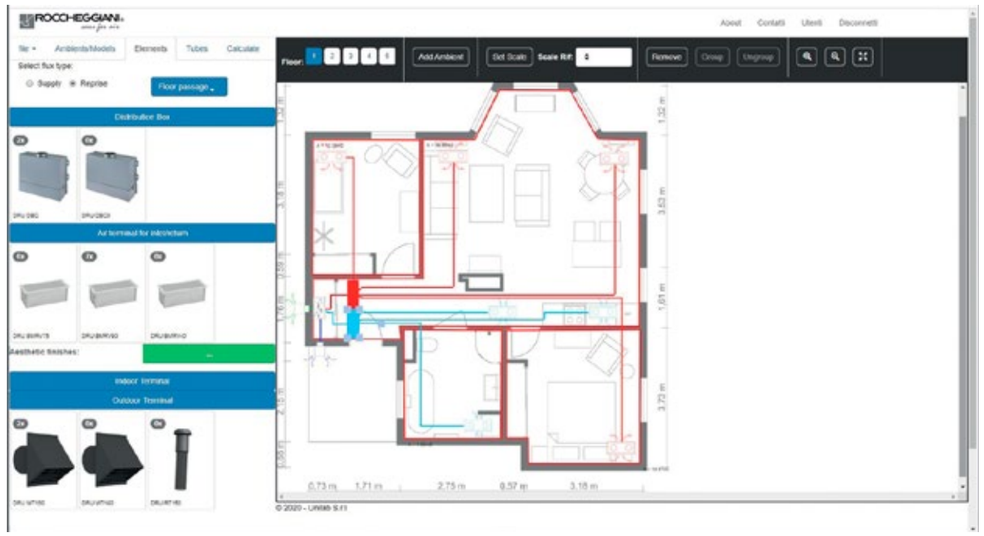
The connections for polyethylene ducts are made of polyethylene and are designed specifically for our corrugated pipes.
They guarantee excellent airtightness and a secure coupling.
Assembly is simple and quick. Sleeves, pressed curves and tapes in aluminium are available for round, rigid and flexible ducts.

Fresh air and discharge air intakes and outlets

Roof and wall options are provided for fresh air and discharge air intakes and outlets.
With the Roccheggiani air distribution system, all noise transmission between rooms is avoided, because each duct is dedicated to a single space with no communication with other spaces as no branching is used.
In an ecological perspective, all plastic materials used to make the air distribution network are fully recyclable.

Sizing software

Roccheggiani has a software dedicated to the sizing of the distribution system. The software generates a complete and detailed report of all components to be used, divided up for each specific room, so as to make the installer's task so much easier during the assembly phase.
The output generated by the software is absolutely essential in helping to achieve a perfectly-sized system.



Example display of the selection software.

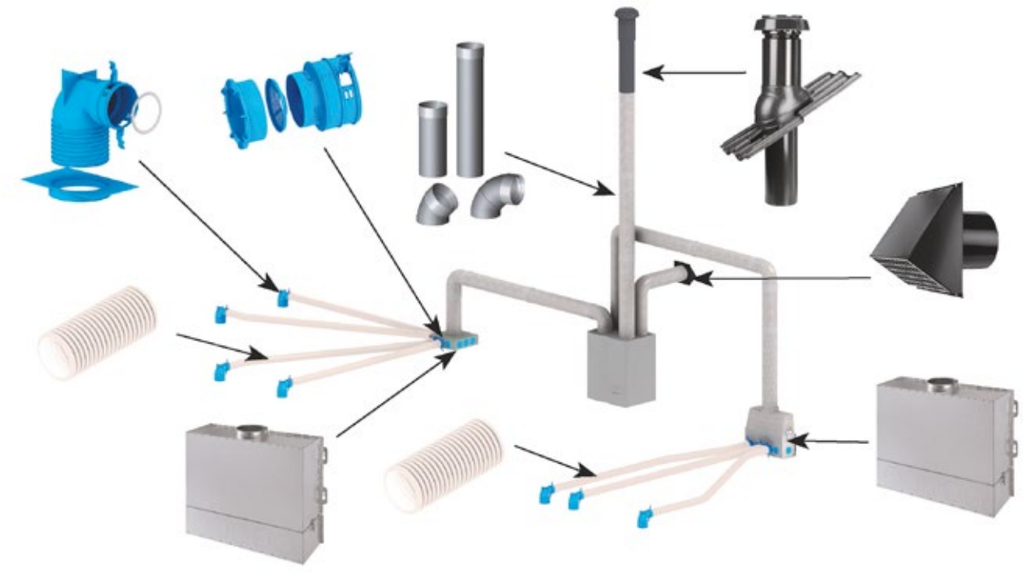


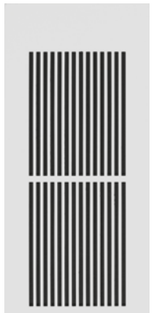
Diagram of a possible system configuration

Supply/return grilles + PLMR-M or PLMR-M-O plenum

The new supply/return grilles consist of:
- Painted steel screen (standard white RAL 9010) or stainless steel with brushed finish.Dim. 340x150 mm. There is a wide available range of screens to choose from with various visually-appealing finishes.
- Secure fixing of the grille onto the PLMR-M plenum using adjustable magnets (allows quick and effective installation without screws as well as optimum grille positioning, regardless of any misalignment of the plenum)
- Plenum box made of galvanised sheet iron, designed for pre-cut round quick connections, compatible with DRU CP75 or DRU CP90 corrugated pipes (or flat DRUCPO50130 pipes on the PLMR-M-O low version).
- The plenum already includes a quick coupling for corrugated pipes (when ordering, the pipe diameter needs to be specified); it can take up to 2 connections

DFL

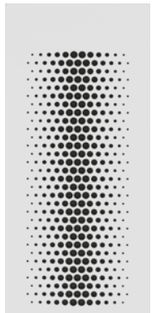
DLI



DRL

DSQ

IRV

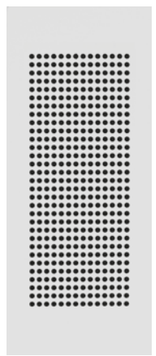


PES

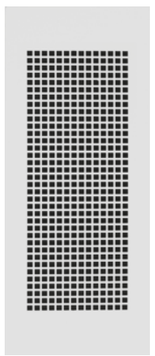
DSP

DCU

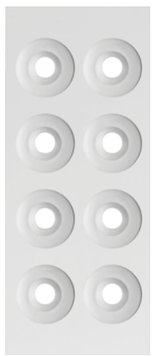
RRO



RSQ



UG8



DDH

Electronic control

The DRU unit can be fitted with the Roccheggiani RIR integrated regulation system. This consists of an on-board control panel plus a room terminal with touch screen.

RIR Regulation

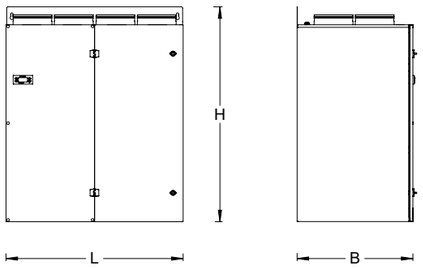
The RIR regulation system enables full control over all possible DRU configurations. According to the various configurations, the on-board control panel is provided with a kit consisting of 3 temperature probes, two differential pressure switches which raise an alarm for soiled filters, a bypass damper actuator and a touch screen terminal to be installed in the room. This element is provided with a temperature and relative humidity probe. The temperature probe is for display purposes only, whereas the humidity probe can be used (for activating the dehumidifier) as an alternative to a humidistat if the terminal is installed in the room that needs to be controlled.
It is also available in a terminal touch screen version with flush mounting (absence of temperature and relative humidity probes). If there are additional sections to the basic heat recovery unit, such as post-handling sections and/or a pre-handling section, the related temperature probes are duct-fitted and are supplied together.

The following can be fitted as regulation accessories:
- CO2 return probe;
- relative humidity probe for return air and/or room to control the ventilation and the dehumidifier if present;
- humidistat to control the dehumidifier if present.

The main features are as follows:
- Constant/variable speed: minimum, medium, maximum and automatic speeds can be selected. Automatic speed is available when there are handling coils or a CO2 probe or a relative humidity probe. These three modes are alternatives to each other.
- Regulation based on the return air temperature.
- Winter heating/summer cooling (H2O valve) (2-pipe system).
- Only winter heating (H2O valve) (2-pipe system).
- Only summer cooling (H2O valve) (2-pipe system).
- Only winter heating (2-stage electric coil).
- An electric preheating section on fresh air can be added. This feature excludes the presence of an electric heating coil and vice versa.
- Control of the dehumidification module with refrigeration circuit and water. Choosing this module excludes the possibility of adding water/electric post-handling modules and vice versa.
- Programming time periods

General technical data

Model DRU		**10**	**15**	**25**	**35**	**50**
Nominal air flow	m³/h	100	150	250	350	500
External static pressure	Pa	120	130	240	160	150
Heat recovery unit						
Energy Efficiency (3)	%	81.9	87.1	85.6	83.6	83.3
Total Heat Recovery Capacity (3)	kW	0.2	0.3	0.4	0.6	0.8
Supply Air Temperature (3)	° C	27.1	26.8	26.9	27.0	27.0
Supply Air Humidity (3)	%	66.6	67.8	67.5	67.0	66.9
Energy Efficiency (2)	%	86.7	91.3	90.0	88.2	88.0
Total Heat Recovery Capacity (2)	kW	0.7	1.1	1.9	2.6	3.7
Supply Air Temperature (2)	° C	16.7	17.8	17.5	17.1	17.0
Sensible Energy Efficiency (4)	%	86.7	91.3	90.0	88.2	88.0
Fans						
Supply Fan Motor Rating	W	27	43	107	165	230
Supply Fan Nominal Current	A	2 x 0.27	2 x 0.32	2 x 0.90	2 x 1.30	2 x 1.80
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
Airflow Control		0..10V	0..10V	0..10V	0..10V	0..10V
Compliance EN 1254/2014 (5)		-				
Unit type		RVU/BVU				
Ventilation Control		Variable speed				
Heat Recovery		Cross flow				
Efficiency	%	81.9	87.1	85.6	83.6	83.3
Absorbed power (1)	kW	0.06	0.11	0.14	0.18	0.22
Specific Fan Power	W/(m³/h)	0.37	0.54	0.29	0.33	0.46
Sound Pressure Level at 3m	dB (A)	36.0	37.0	35.0	36.0	37.0
Dimensions						
B	mm	338	338	451	451	571
H	mm	612	772	772	772	772
L	mm	595	595	690	690	690
Weight	kg	28	28	39	40	50

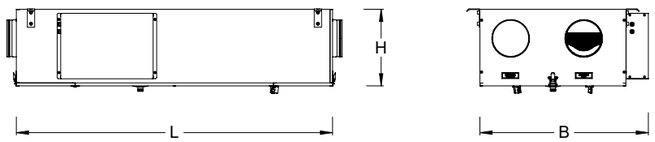


NOTES: **(1)** Values referring to the base configuration, with available static pressure of 250Pa; **(2)** Performance referred to winter conditions: Fresh air -5°C / 80% - Return 20°C / 50%; **(3)** Performance referred to summer conditions: Fresh air 32°C / 50% - Return 26°C / 50%; **(4)** Dry recovery conditions with temperature difference of 20°C between fresh and return air; **(5)** Compliance with the Ecodesign Directive entails the presence of differential pressure switches to alert for soiled filters: if not expressly indicated, these accessories must be paid for by the customer.

ROCCHEGGIANI care for air
HEAT RECOVERY UNIT
DRU

General technical data

DRU Horizontal Model		**10 - OR**	**15 - OR**	**25 - OR**	**35 - OR**	**50 - OR**
Nominal air flow	m³/h	100	150	250	350	500
External Static Pressure	Pa	120	130	240	160	150
Heat recovery unit						
Energy Efficiency (3)	%	87.1	84.9	85.6	83.6	83.3
Total Heat Recovery Capacity (3)	kW	0.2	0.3	0.4	0.6	0.8
Supply Air Temperature (3)	° C	26.8	26.9	26.9	27.0	27.0
Supply Air Humidity (3)	%	67.8	67.3	67.5	67.0	66.9
Energy Efficiency (2)	%	91.3	89.4	90.0	88.2	88.0
Total Heat Recovery Capacity (2)	kW	0.8	1.1	1.9	2.6	3.7
Supply Air Temperature (2)	° C	17.8	17.3	17.5	17.1	17.0
Sensible Energy Efficiency (4)	%	91.3	89.4	90.0	88.2	88.0
Fans						
Supply Fan Motor Rating	W	27	43	107	165	230
Supply Fan Nominal Current	A	2 x 0.27	2 x 0.32	2 x 0.90	2 x 1.30	2 x 1.80
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
Airflow Control		0..10V	0..10V	0..10V	0..10V	0..10V
Compliance EN 1254/2014 (5)		-				
Unit type		RVU/BVU				
Ventilation Control		Variable speed				
Heat Recovery		Cross flow				
Efficiency	%	87.1	84.9	85.6	83.6	83.3
Absorbed power (1)	kW	0.06	0.11	0.14	0.18	0.22
Specific Fan Power	W/(m³/h)	0.37	0.54	0.29	0.33	0.46
Sound Pressure Level at 3m	dB (A)	36.0	37.0	35.0	36.0	37.0
Dimensions						
B	mm	491	491	600	600	600
H	mm	252	252	316	316	316
L	mm	925	925	1300	1300	1300
Weight	kg	29	30	43	44	46



NOTES: **(1)** Values referring to the base configuration, with available static pressure of 250Pa; **(2)** Performance referred to winter conditions: Fresh air -5°C / 80% - Return 20°C / 50%; **(3)** Performance referred to summer conditions: Fresh air 32°C / 50% - Return 26°C / 50%; **(4)** Dry recovery conditions with temperature difference of 20°C between fresh and return air; **(5)** Compliance with the Ecodesign Directive entails the presence of differential pressure switches to alert for soiled filters: if not expressly indicated, these accessories must be paid for by the customer.

DRU CRD

DUCT AIR HANDLING UNIT WITH HEAT RECOVERY AND DEHUMIDIFICATION

- Air renewal, both summer and winter, with highly efficient heat recovery
- Air renewal without heat recovery (free cooling)
- Summer dehumidification with regulation of the supply temperature
- Summer cooling with or without dehumidification by the radiant system water
- Winter heating by the hot water of the radiant system

In combination with the radiant cooling systems, to ensure high comfort and avoid condensation phenomena, Roccheggiani offers VMC solutions with a range of integrated air handling units for highly efficient heat recovery and dehumidification. The unit frame in galvanized sheet metal contains the group of finned coils for air treatment, the circuit, the circuit refrigerator for dehumidification, the intake air filter, the condensation collection tray, the supply fan and the command and management electrical control panel.

APPLICAZIONS

Tertiary

Single-family homes

HRU

HIGH EFFICIENCY HEAT RECOVERY UNIT

- ErP 2018
- Heat recovery efficiency above 85%
- Air flows from 1.000 to 4.000 m3/h
- EC fans adjustable with 0… 10V signal

ErP 2018 COMPLIANT

BIM READY

Download the technical bulletin

The heat recovery units in the HRU range by Roccheggiani meet change of air and energy saving requirements in a wide range of applications. Ecodesign Directive 2009/125/EC requires the control of air quality through the use of forced ventilation for the change of air, causing however greater energy consumption and an increase in costs.
The purpose of heat recovery units is to minimise the cost of changing air, by using a high-efficiency heat recovery device. This makes it possible to save over 85% of energy which would otherwise be discharged together with the stale air. The high efficiency heat recovery unit from the HRU range by Roccheggiani combines high levels of comfort in the occupied space together with large energy savings.
The HRU units operate in both summer and winter and are totally suitable for use together with traditional systems including fan coil units, air-conditioning units, radiators and floor-level heating units.
The series is available in 4 sizes with air flow rates ranging from 1.000 m^3/h to 4.000 m^3/h. The type of construction is especially suitable for false ceiling installation. Heat recovery units are suitable for use in civil and commercial premises, offices, shops, bars and restaurants and smoking areas.
A rapid selection software is available.

APPLICATIONS

- Hotel
- Sports facilities
- Wellness centres
- Supermarkets
- Medium-to-large sized shopping centres
- Shops
- Offices

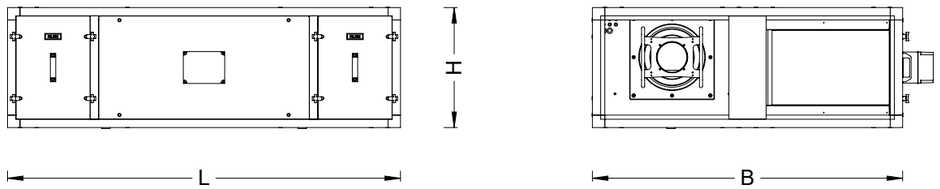
ACCESSORIES

- Undulated synthetic filters (optional) ISO ePM2.5 65% (F7) - ISO 16890
- Preheating and reheating electric heating element (BE)
- Regulation damper (SE)
- Round connectors (AC)
- RIR Regulation
- Regulation RAC1
- Single cooling coil module, section including droplet separator and condensation discharge pan (BF)
- Single heating coil module (BC)
- Module with cooling coil + reheating coil, section including condensation discharge pan and droplet separator,
- placed after the cooling coil (BFC)
- Module with heating coil + cooling coil, section including condensation discharge pan and droplet separator, placed after the cooling coil (BCF)

ROCCHEGGIANI care for air
HEAT RECOVERY UNIT
HRU

General technical data

HRU model		10	20	30	40
Nominal air flow	m^3/h	1000	2000	3000	4000
External Static Pressure	Pa	400	400	400	400
Heat recovery unit					
Energy Efficiency (3)	%	82.7	82.7	83.6	83.2
Total Heat Recovery Capacity (3)	kW	1.7	3.3	5.0	6.7
Supply Air Temperature (3)	°C	27.0	27.0	27.0	27.0
Supply Air Humidity (3)	%	67.0	67.0	67.0	67.0
Energy Efficiency (2)	%	85.4	85.0	85.0	85.2
Total Heat Recovery Capacity (2)	kW	7.6	15.1	22.7	30.3
Supply Air Temperature (2)	°C	16.4	16.2	16.2	16.3
Sensible Energy Efficiency (4)	%	78.7	78.0	78.4	78.8
Fans					
Supply/return fan motor rating	kW	0.50	0.78	2.50	2.50
Supply/return fan nominal current	A	2.5	3.9	4.0	4.0
Power supply	V/Ph/Hz	230/1/50	230/1/50	400/3/50	400/3/50
Airflow Control		0-10V	0-10V	0-10V	0-10V
Filtration					
Fresh Air Filter		ISO ePM10 50% (M5) - ISO 16890			
Return Air Filter		ISO ePM10 50% (M5) - ISO 16890			
Compliance EN 1253/2014 (5)		-			
Unit type		NRVU/BVU			
Ventilation Control		Variable speed			
Heat Recovery		Cross-flow recovery device - Other HRS			
Efficiency	%	79.1	78.3	78.8	79.2
Absorbed power (1)	kW	0.55	1.12	1.76	2.75
Specific Fan Powe	W/m^3/s	574	674	661	729
Airborne Sound Power Level	dB(A)	57.4	61.2	66.5	71.5
Dimensions					
B	mm	1220	1550	1600	2000
H	mm	530	580	730	730
L	mm	1600	1900	2000	2000
Weight	kg	195	252	315	369



NOTES: **(1)** Values referring to the base configuration, with available static pressure of 250Pa; **(2)** Performance referred to winter conditions: Fresh air -5°C / 80% - Return 20°C / 50%; **(3)** Performance referred to summer conditions: Fresh air 32°C / 50% - Return 26°C / 50%; **(4)** Dry recovery conditions with temperature difference of 20°C between fresh and return air; **(5)** Compliance with the Ecodesign Directive entails the presence of differential pressure switches to alert for soiled filters: if not expressly indicated, these accessories must be paid for by the customer.

HE-HRU

HIGH EFFICIENCY HEAT RECOVERY UNIT

- ErP 2018
- Heat recovery efficiency above 85%
- Air flows from 1.000 to 8.000 m³/h
- EC fans adjustable with 0… 10V signal

ErP 2018 COMPLIANT

BIM READY

Download the technical bulletin

The heat recovery units in the HE-HRU range by Roccheggiani meet change of air and energy saving requirements in a wide range of applications. Ecodesign Directive 2009/125/EC requires the control of air quality through the use of forced ventilation for the change of air, causing however greater energy consumption and an increase in costs.
The units are equipped with heat recovery units with aluminium plates and high-efficiency cross flows. The exchange surface of the heat recovery device is very large in proportion to its volume. This feature enables greater yields compared to other types of heat exchanger, reaching efficiencies of 85%, with the advantage of a low pressure drop and extremely modest dimensions for units with considerable air flow rates.
The high level of recovered heat allows the use of normal heating/cooling systems to be considerably reduced with obvious economic advantages.
To cover a vast range of applications, these units are available in 5 sizes, with nominal air flows from 1.000 to 8.000 m³/h and available operating static pressure of 300 Pa.
A rapid selection software is available.

APPLICATIONS

- Hotel
- Sports facilities
- Offices
- Wellness centres
- Supermarkets
- Medium-to-large sized shopping centres
- Shops

ACCESSORIES

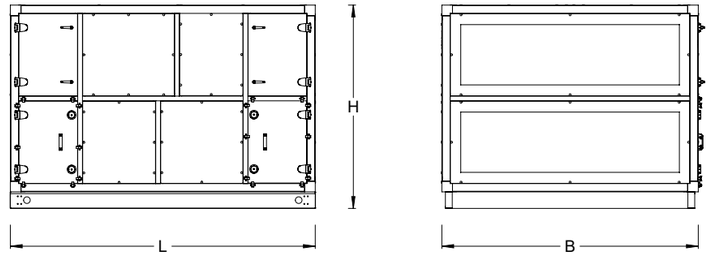
- Regulation RAC1
- RIR Regulation
- Electric element (BE)
- Single heating coil module (BC)
- Single cooling coil module, section including droplet separator and condensation discharge pan (BF)
- Module with cooling coil + reheating coil, section including condensation discharge pan and droplet separator, placed after the cooling coil (BFC)
- Module with heating coil + cooling coil, section including condensation discharge pan and droplet separator, placed after the cooling coil (BCF)

ROCCHEGGIANI care for air
HEAT RECOVERY UNIT
HE-HRU

General technical data

Model HE-HRU		10	20	40	60	80
Nominal air flow	m³/h	1000	2000	4000	6000	8000
External Static Pressure	Pa	450	500	800	800	800
Heat recovery unit						
Energy Efficiency (3)		84.8	87.5	87.0	86.5	86.3
Total Heat Recovery Capacity (3)	kW	1.7	3.5	7.0	10.4	13.8
Supply Air Temperature (3)	° C	26.9	26.7	26.8	26.8	26.8
Supply Air Humidity (3)	%	67	68	68	67	67
Energy Efficiency (2)	%	84.7	88	88.0	88.1	88.4
Total Heat Recovery Capacity (2)	kW	7.5	15.6	31.3	47.0	62.9
Supply Air Temperature (2)	° C	16.2	17.0	17.0	17.0	17.1
Sensible Energy Efficiency (4)	%	78.4	83.4	83.3	83.5	84.1
Fans						
Supply/return fan motor rating	kW	0.50/0.50	0.78/0.78	2.50/2.50	5.00/5.00	5.00/5.00
Supply/return fan nominal current	A	2.17/2.17	3.39/3.39	3.80/3.80	7.60/7.60	7.60/7.60
Power supply	V/Ph/Hz	230/1/50	230/1/50	400/3/50	400/3/50	400/3/50
Airflow Control		YES	YES	YES	YES	YES
Filtration						
Fresh Air Filter		ISO Coarse 55% (G4) + ePM2.5 70%(F7) - ISO 16890				
Return Air Filter		ISO ePM10 50% (M5) - ISO 16890				
Compliance EN 1253/2014 (5)		-				
Unit type		BVU				
Ventilation Control		Variable turns				
Heat Recovery		Cross-flow recovery device - Other HRS				
Efficiency		78.4	83.4	83.3	83.5	84.1
Absorbed power (1)	kW	0.57	0.97	2.28	3.68	4.74
Specific Fan Power	W/m³/s	538	318	553	661	644
Airborne Sound Power Level	dB (A)	60.9	60.9	65.5	70	68.5
Dimensions						
B	mm	800 (860)*	1280 (1340)*	1510 (1570)*	2110 (2170)*	2710 (2770)*
H	mm	1260 (1320)*	1460 (1520)*	1660 (1720)*	1660 (1720)*	1860 (1920)*
L	mm	2050 (2110)*	2280 (2340)*	2600 (2660)*	1660 (1720)*	2290 (2350)*
Weight	kg	300 (340)*	493 (540)*	658 (719)*	856 (924)*	1074 (1170)*

*Dimensions with 54 mm panel



NOTES: **(1)** Values referring to the base configuration, with available static pressure of 250Pa; **(2)** Performance referred to winter conditions: Fresh air -5°C / 80% - Return 20°C / 50%; **(3)** Performance referred to summer conditions: Fresh air 32°C / 50% - Return 26°C / 50%; **(4)** Dry recovery conditions with temperature difference of 20°C between fresh and return air; **(5)** Compliance with the Ecodesign Directive entails the presence of differential pressure switches to alert for soiled filters: if not expressly indicated, these accessories must be paid for by the customer; **(6)** Efficiency according to ISO 16890.

RRU

HIGH EFFICIENCY HEAT RECOVERY UNIT

- ErP 2018
- Air flows from 1.500 to 15.000 m³/h
- EC fans adjustable with 0… 10V signal

ErP 2018 COMPLIANT

BIM READY

The heat recovery units in the RRU range by Roccheggiani allow all requirements on air quality and energy savings to be met. Ecodesign Directive 2009/125/EC requires the control of air quality through the use of forced ventilation for the change of air, causing however greater energy consumption and an increase in costs.
The units in the RRU range are equipped with high-efficiency thermal wheels with a very large heat exchange surface in proportion to their volume. This feature enables greater yields compared to other types of heat exchanger, reaching efficiencies of 78%, with the advantage of low pressure drop and extremely modest dimensions for units with considerable air flow rates.
The high level of recovered heat also allows the use of normal heating/cooling systems to be considerably reduced with obvious economic advantages. To cover a vast range of applications, these RRU units are available in 7 sizes, with nominal air flows from 1.500 to 15.000 m³/h and available operating static pressure of 400 Pa.

Download the technical bulletin

APPLICATIONS

- Hotel
- Sports facilities
- Cinemas/Theatres
- Wellness centres
- Supermarkets
- Shops
- Medium-to-large sized shopping centres
- Multifamily housing
- Offices

ACCESSORIES

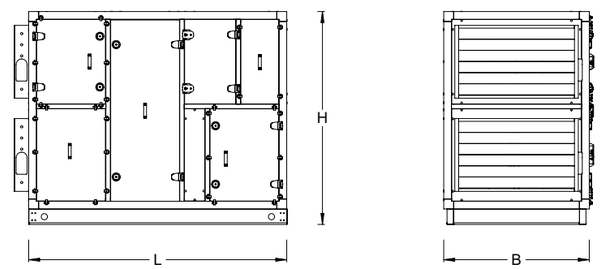
- Regulation RAC1
- RIR Regulation
- Electric element (BE)
- Single heating coil module (BC)
- Single cooling coil module, section including droplet separator and condensation discharge pan (BF)
- Module with cooling coil + reheating coil, section including condensation discharge pan and droplet separator, placed after the cooling coil (BFC)
- Module with heating coil + cooling coil, section including condensation discharge pan and droplet separator, placed after the cooling coil (BCF)

ROCCHEGGIANI care for air
HEAT RECOVERY UNIT
RRU

General technical data

RRU Model		15	25	40	60	80	100	150
Nominal air flow	m³/h	1500	2500	4000	6000	8000	10000	15000
External Static Pressure	Pa	400	400	400	400	400	400	400
Heat recovery unit								
Energy Efficiency (3)	%	74.3	72.1	71.8	73.4	72.7	74.6	72.2
Total Heat Recovery Capacity (3)	kW	6.2	10.0	15.7	24.4	32.6	41.8	60.4
Supply Air Temperature (3)	° C	27.5	27.7	27.7	27.6	27.6	27.5	27.7
Supply Air Humidity (3)	%	51.7	51.7	52.1	51.9	51.7	51.7	51.7
Energy Efficiency (2)	%	76.5	74.2	74.1	75.6	74.7	76.8	74.3
Total Heat Recovery Capacity (2)	kW	14.6	23.6	37.5	57.5	75.9	97.6	141.4
Supply Air Temperature (2)	° C	14.1	13.5	13.5	13.9	13.7	14.2	13.6
Sensible Energy Efficiency (4)	%	74.5	72.3	71.4	73.2	73.0	75.0	72.4
Fans								
Supply/return fan motor rating	kW	0.78/0.78	2.50/2.50	2.50/2.50	3.30/3.30	5.40/5.40	5.40/5.40	2x3.50/2x3.50
Supply/return fan nominal current	A	3.9/3.9	4.0/4.0	4.0/4.0	5.4/5.4	8.6/8.6	8.6/8.6	2x5.6/2x5.6
Power supply	V/Ph/Hz	230/1/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Airflow Control		0-10 V	0-10 V	0-10 V	0-10 V	0-10 V	0-10 V	0-10 V
Filtration								
Fresh Air Filter		ISO Coarse 55% (G4) + ePM2.5 70% (F7) - ISO 16890						
Return Air Filter		ISO ePM10 50% (M5) - ISO 16890						
Compliance EN 1253/2014 (5)		-						
Unit type		NRVU/BVU						
Ventilation Control		Variable speed						
Heat Recovery		Thermal wheel - Other HRS						
Efficiency	%	77,0	74.8	74.7	76.1	75.2	77.3	74.8
Absorbed power (1)	kW	1.01	1.63	2.81	4.46	5.09	7.36	9.30
Specific Fan Power	W/m³/s	750	693	832	880	640	796	614
Airborne Sound Power Level	dB (A)	63.3	66.0	66.9	70.4	71.2	75.0	72.1
Dimensions								
B	mm	760 (820)*	960 (1020)*	1060 (1120)*	1260 (1320)*	1560 (1620)*	1660 (1720)*	2060 (2120)*
H	mm	1400 (1460)*	1400 (1460)*	1620 (1680)*	1870 (1930)*	1940 (2000)*	2320 (2380)*	2460 (2520)*
L	mm	1910 (1970)*	1960 (2020)*	2100 (2160)*	2280 (2340)*	2460 (2520)*	2730 (2790)*	2730 (2790)*
Weight	kg	259 (311)*	315 (374)*	371 (442)*	484 (573)*	603 (710)*	749 (882)*	927 (1083)*

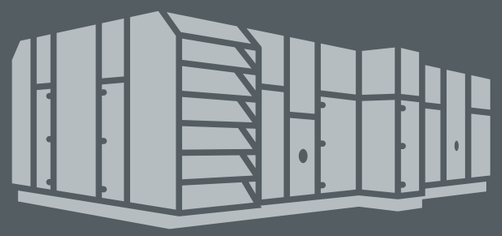
*Dimensions with 54 mm panel



NOTES: **(1)** Values referring to the base configuration, with available static pressure of 400Pa; **(2)** Performance referred to winter conditions: Fresh air -5°C / 80% - Return 20°C / 50%; **(3)** Performance referred to summer conditions: Fresh air 32°C / 50% - Return 26°C / 50%; **(4)** Dry recovery conditions with temperature difference of 20°C between fresh and return air; **(5)** Compliance with the Ecodesign Directive entails the presence of differential pressure switches to alert for soiled filters: if not expressly indicated, these accessories must be paid for by the customer.

ROCCHEGGIANI®
care for air

Air handling



CTA

AIR HANDLING UNITS

- ErP 2018
- Air flows from 1.500 to 250.000 m³/h
- Modular sections

The air handling units by Roccheggiani in the CTA range have reprExemptd the state of the art for over twenty years in terms of product reliability, construction and quality and provide the most advanced solution in terms of modularity, constructional flexibility, energy efficiency and performance.
Our CTA air handling units use the finest components on the market so as to ensure excellent performance even in the most challenging operating conditions and guarantee maximum flexibility to meet the most stringent requirements in modern air conditioning.
Manufactured in compliance with the UNI EN 12100 standard and the CE marking directives, they are built in compliance with the ISO 9001 and ISO 14001 certified quality assurance systems and adhere to the eco-compatible design specifications for ventilation units under Reg. EU 1253/2014.
In order to guarantee that the air handling units by Roccheggiani actually meet the declared product performance levels, they are EUROVENT-certified according to the ECP AHU program.

Regulatory Compliance

The company's quality system had already been awarded UNI EN ISO 9001 Quality Management System certification in 1996 and, in addition to this, it was awarded UNI EN ISO 14001 Environmental Management certification in 2014.
Over the years numerous product certifications for the various ranges have been obtained from the most important European bodies (TÜV, EUROVENT, Istituto Giordano, VKFAEAI, GOST, Achilles JQS, etc.).
More specifically, the air handling units in the CTA range by Roccheggiani are designed and manufactured in accordance with the following benchmark regulations:
- Directive 2006/42/EU - Machinery;
- Directive 2014/30/EU Electromagnetic Compatibility (EMC);
- Directive 2014/35/EU Low Voltage Directive (LVD);
- Directive ECODESIGN (EU) No. 1253/2014 – ENER LOT 6 (ERP)

EUROVENT ECP AHU "Air Handling Unit" product certification

As part of the EUROVENT program, product certification involves mechanical performance testing, according to the EN 1886:2007 standards, of the identified "model box" of the casing used, the testing of the selection software functions and the validation of the software through testing the unit's actual performance as a result of the selection.

Eurovent Certita CERTIFICATE N° 11.02.510

Air Handling Unit / Centrales de traitement d'air

Range Name / Nom de Gamme : CTA

Granted on February 22, 2011 – Date 1ère admission 22 février 2011

This document is valid at the date of issue – Check the current validity on: Document valable à la date d'émission – Vérifier la validité en cours sur : www.eurovent-certification.com

Participant/Titulaire

ROCCHEGGIANI S.p.a.
Via 1 Maggio, 10 – AN
60021 CAMERANO, Italy

ECP AHU – « Air Handling Unit » in force at established date.

ECP AHU – « Centrales de traitement d'air » en vigueur à date d'édition.

THIS CERTIFICATE HAS BEEN ISSUED ON 27/08/2019
THIS CERTIFICATE IS VALID UNTIL 30/09/2020

CE CERTIFICAT A ÉTÉ EMIS LE 27/08/2019
CE CERTIFICAT EST VALIDE JUSQU'AU 30/09/2020

Paris, 27 août 2019

MANAGING BOARD MEMBER / MEMBRE DIRECTOIRE

cofrac

1/2

Model Box

Casing mechanical strength

Max flexure at +1000 Pa and at -1000 Pa.
Subsequent test at +2500 Pa and -2500 Pa, to test the maximum pressure resistance generated by the fan without incurring permanent distortion(>2mm).
Mechanical resistance categories:

D1	D2	D3
< 4mm	≤ 10mm	> 10mm

Leakage rate of the casing

Test at -400 Pa and at +700 Pa.
The leakage rate is compared to the total surface of the casing and the value must not exceed the values in the following tables.

Casing leakage rate – Pressure -400 Pa

L1	L2	L3
< 0.15 l/s/m² (≤ F7)	< 0.44 l/s/m² (≤ F9)	< 1.32 l/s/m² (> F9)

Casing leakage rate – Pressure +700 Pa

L1	L2	L3
< 0.22 l/s/m² (≤ F7)	< 0.63 l/s/m² (≤ F9)	< 1.32 l/s/m² (> F9)

Bypass loss of the filter

Test at -400 Pa (filters upstream of the fan) and at +400 Pa (filters downstream).
The table gives the accepted total leakage rates related to the various filter classes as percentages of the specified flow rate of the air handling unit.

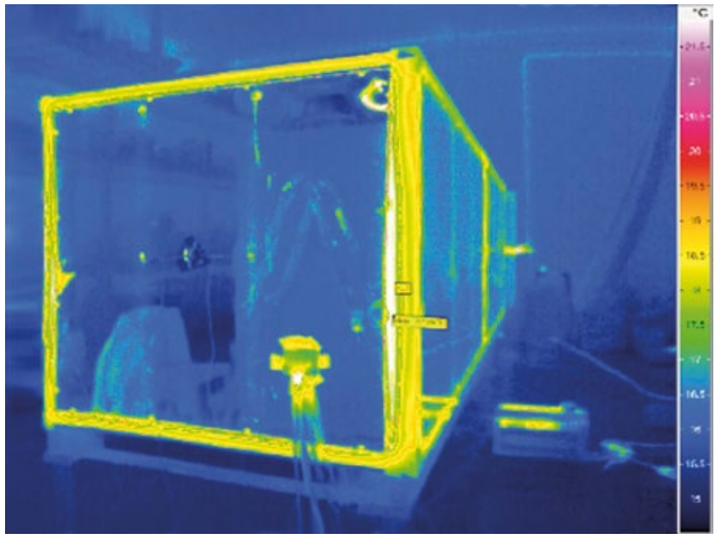
F9	F8	F7	F6	G1 – F5
0,5 %	1 %	2 %	4 %	6 %

Thermal transmittance of the casing

The EN 1886 standard classifies the transmittance (or global heat exchange value) and the thermal bridges connected to the structural design.

The thermal transmittance class defines the power dissipated through the casing by surface unit by temperature difference between the inside and outside [W/m² · K]:

T1	T2	T3	T4	T5
U ≤ 0,5	0,5 < U ≤ 1	1 < U ≤ 1.4	1,4 < U ≤ 2	Not requested



The thermal bridge class defines the capacity of the casing to prevent the formation of dew on the outside and is expressed by the dimensionless parameter kb.

TB1	TB2	TB3	TB4	TB5
0.75 < Kb ≤ 1	0.6 < Kb ≤ 0.75	0.45 < Kb ≤ 0.6	0.3 < Kb ≤ 0.45	Not requested

Sound-proofing of the casing.

The standard provides a procedure to determine the approximate sound transmission loss “De” of an air handling unit. Sound pressure measurements are performed over the casing surface of the unit by placing a sound source inside and repeating the measurements after removing the panels and obtaining thus the noise reduction of the casing.

The Roccheggiani range has nine certified “model boxes” with polyurethane foam or rock wool insulation that is 25, 54 and 90mm thick, with aluminium profiles, thermal cut aluminium and AISI316L stainless steel, achieving T1, TB2, D1(M), L1(M), F9(M) classification.

Model Box	Thermal Transmittance class	Thermal bridge class	Mechanical resistance class	Leakage rate class at -400 Pa	Leakage rate class at +700 Pa	Filter leakage rate	Sound-mitigation of the casing.						
							125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Pr05-Zn05-54PU-TT	T2	TB2	D1(M)	L1(M)	L1(M)	F9(M)	13	12	14	14	12	30	39
Thermal cut aluminium profile, 54mm panel of galvanised pre-coated steel/galvanised steel, polyurethane foam													
Pr08-Zn08-54RW-TT	T3	TB2	D2(M)	L1(M)	L2(M)	F9(M)	23	25	28	28	28	39	43
Thermal cut aluminium profile, 54mm panel of galvanised pre-coated steel/galvanised steel, rock wall													
Pr05-Zn05-54PU-ST	T2	TB4	D1(M)	L1(M)	L1(M)	F9(M)	11	13	13	13	12	29	36
Aluminium profile, 54mm panel of galvanised pre-coated steel/galvanised steel, polyurethane foam													
Pr05-Zn05-25PU-ST	T3	TB4	D1(M)	L1(M)	L1(M)	F9(M)	15	13	14	17	17	16	35
Aluminium profile, 25mm panel of galvanised pre-coated steel/galvanised steel, polyurethane foam													
A08-A08-54RW-IN	T2	TB3	D2(M)	L1(M)	L1(M)	F9(M)	25	26	27	24	25	34	39
Profile in AISI 304/316L stainless steel, 54mm panel in AISI 304/316L stainless steel/AISI 304/316L stainless steel, rock wall													
Pr05-A05-9090PU-TT	T1	TB2	D1(M)	L1(M)	L1(M)	F9(M)	19	16	14	17	17	34	41
Profile in thermal cut aluminium, 90mm panel in AISI 304/316L stainless steel/AISI 304/316L stainless steel, polyurethane foam													
Pr05-A05-9054PU-IN	T2	TB2	D1(M)	L2(M)	L2(M)	F9(M)	13	12	14	15	13	31	39
Profile in thermal cut aluminium, 90/54mm panel in AISI 304/316L stainless steel/AISI 304/316L stainless steel, polyurethane foam													

The following mechanical characteristics are certified:
- -air flow rate;
- available static pressure;
- power absorbed;
- - octave band sound power level in the duct;
- sound power level in the air;
- - heating capacity;
- - cooling capacity;
- heat recovery;
- pressure drop on water side.

ROCCHEGGIANI care for air
AIR HANDLING
CTA

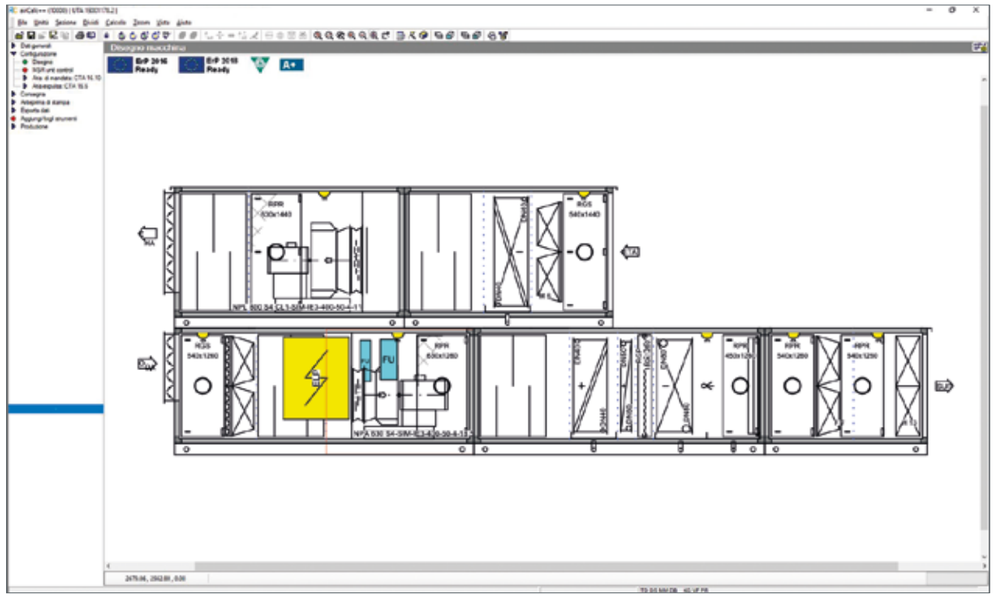
Selection software

The Company has developed software for the selection and estimation of air handling units, including functions for component sizing, and has also had it certified according to the EUROVENT program.

The software allows a whole range of characteristics of an air handling unit to be selected such as the thickness of the metal panel sheet, the material covering internal surfaces, the material on the coil frames and the protective coating of the base and other components. It also allows great flexibility in the composition of the air handling unit as regards materials and accessories and also as regards the structure of the unit.
Each individual section can be customised, allowing any relevant accessory to be selected and providing the opportunity to position dampers as required.

The software has a system that automatically checks input data so as not to allow the inclusion of sections or accessories that are incompatible with each other.
Once the overall size of the unit is chosen, all the components included in the program are dimensioned accordingly.
The ability to select different types of metal sheets with different gauges and the presence of sections with actual sizes means that, during the offer preparation stage, a complete executive plan of the air handling unit can be exported in .dxf format and then managed with any CAD software.

The software can calculate and manage the automatic regulation system as wired and mounted on board the machine, since it has access to a catalogue of probes, valves, actuators and field elements.
The program provides the technical characteristics of the unit in a complete and comprehensive manner and produces technical reports in .pdf format.



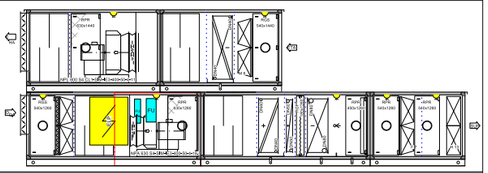
Technical reports show the air handling psychrometric charts and the work point on the curves of the fan.
According to the selected components, the software also gives an immediate feedback on the costs of the project.

ROCCHEGGIANI care for air

Grandezza unità	**CTA 24.14**
Aria di mandata	**20.240 [m³/h]**
Aria di ripresa	**22.570 [m³/h]**

Offerta	**UTA 24000172**
Data	**06/02/2024**
Utente	**RCG**
Progetto	**---**
Posizione	**UTA 04**
Descrizione	**LAB1**

airCalc++ Vers. P 5.0.0



Caratteristiche dimensionali

Lunghezza totale [mm]	Larghezza totale [mm]	Altezza totale [mm]	Peso a vuoto [kg]
9.160,0	**2.210**	**1.870**	**~5.933,00**

Caratteristiche costruttive (fare attenzione a possibili modifiche dei materiali nelle singole sezioni)

Profili	**Alluminio - Taglio Termico**			
Angoli	**Nylon**			
Pannello esterno	**Zincato preverniciato Simil RAL 9002**	Spessore	**0,50**	**[mm]**
Pannello interno	**AISI 304**	Spessore	**0,50**	**[mm]**
Pannello int.fondo	**AISI 304**	Spessore	**0,50**	**[mm]**
Guides and int. frame	**AISI 304**			
Isolamento	**Poliuretano espanso 45 kg/m3**	Spessore	**54,0**	**[mm]**
Tetto	**Zincato preverniciato**			

Caratteristiche acustiche

	Frq.[Hz]	63	125	250	500	1000	2000	4000	8000	Somma [dB(A)]
Rumore irradiato attraverso la struttura [dB]		**78,9**	**71,9**	**82,9**	**78,9**	**77,9**	**73,9**	**51,9**	**40,9**	**82,0**

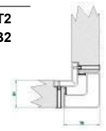
Prestazioni termiche e meccaniche dell'involucro

Prestazioni meccaniche certificate secondo EN 1886:2007

Resistenza meccanica dell'involucro	**D1(M)**
Trafilamento aria attraverso involucro -400 Pa	**L1(M)**
Trafilamento aria attraverso involucro +700 Pa	**L1(M)**
Classe di reazione al fuoco del pannello secondo UNI 9177:	**1 (UNO)**
By-pass dei filtri	**F9**

Prestazioni meccaniche certificate secondo EN 1886:2007

Classe di trasmittanza	**T2**
Classe di ponte termico	**TB2**



Dichiarazione di prestazione - Eurovent

MB Range	**11.02.510**
MB Casing	**Pr05/Zn05-54PU-TT**
Certificazione	**Unità da esterno**

EUROVENT CERTIFIED PERFORMANCE AHRI N° 11 02 510 Range: CTA www.eurovent-certification.com

Dichiarazione di prestazione energetica

Potenza specifica vent. [W/(m3/s)]	**3.345 [SFP3]**
Temp. Minima calcolo [°C]	**0,00**
Ricircolo [%]	
Velocità aria [m/s]	**1,99**
Densità aria [kg/m³]	**1,20**
A.s.l.m. [m]	**0**
Reference place	**Ancona**

Energy label class designed for wet condition

Dichiarazione di prestazione Ecodesign 1253-2014

Calcolo valido	**Si**	Efficienza termica	**72,10**
ErP Ready 2016	**Si**	Tipo unità direzione	**BVU - NRVU**
ErP Ready 2018	**Si**	Tipo di motore e azionamento	**giri variabili**
Specific fan power interno	**743**	Percentuale trafil. esterno a +400 Pa	**1,75**
Potenza assorbita effettiva	**24,770**	Percentuale trafil. esterno a -400 Pa	**1,38**
Tipologia di sistema di recupero	**RAC System**	Percentuale trafil. interno a 250 Pa	**0,00**

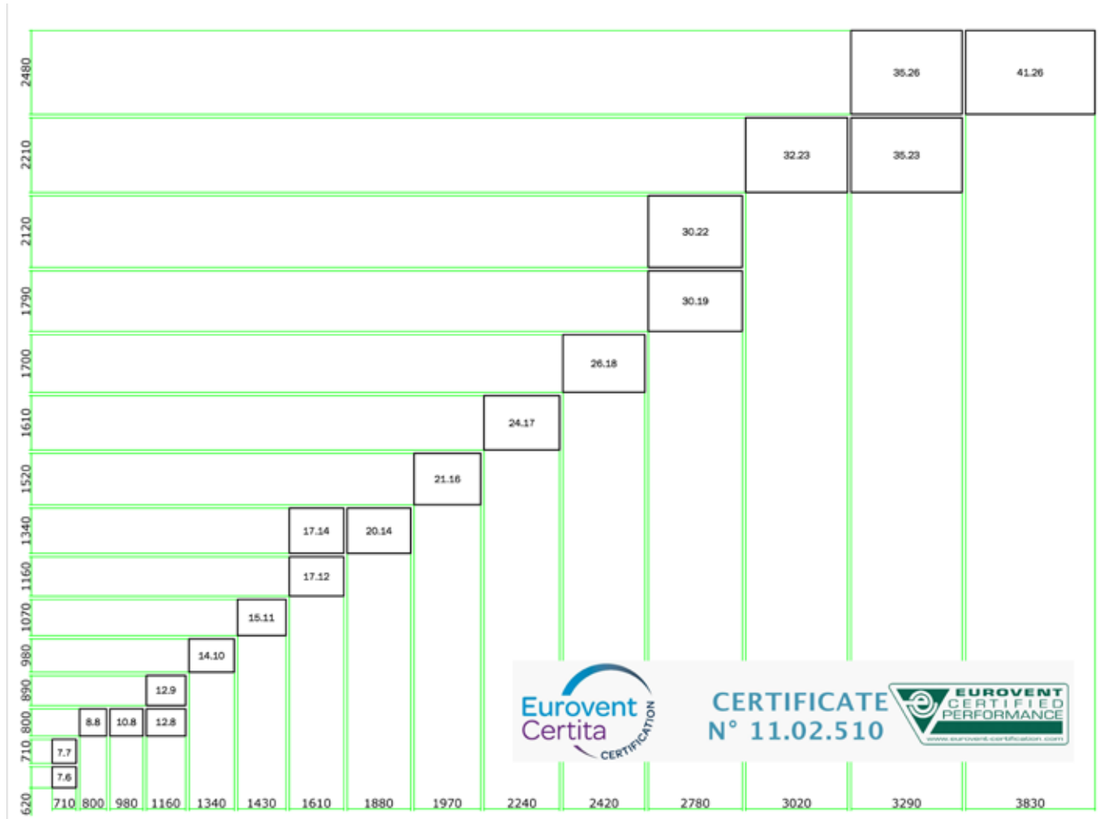
ErP 2018 COMPLIANT

ROCCHEGGIANI care for air
AIR HANDLING
CTA

Construction features

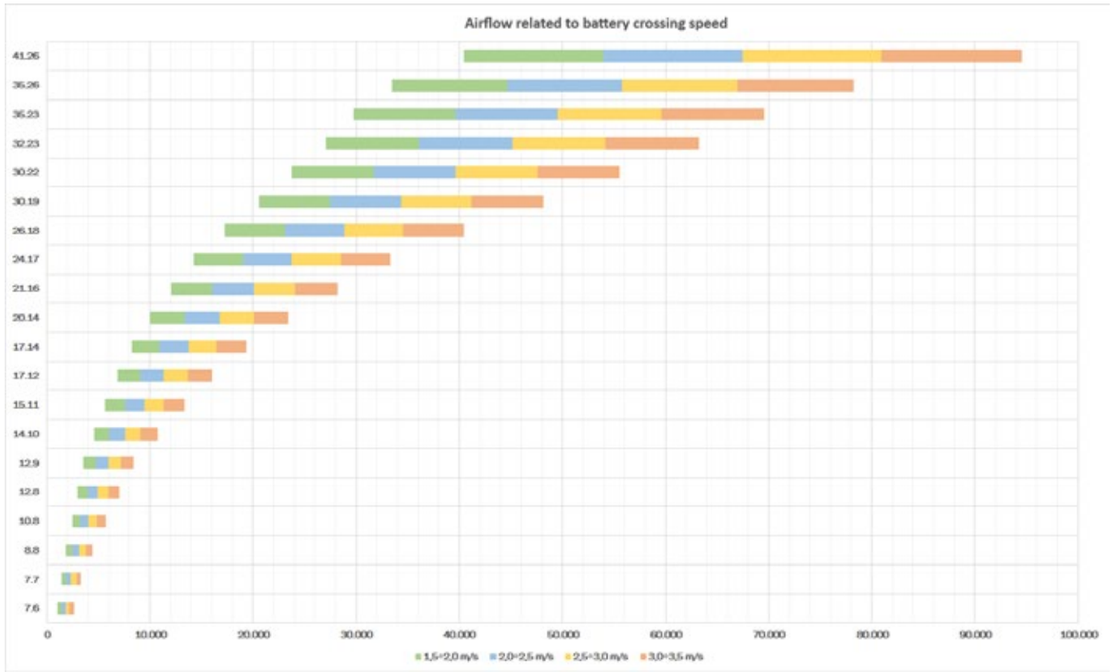
Roccheggiani can design and build air handling units with air flow capacities of up to 300.000 m³/h.

Standard production consists of 20 sizes with a modular dimension of 90 mm, identified with a two-digit code that characterises the two dimensions of the section (height and width).



Our standard production includes a range of air flow capacities from 1.500 m^3/h to 85.000 m^3/h.
The modularity of our units allows projects to be built and adapted to each individual need.

Each air handling unit is designed and produced considering the needs of the customer and easy installation. The unit manual provides all the necessary procedures for proper installation.



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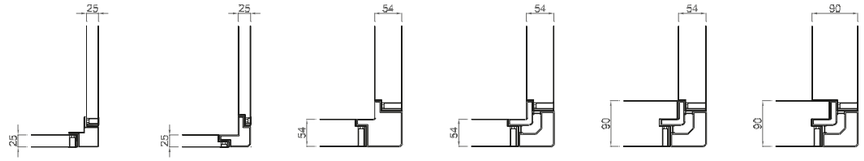
Panels and profiles

The metal supports can be made in galvanised sheet iron, in pre-coated galvanised sheet iron, in aluminium,in anodised aluminium or stainless steel with interposed high-density polyurethane foam (about 45 kg/m^3) or rock wool (density of about 90 kg/m^3).
The thickness of the metal sheet can be chosen in different sizes from 0.5 mm to 1.5 mm.

The panels are manufactured with a special shaping, which when coupled with the profile (and with the interposition of the airtight sealing) creates a single flush surface that improves air-handling efficiency and makes cleaning and maintenance operations far easier and safer.
All profiles are manufactured with shaping which improves safety conditions.
There are three standard types of panels (25 mm, 54 mm and 90 mm) and five types of profiles (40 mm, 40 mm AISI 316L, 70 mm, 70 mm with thermal cut and 70 mm AISI 316L).
All sections are joined together internally with a coupling system that ensures maximum precision and assembly speed.

Available constructions:



Profile:	Profile:	Profile:	Profile:	Profile:	Profile:
AISI 304	Aluminium	Aluminium	Thermal cut aluminium	Thermal cut aluminium	Thermal cut aluminium
AISI 316L		AISI 304			
		AISI 316L			

Insulation:	Insulation:	Insulation:	Insulation:	Insulation:	Insulation:
Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane
Rock wool	Rock wool	Rock wool	Rock wool		

Doors

The inspection doors are built with the same construction characteristics as the panels and can be opened quickly and easily to the outside.
All inspection doors are fitted with handles on the inside and outside to ensure easy access and can be equipped with lock and key or a padlock.
Upon request, they can also be fitted with inspection windows so that conditions inside the machine can be checked without having to open up and stop the machine.
Airtight seals are placed between the doors and the frame made of twin-component, thixotropic polyurethane foam, applied directly on the structure using a numerically-controlled injection process, providing the following properties:

- level of sealing: IP60/IPX6 (-40°C/+80°C);
- fire resistance class: 55°C/30s (NF 20455);
- ozone resistance: class 6 (exposure 70h at 38°C, concentration, complies with FIAT 50417 standard);
- impermeability: absorption less than 2% with immersion of 2h.
- testing for resistance to heat cycles (10 cycles of 4h at 90°C ± 2°C, 4h at -40°C ± 2°C);
- testing for humidity variation cycles (200h at 40°C ± 2°C with RH>90%);
- testing for thermal shock (1h at 120°C ± 2°C, 2h at 100°C ± 2°C).

Dampers

All types of dampers are produced internally and can meet the most stringent construction requirements. They include regulation dampers with opposed fins, no-return dampers and shut-off dampers.
They can be made with galvanised sheet steel, aluminium or AISI 304 or AISI 316L stainless steel.
They are all prepared to be fitted with servo control and, upon request, can be equipped with manual controls.
No-return dampers are provided with an adjustable counterweight.

Filter sections

Filters of various kinds can be used: undulated prefilters with regenerative cells, automatic roll rotating filters, (efficiency up to ISO 16890 Coarse 50/55%) or metallic filters for oily fumes (ISO 16890 Coarse 30%), undulated filter panels (efficiency up to ISO 16890 ePM1 80%), multibag filters or rigid bag multi-dihedral filters (efficiency up to ISO 16890 ePM1 85%), HEPA absolute polyhedron filters with integral efficiency ≥99.995% @ MPPS in accordance with EN 1822:2010 (class H14), activated carbon filters for the chemical and physical absorption of organic odours and chemical pollutant gases

Combined filters with rigid bags are also available to improve air quality, reducing concentrations of particulates and contaminating gases in a single filter, achieving ISO 16890 efficiencies up to ePM1 80%.
All filter counterframes are made internally in galvanised sheet steel or AISI 304/316L stainless steel and have a particular kind of shaping that reduces assembly tolerances and prevents all leakages. The airtight seal, made of twin-component, thixotropic polyurethane foam, is applied directly on the structure using a numerically-controlled injection process.

Fully airtight electrostatic filters in standard ASHRAE sizes fitted with built-in electronic circuit ensure high filtration efficiency on particles of 0.3-0.4 microns, comparable to class E10, E11 according to the UNI 1822:2009 standard and comparable to the class F7, F8, F9 according to standard EN 779:2012. They are an excellent solution against outdoor pollution from PM10, PM2.5 and PM1 and significantly reduce the bacterial load in the air. They ensure significant energy savings due to low pressure drop and a constant filtration efficiency up to a load of 600 g of particulate matter.

All filtering sections are fitted with an inspection door to allow simple and easy filter replacements. Upon request a differential pressure switch can be installed to control filter efficiency.

Fan Section

The fans used are centrifugal fans of the Plug-Fan type without scroll, equipped with a motor directly coupled to the impeller, and are made of galvanised sheet iron or techno-polymers.

They are fitted with asynchronous electric motors with minimum IE3 efficiency or, alternatively, with permanent magnets (PM) or electronic commutation (EC) with efficiency up to IE5 for exceptional system-wide yields and top-notch features in any application.
All asynchronous motors can be controlled by digital frequency converters, available as fully-wired IP55 on-board (built-in) accessories.
The PM and EC motors have built-in electronics and are directly operated with a 0... 10V signal.

Both solutions can include automatic air flow (CAV) or pressure (VAV) control in a closed ring using an air flow meter with PID on board the machine.
For heavy uses or where required by the customer, in high static pressure applications, double-suction centrifugal fans are used whose impeller has reverse blades, flat blades or aerofoil blades.

All impellers are statically and dynamically balanced. The fan drive shafts are made of rectified carbon C45 steel and are protected with anti-corrosive coating.
The sealed-type ball bearings used are self-aligning and are locked to the drive shaft by means of an eccentric ring.
The mouth of the fan is connected to the supply line through an anti-vibration coupling which prevents the transfer of any vibration to the structure.

The transmission occurs via trapezoidal belts and pulleys with tapered clamping bushing made of ASTM A105 steel. Upon request, aluminium pulleys or variable pulleys can be mounted.
Fans are selected to ensure optimum performance and a quiet working level. The motor, complete with sled, and the fan are housed on a single base, made of galvanised sheet iron, insulated from the section structure by means of suspension devices made of springs or rubber.
Access to all fan sections is always protected with wire-mesh security doors.

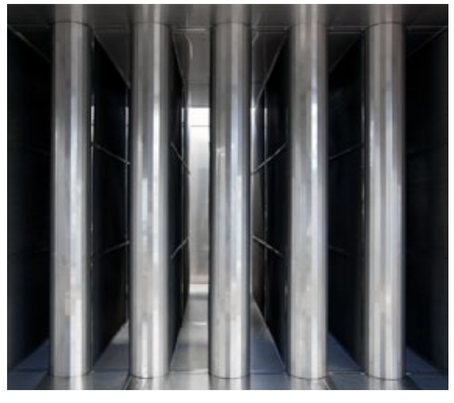
Upon request, a micro-switch can be installed which interrupts the power supply to the fan motor, as soon as the inspection door is opened.

Silencer sections

The silencer sections, chosen according to the noise reduction requirements, are designed and sized on the basis of the fan noise spectrum. They can be mounted on the supply and return sections and have linear sound-proofing baffles..

The baffles, measuring between 500 and 2.500 mm in length with a thickness of 200 or 300 mm, are made of mineral wool with a high sound-proofing coefficient and are covered in erosion-proof, non-inflammable and non-rotting fibreglass fabric.
The support frame is made of galvanised sheet steel or AISI 304/316L stainless steel.

In addition to the standard type, variants with a protective perforated sheet are available and also in the resonating version with aluminium sheet on half the surface area.



Heat exchanger coils

Heat transfer fluid coils

Run with water, superheated water, steam or refrigerant, including CO2, they are mounted on rails that allow them to be easily removed.
The construction materials used, based on the various applications, can include: copper, tin-plated copper, titanium and AISI 304/316L stainless steel for ducts; aluminium, coated aluminium, copper, tin-plated copper, titanium and AISI 304/316L stainless steel for fins.
The cooling coils are equipped, if necessary, with a multi-fold droplet separator, built with the frame in AISI 304/316L stainless steel frame and the fins in polypropylene or, on request, in AISI 304/316L stainless steel.
The inner part of the handling section contains a pan made of AISI 304/316L stainless steel, for collecting condensed water. At the customer's request, double-sloping pans towards the drain can be provided.
All coils are verified according to the 2014/68/EU PED Pressure Equipment Directive and certified according to the relevant class.

Electric coils

Electric heating coils are made with armoured electric heating elements in AISI 304/316L stainless steel. They can have smooth tubes or tubes lined with fins in galvanised steel or AISI 304/316L stainless steel.
They are always fitted with a safety thermostat, automatic reset, manual reset or in series automatic + manual reset (TSH-TSHH).

Humidification sections

The humidification sections are either of the adiabatic type or isothermal type.
The adiabatic types are available with evaporating pack and drip trap or with a recirculation pump, with spray mist nozzles with compressed air misting, ultrasound, with single or double sets of nozzles.
The isothermal types are available with network steam or with autonomous steam producers of type with immersed electrodes, with heating elements or with gas generator.
All humidification sections are fitted with water or condensate collection pans in AISI 304/316L stainless steel that always ensure the best hygienic conditions. At the customer's request, double-sloping condensate discharge pans towards the drain can be provided.
In humidification sections with nozzle bars and recirculation pump, there is a double-wall chamber so as to ensure greater insulation of the panel from the area in which the water is sprayed.
All humidification sections are fitted with a multi-fold droplet separator, built with the frame in AISI 304/316L stainless steel frame and the fins in polypropylene or, on request, in AISI 304/316L stainless steel.
Special projects and products are available for the car industry for the humidification of large air flows with precise regulation for increasing humidity.

Recovery sections

In accordance with the ErP-Ecodesign Directive 1253/2014, all two-way air handling units (BVU) must be equipped with a heat recovery system (HRS). Roccheggiani provides specific performance and regulatory compliance data for each unit it produces.
The proposed solutions are of the static type with cross-flow or countercurrent recovery units, coils with heat transfer liquid, thermal wheels.

Heat transfer fluid coils

The heat transfer fluid type coils consist of two coils with fins: one in the return/discharge air flow and one in the fresh air intake supply flow, inside which a heat transfer fluid is circulated consisting of a mixture of water and glycol with varying percentages depending on the operating temperatures.

The coils can be made of the same materials as the main coils. Upon request, the entire system with circulation pump, inverter, mixer valve, connecting pipes, probes and actuators can be provided. The recovery efficiency, of a sensitive type, can achieve efficiencies of up to 80%.

Thermal wheel

The thermal wheel type consists of an aluminium heat exchanger wheel operated by an electric motor controlled by an inverter via a belt transmission.
The casing can be made of coated galvanised steel or AISI 304/316L stainless steel.
The aluminium matrix has a highly hygroscopic surface treatment called Sorption Zeolite Molecular Sieve 3A, which is suitable for all applications where contaminations need to be avoided and the exchange must take place with no smell transmission.

The particular molecule chosen to perform this latent heat recovery is Zeolite.
At an atomic level, the structure of zeolite is an assembly of silica and alumina tetrahedrons combined regularly through shared oxygen atoms.

This configuration forms an open crystalline lattice with pores at the molecular level in which guest molecules can penetrate.
The totally-uniform crystalline lattice behaves like a sieve with an effective opening of 3.0 Angstrom [0.3nm].
Since methane is the smallest of organic molecules (i.e. that can transmit odours) and has a kinetic diameter of 3.542 Angstrom [0.3542nm], the molecular zeolite sieve can effectively shield the adsorption of all organic compounds (and thus prevent the transfer of any odours). The water molecule, with a kinetic diameter of 2.641 Angstrom, is smaller than 3 Angstrom [0.3nm] and can penetrate the structure of the zeolite so that it is easily absorbed.

The heat recovery unit is also equipped with a washing section that uses a share of fresh air through a round sector with a 5-degree opening and allows the small share of captured return air to be removed, immediately before moving to the supply section and which, otherwise, would remain trapped in the wheel and be transferred.
For diameters above 2400 mm, the wheel is built in sectors.

The total-type, both sensitive and latent recovery efficiency can achieve efficiencies of 90%, significantly reducing the necessary power potential of the installed plant and reducing winter humidification devices.

Cross-flow or countercurrent flows

The static type with cross-flow or countercurrent flows consists of a heat recovery unit with large-surface plates complete with a by-pass device. The heat exchange surface can be made of aluminium or pre-coated aluminium for applications in corrosive environments.

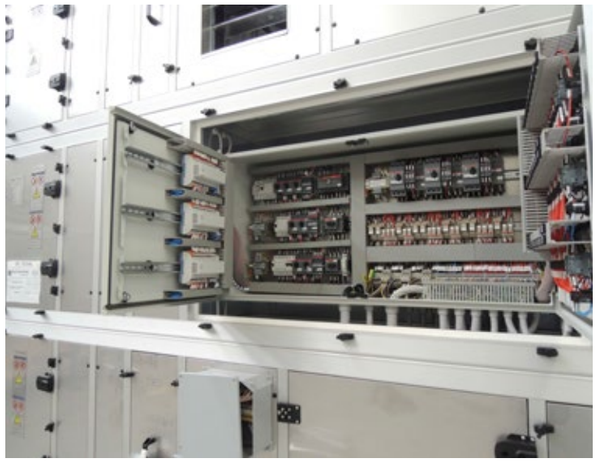
This sensitive-type recovery can achieve efficiencies of over 90%.

Special projects

Roccheggiani specialises in the supply of full units, complete with all cabling and on-board electric power and control panels, including the installation of all regulation equipment and on-site commissioning and testing.

Packaged units

Upon request, the air handling units can be supplied complete with all regulation devices, ready mounted and wired on board the machine, including the electric panel and control panel. In particular, the power and control panels may be located in specific niches within the unit or placed inside a remote electric panel.
The electric panel board, designed and dimensioned for each unit and based on the power and regulation requests is equipped with a door lock circuit breaker. Control is achieved via regulators with a microprocessor that allows the desired psychrometric parameter values to be viewed and set. They will act according to the parameters read by special sensors placed both in the rooms and in the unit.



The outputs of the regulators, through the use of transducers, changes the operating parameters of the dampers, the modulating valves, the electric coils, the fans, humidifier, the dehumidifier, the antifreeze system, etc. The regulators can also adapt the air flow or pressure, by means of the microprocessor that regulates the frequency converter changing the number of fan revolutions, according to the set flow rate and the level of filter clogging or air quality.
In addition to the control of all parameters, the regulation of the air handling units also includes the reporting of any alarms that may occur while the units are working. Roccheggiani uses regulation systems of all major manufacturers in line with agreements made with the customers.
They can be fitted with integrated panels on board the machine or panels with their own metal frame.

The packaged air handling units by Roccheggiani can meet all plant needs and requirements to provide a fully-integrated solution including heat generation sections on board through heat pumps.

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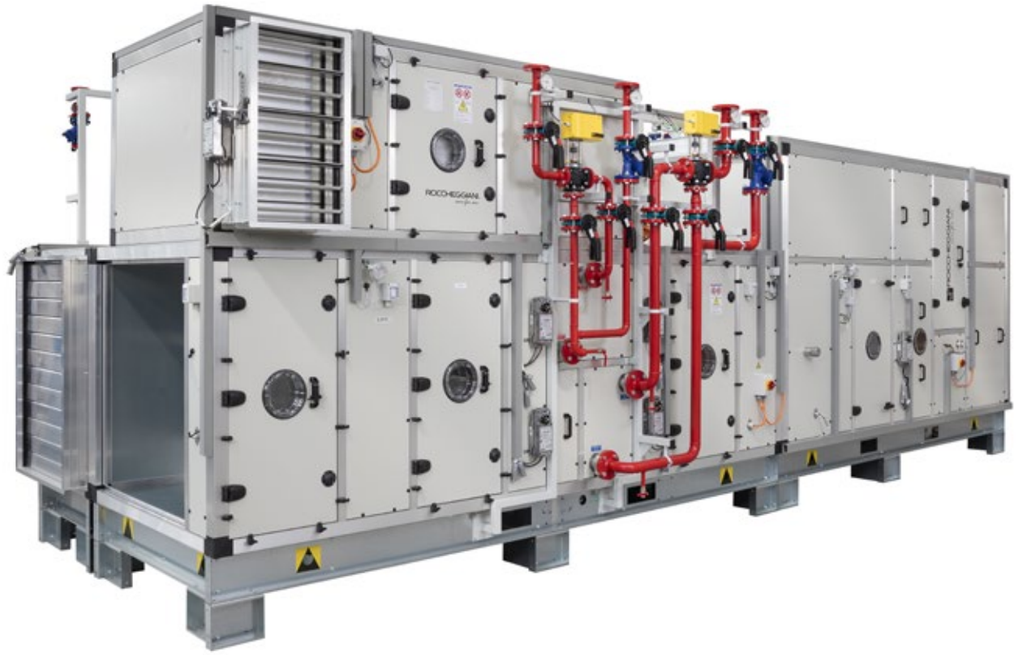

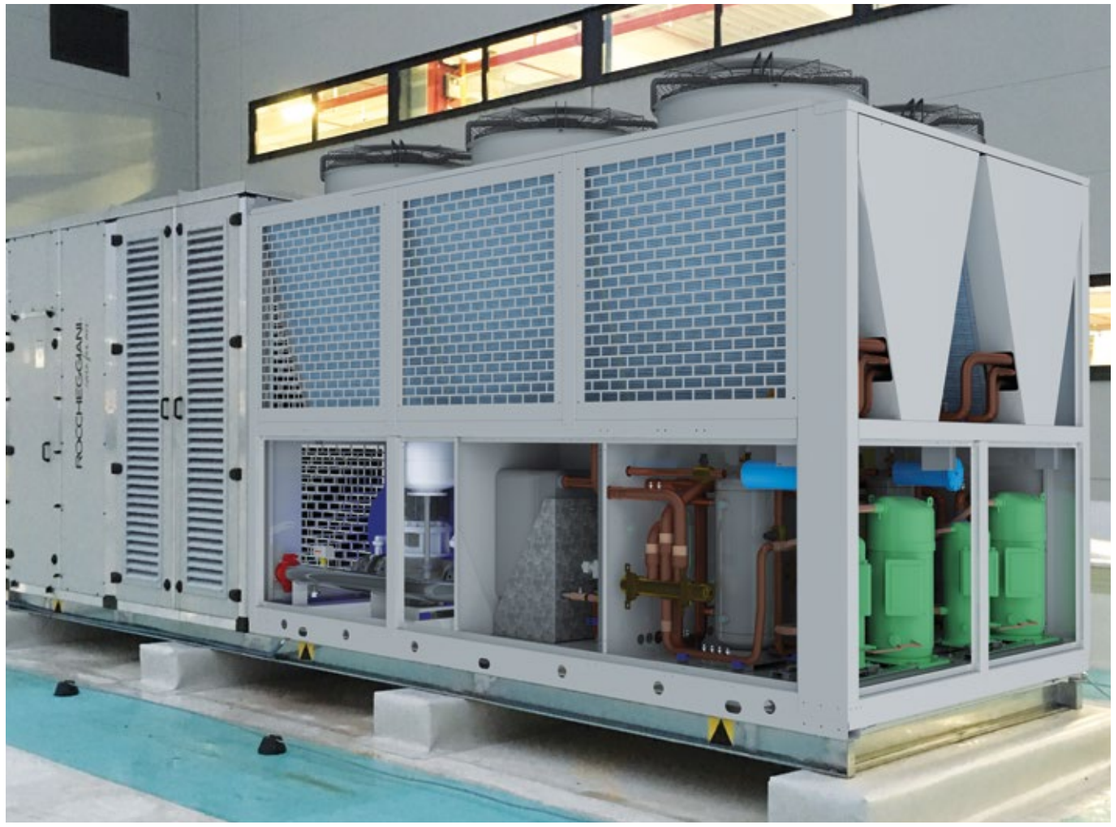

Pharmaceutical and Food industries - Hospitals

The basic structure is made using extruded Anticorodal UNI 9006/01 6060 T6 aluminium profiles, with shaping that improves safety conditions, or AISI 316L stainless steel which are connected by means of fibreglass or stainless steel joints according to an exclusive Roccheggiani design. The profiles are exclusively shaped and have no internal protrusions.

The high-performance structure consists of a continuous AISI 316L stainless steel profile that is fully welded and fully insulated from the panel outwards so as to prevent any thermal bridge. It is totally smooth on the inside and lends itself perfectly to all those applications in the food industry requiring low-temperature treatments.

The sandwich-type panels with a thickness of 90 mm for the bottom of the sections and 54 mm for the side and top walls, are built on the inside in AISI 304 or AISI 316L stainless steel and, on the outside, in pre-coated galvanised sheet iron, with injected, high-density polyurethane foam insulation material (about 45 Kg/m^3) or oriented-strand rock wool (about 90 kg/m^3).
They are fastened to the frame with screws housed inside nylon cover bushings applied to the panel. This ensures the insulation of the screw both inside and outside, whereas airtightness is guaranteed by seals resistant to various types of disinfectants made of acids and bases.
The units are suitable for both outdoor and indoor installation. The materials used are guaranteed to be weather-proof and the units can be fitted with protective roofing and a dedicated enclosure for valves and all regulation devices, built to the same standard as the main unit.
All internal components can be easily removed for practical interior sanitisation.

Ozone sanitisation

As an accessory, an automatic sanitisation system can be installed with an ozone generator, a powerful sanitising agent that provides effective air purification, with the elimination of pollutant particles, odour molecules and micro-organisms.
The properties of ozone can be used in these applications for the elimination of foul odours and micro-organisms, for maintaining optimum hygienic conditions, preventing the proliferation and development of airborne communicable diseases and to ensure oxygenation and renewal and also the elimination of toxins and VOCs (volatile organic compounds).
Ozone activates the elimination of odours by oxidising the odour-producing particles, as opposed to simple room deodorants, which mask odours by incorporating the odour-producing particles in a fragrant liquid film.
After reacting, the ozone reconverts and transforms back into oxygen without leaving any traces.

Air disinfection

To prevent the growth of micro-organisms and bacteria, modules with UV germicide lamps can be installed to achieve an effective reduction in microbial contamination in conditioned air (fight to Legionnaire's disease, Tuberculosis, Sick Building Syndrome).
The installation inside special sections means that very high exposure concentrations can be achieved, not compatible with installations in the environment, even reaching disinfection efficiencies above 99% (see ASHRAE 185.1-2015).

Marine - Offshore - Oil & Gas - Nuclear Power Plant

Marine

The special construction air handling units by Roccheggiani have been designed and built to meet all possible requirements for the installation of air handling plants in marine applications, those serving offshore platforms, onshore oil fields and thermonuclear power plants, in full compliance with the strictest safety standards.
Twenty years' experience in the Marine sector means we can build plants that meet the requirements of all shipowner companies and all shipyards. There are more than 50 large cruise ships that have air handling plants, fan coil units and cabin ventilation units made by Roccheggiani.

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Offshore - Oil & Gas - "Full compliance"

Air handling units for the most extreme conditions, constructed and fully welded with AISI 316L stainless steel and additional C5-M coating according to ISO 12944. Upon request from the customer, a full analysis can be conducted on the finished elements of an air handling unit to assess their structural resistance according to: pressures, loads (stacked units), ageing due to vibrations, seismic stresses on the building response spectrum, waves (roll, pecking), wind and explosion.
The models for the finished elements have been validated and corrected through numerous tests on vibrating tables at ENEA, the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (formerly the Italian National Nuclear Energy Agency).

Full Compliance with ISO 15138 - Oil and natural gas industries - Installations for production at sea - Heating, ventilation and air conditioning.

Full compliance with the most stringent requirements for oil companies:
- Total - General Specification HVAC GS EP HVA 202;
- Shell DEP 37.76.10.10 - HVAC for offshore installations Equinor TR 1562 - HVAC Design and fabrication requirements

Full compliance with the requirements for Hazardous areas with risk of explosion:
- EN 14986:2007 - Design of fans working in potentially explosive atmospheres.
- EN 13463-1:2009 - Non-electrical equipment for use in potentially explosive atmospheres. Basic method and requirements.
- EN 60079-14 - Electrical apparatus for explosive gas atmospheres - Part 14: Electrical installations in hazardous areas (other than mines).
- EN 60079-17 - Explosive atmospheres. Electrical installations inspection and maintenance.
- EN 15198:2007 - Methodology for the risk assessment of non-electrical equipment and components for intended use in potentially explosive atmospheres.
- CLC/TR 50404:2003 - Electrostatics - Code of practice for the avoidance of hazards due to static electricity.
- CLC/TC31 - Electrical apparatus for potentially explosive atmospheres.

The air handling units, dampers and air condensation units by Roccheggiani can be marked as meeting the ATEX 2014/34/EU directive in class 2, suitable for installation in Zone 1 classified areas, with the technical file deposited with the Bureau Veritas Italia with the following registration numbers:
- BVI/ATEX/ITA/15/058
- BVI/ATEX/ITA/15/068
- BVI/ATEX/ITA/15/069


JQS

Joint Qualification System
for suppliers to the Oil Industry in Norway and Denmark

Certificate of Qualification

Awarded to

ROCCHEGGIANI S.p.A.

Company Registration number: AN 60463
Achilles Id: 60423

Achilles Information AS hereby confirms that
ROCCHEGGIANI S.p.A.
is Qualified in the Achilles Joint Qualification System for suppliers to the Oil Industry in Norway and Denmark. The Qualification concerns the product and service codes listed in the appendix.

Atle Gjertsen
Achilles Information AS
Sector Manager, Oil & Gas

Anja Thorsdalen
Achilles Information AS
Operation Manager

The participating Oil Companies and Main Contractors may use Achilles JQS as the basis for preparation of bidder lists directly or together with additional qualification criteria established by the individual Company. Other qualification stages may be added by the individual Company if more information is found necessary to complete preparation of bidder lists.

29.10.2019
Issued date

09.11.2020
Expiry date

Roccheggiani makes air handling units in compliance with EN 62061 and IEC/EN 61508-1/7 that are perfect for ensuring functional safety in the process industry with safety integrity level up to SIL2.
The company is also qualified as a supplier to the oil industry in Norway and Denmark according to the Achilles certification program for the following products:

- 1.12.1 HVAC System Packages
- 1.12.2 Cooling and Refrigeration Units
- 1.12.4 Air Fans
- 1.12.5 Air Filters, Coalescers and Accessories
- 1.12.6 Dampers and Accessories
- 1.12.7 Ducting etc.
- 1.12.99 Other HVAC Equipment and Accessories

Nuclear Power Plant

Safety and reliability
Roccheggiani is qualified to build air handling plants according to the ASME AG-1:2017 Code on Nuclear Air and Gas Treatment, certified according to ASME QME-1 Qualification of Active Mechanical Equipment Used in Nuclear Facilities and IEEE 344-2013 - IEEE Standard for Seismic Qualification of Equipment for Nuclear Power Generating Stations.
All qualifications are performed after the units are tested according to the ageing, thermal, vibrational and seismic cycles to ensure mechanical characteristics for over 40 years.

VAHU

VERTICAL AIR HANDLING UNITS

- ErP 2018
- Height and minimum ground dimensions
- Air flows from 3.000 to 27.500 m³/h
- EC fans adjustable with 0… 10V signal

ErP 2018 COMPLIANT

BIM READY

Download the technical bulletin

The air handling units in the VAHU range complete the CTA series of air handling units.
The VAHUs are designed for those applications where modest ground surface dimensions are an essential condition for the construction of the air conditioning system.
They are made in accordance with the requirements of the 2009/125/EC Ecodesign Directive and Regulation 1253/2014 (ErP).
This series, produced in 8 models from 3.000 to 27.500 m³/h, is suitable for use in civil, commercial and industrial settings.

APPLICATIONS

- Industrial
- Tertiary
- Medium-to-large sized shopping centres
- Supermarkets
- Sports facilities

ACCESSORIES

- Mixing box for fresh air intake and recirculation
- Supply plenum with grilles with double row of horizontal/vertical fins, which are individually adjustable.
- RIR Regulation
- Regulation RAC1

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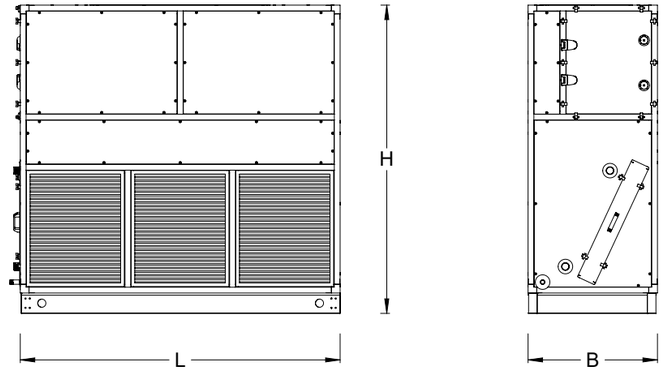
AIR HANDLING
VAHU

General technical data

VAHU Model		30	40	55	75	100	140	190	250
Nominal air flow	m³/h	3000	4000	5500	7500	10000	14000	19000	25000
External Static Pressure	Pa	850	850	700	700	550	800	500	350
Performance									
Total Heating Capacity with 4-row coil (1)	kW	16.6	21.5	29.4	40.7	52.9	74.2	100.1	127.1
Total Heating Capacity with 6-row coil (1)	kW	19.7	25.8	35.3	48.7	66.7	89.4	124.3	157.5
Total Cooling Capacity with 4-row coil (2)	kW	15.7	18.7	25.7	37.0	40.0	57.6	83.3	99.2
Sensible Cooling Capacity with 4-row coil (2)	kW	10.7	13.7	18.7	26.0	33.3	49.5	69.9	87.3
Total Cooling Capacity with 6-row coil (2)	kW	18.5	22.3	30.4	44.3	66.5	79.6	112.0	130.8
Sensible Cooling Capacity with 6-row coil (2)	kW	13.3	17.3	23.5	32.7	45.5	62.1	85.1	106.0
Fans									
Supply Fan Motor Rating	kW	2.50	2.40	2.40	3.50	3.50	7.00	6.80	7.60
Supply Fan Nominal Current	A	4.0	3.9	3.3	5.6	5.4	11.2	10.8	12.4
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Airflow Control		YES- optional							
Filtration									
Filtration class		ISO Coarse 55% (ISO 16890) / G4 (EN 779)							
Compliance EN 1253/2014 (3)		-							
Unit type		UVU							
Ventilation Control		Variable turns							
Absorbed power (4)	kW	0.67	0.90	1.40	1.80	2.32	3.42	4.62	6.60
Specific Fan Power	W/m³/s	74	112	101	128	120	102	120	139
Airborne Sound Power Level	dB (A)	60.0	61.5	66.6	67.1	66.0	69.1	68.7	73.1
Dimensions									
B	mm	650 (710)*	710 (770)*	780 (840)*	850 (910)*	850 (910)*	890 (950)*	980 (1040)*	1070 (1130)*
H	mm	1490 (1550)*	1580 (1660)*	1810 (1870)*	1990 (2050)*	2120 (2180)*	2120 (2180)*	2330 (2390)*	2530 (2590)*
L	mm	1060 (1120)*	1250 (1310)*	1250 (1310)*	1400 (1460)*	1870 (1930)*	2200 (2260)*	2620 (2680)*	3190 (3250)*
Weight	kg	210 (240*)	250 (285*)	265 (305*)	315 (360*)	410 (470*)	605 (675*)	710 (785*)	965 (1100*)

* values related to the version with panels 54 mm thick



NOTES: **(1)** - Performance related to conditions: incoming air 20°C / 50% RH - water temperature entry-exit 45°-40° C; **(2)** - Performance related to conditions: incoming air 27°C / 50% RH - water temperature entry-exit 7°-12° C; **(3)** - Compliance with the Ecodesign Directive entails the presence of differential pressure switches to alert for soiled filters: if not expressly indicated, thes eaccessories must be paid for by the customer; **(4)** Values referring to the base configuration, with available static pressure of 250Pa.

TCL

DUCT MODULAR UNIT

- ErP 2018
- Suitable for ceiling installation
- Air flows from 1.400 to 6.000 m³/h
- EC fans adjustable with 0… 10V signal

ErP 2018 COMPLIANT

BIM READY

Download the technical bulletin

The ductable terminal units in the TCL series complete the “Flat” range of horizontal air handling units for ceiling installation, specifically designed for all those applications where a minimal amount of height encumbrance is an essential condition for installing an air conditioning system.
Produced in compliance with the requirements of the Ecodesign Directive 2009/125/CE for ventilation units, they are comply with the requirements of regulation 1253/2014 and they are ErP 2018.
The TCL series units, for horizontal installation, are produced in 6 models from 1400 m³/h to 6000 m³/h with high available static pressure.

A wide range of accessories and modular components means that a vast number of air handling and filtering requirements can be achieved, based on the chosen configuration consisting of ducts, flexible pipes and plenums, which are perfect for use in domestic, commercial and industrial settings.
A rapid selection software is available.

APPLICATIONS

- Shops
- Medium-small rooms
- Tertiary
- Offices

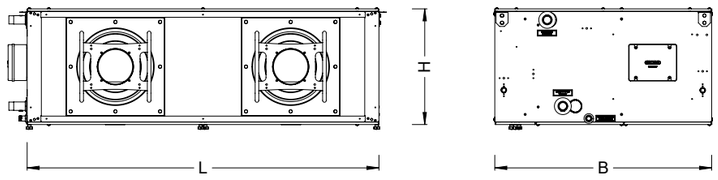
ACCESSORIES

- Fresh air intake damper
- Mixing box with two dampers prepared to be fitted with servo control
- Silencing section with silencers consisting of sound-proofing baffles that can be placed in return and supply sections
- Accessory module with coil of 2, 4 or 6 rows or electric coil
- Connecting plenum for ducts with round connectors
- Return air grille with fixed fins
- Air supply intake with twin rows of swivel aluminium fins
- Fully-wired heat regulation installed on board the unit
- Three-way valve for hot and refrigerated water coils
- RIR Regulation
- Regulation RAC1
- Regulation RAC2

ROCCHEGGIANI care for air
AIR HANDLING
TCL

General technical data

TCL Model		9	13	19	25	29	35
Nominal air flow	m³/h	1400	2300	3100	4400	5200	6000
External Static Pressure	Pa	500	600	450	560	440	720
Performance							
Total Heating Capacity with 4-row coil (1)	kW	4.7	7.6	10.0	14.5	17.2	20.2
Total Heating Capacity with 6-row coil (1)	kW	5.3	8.7	11.4	16.1	19.1	22.4
Total Cooling Capacity with 4-row coil (2)	kW	9.1	14.8	19.2	28.2	30.6	36.3
Sensible Cooling Capacity with 4-row coil (2)	kW	6.1	9.9	13.0	19.0	20.3	23.8
Total Cooling Capacity with 6-row coil (2)	kW	10.2	17.3	23.5	31.0	36.7	43.9
Sensible Cooling Capacity with 6-row coil (2)	kW	6.9	11.4	16.0	21.2	25.1	29.3
Fans							
Supply Fan Motor Rating	kW	0.50	2 x 0.50	2 x 0.50	2 x 0.78	2 x 0.78	2 x 1.35
Supply Fan Nominal Current	A	2 x 2.50	2 x 2.50	2 x 2.50	2 x 3.90	2 x 3.90	2 x 6.70
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
Filtration							
Fresh Air Filter (3) (4)		ISO Coarse 55% (ISO 16890) / G4 (EN 779)					
Return Air Filter (3) (4)		ISO Coarse 55% (ISO 16890) / G4 (EN 779)					
Compliance EN 1253/2014							
Unit type		UVU					
Ventilation Control		Variable turns					
Absorbed power (5)	kW	0.31	0.52	0.72	1.00	1.18	1.46
Specific Fan Power	W/m³/s	131.0	91.0	97.0	86.0	96.0	99.0
Airborne Sound Power Level	dB (A)	57.1	59.2	62.3	64.8	67.6	69.6
Dimensions							
B	mm	840	840	840	900	900	920
H	mm	370	370	450	480	550	550
L	mm	680	1100	1100	1460	1460	1660
Weight (6)	kg	73	87	93	124	132	152



NOTES: **(1)** - Performance related to conditions: incoming air 20°C / 50% RH - water temperature on entry 35°-30° C; **(2)** - Performance related to conditions: incoming air 27°C / 50% RH - water temperature on entry 7°-12° C; **(3)** - Compliance with the Ecodesign Directive entails the presence of differential pressure switches to alert for soiled filters: if not expressly indicated, these accessories must be paid for by the customer; **(4)** Filter efficiency according to ISO 16890; **(5)** Values referring to the base configuration, with available static pressure of 250Pa; **(6)** Referring to basic unit with 6-row coil.

CHECKS & TESTS

FAT – Factory Acceptance Test

Upon request from the customer, all Roccheggiani products can undergo a Factory Acceptance Test and Factory Performance Test to measure and check air flow, static pressure, vibrations, leaks, noise and heating and chilling capacity.

Enthalpy Climate Chamber EN14511 - EN14825

The company has a double-room Climate Chamber capable of testing Refrigeration Machines with cooling and heating powers above 2 MW; the Chamber is equipped with an Enthalpy Tunnel for accurate measurement

Standard:
EN 14511:2022
EN 14825: 2022
AHRI 550/590: 2017
EN12599: 2012
ISO 3746: 2010
ISO 9614-2: 1998

Type of test:
Air – Air
Air – Water
Water – Air
Water – Water
Hydronic Units

Test conditions:
Temperature: -20 °C to +65 °C
Relative humidity: 15% to 98%

ROCCHEGGIANI care for air
AIR HANDLING
CHECKS & TESTS

Climate Chamber EN15116

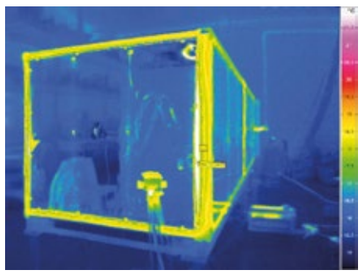
Among the first in the world to have a chamber created according to the criteria in the EN15116 - EN1397 standard for tests and assessments of Active Chilled Beams, Fan Coils, Ductable terminal units.

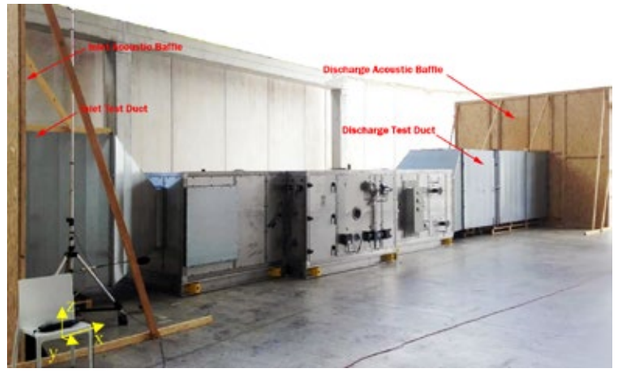
Mock-up Room

The company has a unique Mock-up Room – served by a dedicated air handling unit – which enables the creation and setting up of any type of room, thanks to its movable walls and ceilings, ranging from a hotel room to a cabin on a cruise ship and even an operating theatre. This allows us to conduct realistic tests on the settings, air conditioning units and air diffusion units.

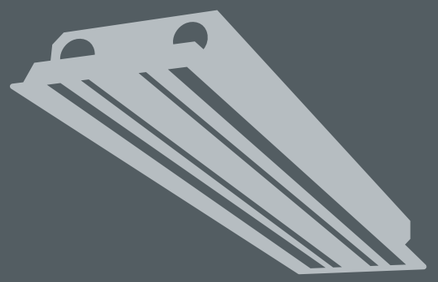
Witness Tests

Tests on complete Air Handling Units according to UNI EN 12599: 2012, also with inspection tests by third parties and notified bodies. Vibration measurements according to ISO 14694:2003 DOP Test (Dispersed Oil Particulate) on HEPA filters (EN 1822) in compliance with Standard ISO 14644-3: 2019.
Mechanical Performance testing of the air handling units according to UNI EN 1886:2008





Hydronic terminal units



CHILLED BEAMS
TERMINAL UNITS

- Modes noise levels
- Absence of bothersome draughts in the room
- High hygiene standards
- Consistent temperatures throughout the area
- System high energy efficiency
- Perfect architectural integration without occupying floor space
- Simple plant engineering
- Almost non-existent maintenance costs

BIM READY

Download the technical bulletin

Chilled beams are units for air conditioning systems. Normally installed on ceilings, chilled beams combine cooling, heating and primary air distribution functions.
They consist of heat exchange elements (finned coils), a plenum pressurised with Primary Air (air coming from an air handling unit), special induction nozzles positioned on the plenum, a section for the return of air from the room and one used to input mixed air (Room Air + Primary Air) into the room.
The Room Air is circulated through the built-in heat exchanger coil thanks to the inductive force of the Primary Air flow through the nozzles.
The Room Air is cooled or heated by passing through the coil and is then distributed into the room once mixed with the Primary Air, by exploiting the Coanda effect and providing excellent distribution while avoiding any unpleasant draughts.
A chilled beam does not need a built-in fan in order to operate.

ACCESSORIES

		TFS2	TFS2-L	TF2-300	TFP1	TFV2	TFB2	TFBH2	TFS4	TFI	TFP
Integrated air flow calibration device	TRIM	S	S	S	S	S	O	O	N.A.	N.A.	N.A.
Swivel nozzle		S	S	S	S	S	S	S	N.A.	N.A.	N.A.
4-pipe configuration	4T	O	O	O	O	O	O	O	O	O	O***
Anti-condensation probe mounted on board	AT S01	O	O	O	O	O	O	O	O	O	O
2-way DN10 valve	AT V10K	O*	O*	O**	O**	O*	O**	O**	O**	O**	O**
Electro-thermal NC valve actuator	AT SC02	O*	O*	O**	O**	O*	O**	O**	O**	O**	O**
Removal of integrated air	AT R	O	O	N.A.	O	O	O	O	N.A.	N.A.	N.A.
Stand-Alone Room Thermostat	AT NRT300	O	O	O	O	O	O	O	O	O	O
Room Thermostat with communication protocol	AT NRT407	O	O	O	O	O	O	O	O	O	O

S = standard; O = optional; N.D. = non available; * = mounted; ** = supplied together; *** = only with radiant coil

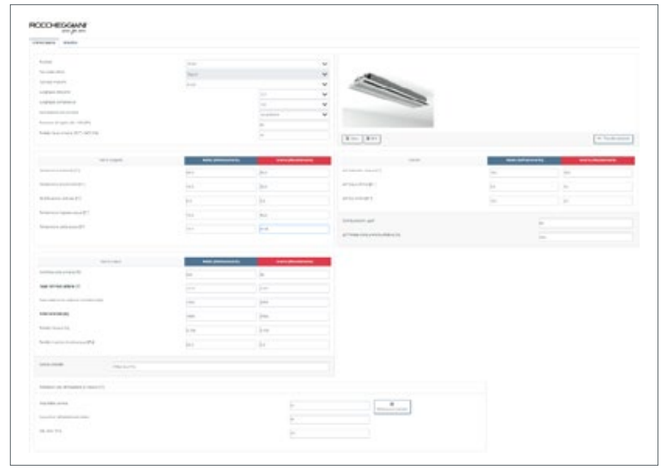
APPLICATIONS

- Tertiary
- Hotel
- Hospitals, clinics and nursing homes
- Medium-to-large sized shopping centres
- Offices

ROCCHEGGIANI care for air
HYDRONIC TERMINAL UNITS
CHILLED BEAMS

Chilled beams sizing

Roccheggiani provides a free access software, for the selection and sizing of chilled beams.



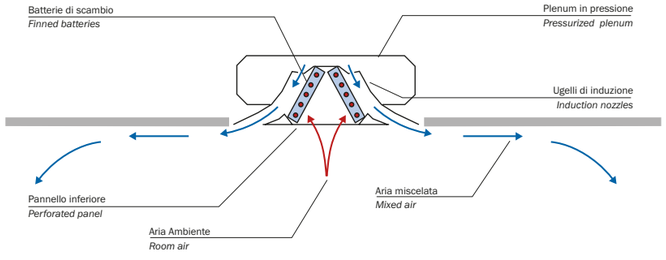
TFS2

CHILLED BEAM WITH 2-WAY AIR JET WITH DOUBLE VERTICAL COIL FOR FALSE CEILING MOUNTING

Applications

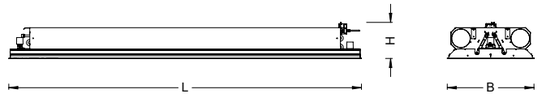
- Hotel rooms with false ceiling
- Hospital rooms with false ceiling
- Shopping Centres
- Open-space and divided offices
- Banks

Operation diagram



Data for quick identification

- Coil efficiency up to 600 W/m active @ 60 Pa - 10°C DT
- Air flow rate 6.6 - 24 l/sm active @ 60 Pa
- Standard lengths from 1.2 to 3.6 metres
- Possibility of long seamless applications
- Integrated TRIM air balancing device with constant pressure
- Patented directional air jet system
- Powder coating of exposed parts (Standard white RAL9010)
- Extruded aluminium profiles
- Visual separation from the false ceiling
- Can be fully inspected even in closed false ceilings
- Unifiable visible section



Dimensions						
TFS2		1.2	1.8	2.4	3.0	3.6
B	mm	595	595	595	595	595
H	mm	210	210	210	210	210
L	mm	1200	1800	2400	3000	3600
Weight	kg	20	32	44	56	68

TFS2-L

CHILLED BEAM WITH 2-WAY AIR JET PATTERN FOR FALSE CEILING MOUNTING AND DOUBLE VERTICAL COIL WITH INTEGRATED MULTI-LED LIGHT

Applications

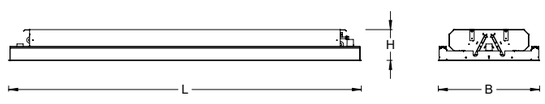
- Open-space and divided offices
- Banks
- Hotel rooms with false ceiling
- Hospital rooms with false ceiling
- Shopping Centres

Lighting technical data

- Dimmable LED light
- Screen with symmetric prismatic optics
- Cut-off angle 65 °
- 92% transmission
- Screen with hexagon optics
- Wattage per metre: 53W
- CRI > 80
- Temperature range: –20 +45°C
- Max voltage: 250VDC
- Average useful life: 60,000 h
- Supplied complete with SELF power pack

Data for quick identification

- Coil efficiency up to 600 W/m active @ 60 Pa - 10°C DT
- Air flow rate 6.6 - 24 l/sm active @ 60 Pa
- Standard lengths from 1.2 to 3.6 metres
- Possibility of long seamless applications
- Integrated TRIM air balancing device with constant pressure
- Patented directional air jet system
- Powder coating of exposed parts (Standard white RAL9010)
- Extruded aluminium profiles
- Visual separation from the false ceiling
- Can be fully inspected even in closed false ceilings
- Unifiable visible section



Dimensions						
TFS2-L		1.2	1.8	2.4	3.0	3.6
B	mm	695	695	695	695	695
H	mm	210	210	210	210	210
L	mm	1200	1800	2400	3000	3600
Weight	kg	24	38	52	65	79

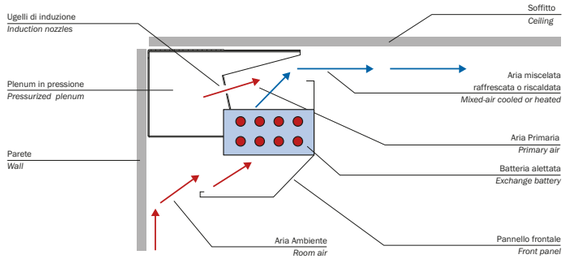
TFP1

CHILLED BEAM WITH 1 WAY AIR JET FOR WALL MOUNTING

Applications

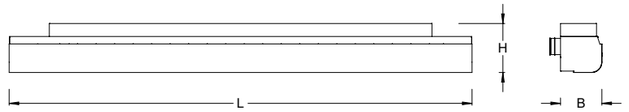
- Open-space and divided offices
- Hotel rooms
- Hospital rooms
- Historic buildings
- Rooms where there is no false ceiling

Operation diagram



Data for quick identification

- Coil efficiency up to 450 W/m active @ 60 Pa 10°C DT
- Air flow rate 6.9 - 20 l/sm active @ 60 Pa
- Standard lengths from 1.2 to 3.6 metres
- Integrated TRIM air balancing device with constant pressure
- Patented directional air jet system
- High induction
- Can be fully inspected
- Powder coating of exposed parts (Standard white RAL9010)
- Unifiable visible section
- Available with various visually-appealing finishes



Dimensions						
TFP1		1.2	1.8	2.4	3.0	3.6
B	mm	322	322	322	322	322
H	mm	283	283	283	283	283
L	mm	1200	1800	2400	3000	3600
Weight	kg	14	24	34	43	53

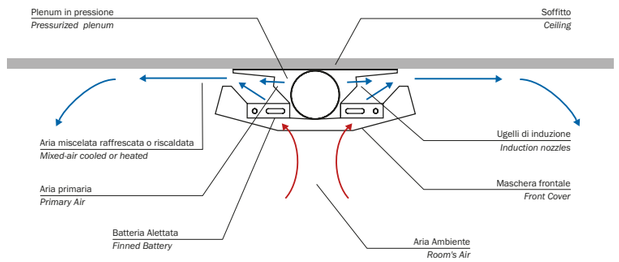
TFV2

CHILLED BEAM WITH 2-WAY AIR JET WITH DOUBLE COIL FOR SUSPENDED MOUNTING

Applications

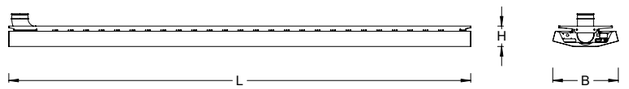
- Open-space and divided offices
- Banks
- Hospital rooms
- Historic buildings and rooms where there is no false ceiling
- Spaces with very high ceilings
- Shopping Centres and Showrooms

Operation diagram



Data for quick identification

- Coil efficiency up to 560 W/m active @ 60 Pa 10°C DT
- Air flow rate 5.9 - 23 l/sm active @ 60 Pa
- Standard lengths from 1.2 to 3.6 metres
- Directional air jet with no efficiency loss
- Integrated TRIM air balancing device with constant pressure
- Unifiable visible section
- Suitable for installations when there is no false building



Dimensions						
TFV2		1.2	1.8	2.4	3.0	3.6
B (2 pipes)	mm	510	510	510	510	510
H (2 pipes)	mm	158	158	158	158	158
B (4 pipes)	mm	556	556	556	556	556
H (4 pipes)	mm	191	191	191	191	191
L	mm	1200	1800	2400	3000	3600
Weight	kg	22	33	45	57	68

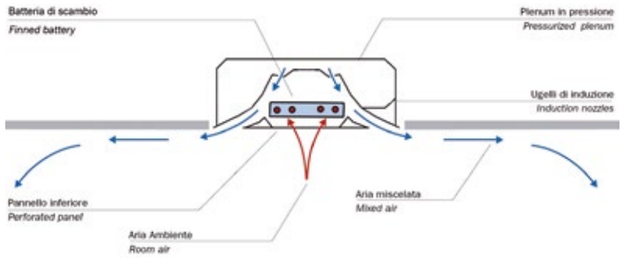
TFB2

CHILLED BEAM WITH 2-WAY AIR JET PATTERN FOR FALSE CEILING MOUNTING

Applications

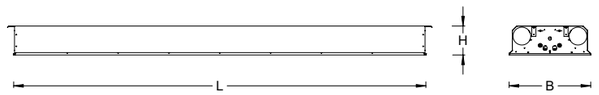
- Open-space and divided offices
- Banks
- Hospital rooms with false ceiling
- Hotel rooms with false ceiling
- Shopping Centres

Operation diagram



Data for quick identification

- TFB2 coil efficiency up to 450 W/m active @ 60 Pa - 10°C DT (up to 700 W/m active @ 60 Pa - 10°C DT version TFBH2)
- Air flow rate 5.0 - 23 l/sm active @ 60 Pa
- Standard lengths from 1.2 to 3.6 metres
- Integrated TRIM air balancing device with constant pressure (option)
- Patented directional air jet system
- Powder coating of exposed parts (Standard white RAL9010)
- Visual separation from the false ceiling



Dimensions						
TFB2 - TFBH2		1.2	1.8	2.4	3.0	3.6
B	mm	592	592	592	592	592
H	mm	210	210	210	210	210
L	mm	1200	1800	2400	3000	3600
Weight (TFB2)	kg	20	32	44	56	68
Weight (TFBH2)	kg	21	34	46	59	71

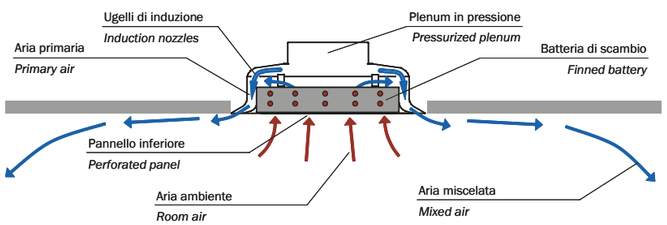
TFS4

CHILLED BEAM WITH 4-WAY AIR JET PATTERN FOR FALSE CEILING MOUNTING

Applications

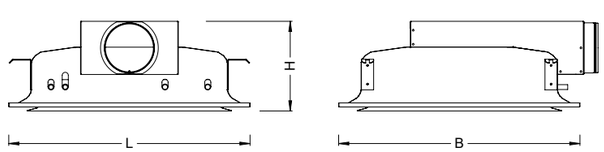
- Open-space and divided offices
- Banks
- Hospital rooms with false ceiling
- Hotel rooms with false ceiling
- Shopping Centres

Operation diagram

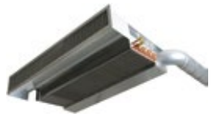


Data for quick identification

- TFS4 60 coil efficiency: up to 600 W/m active @ 80 Pa - 10°C DT (up to 1200 W/m @ 80 Pa - 10°C DT version TFS4 120)
- Air flow rate TFS4 60: 10.0 - 46 l/sm @ 80 Pa (11.0 - 55 l/sm @ 80 Pa version TFS4 120)
- Dimensions 600x600 mm (TFS4 60) 1200x600 mm (TFS4 120)
- Directional air jet system
- Powder coating of exposed parts (Standard white RAL9010)
- Visual separation from the false ceiling



Dimensions			
TFS4		60	120
B	mm	592	592
H	mm	210	210
L	mm	592	1192
Weight	kg	13	25



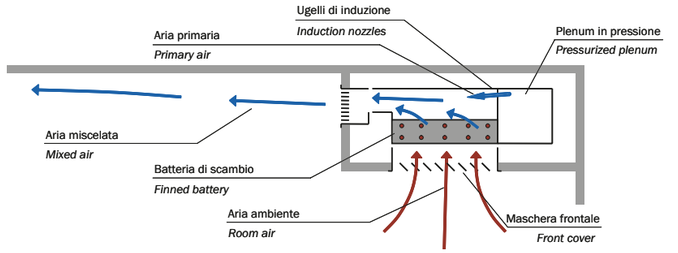
TFI

CHILLED BEAM WITH 1 WAY AIR JET FOR FLUSH MOUNTING

Applications

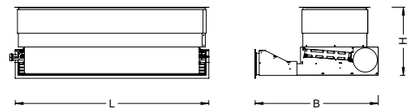
- Open-space and divided offices
- Hospital rooms
- Hotel rooms
- Renovations

Operation diagram



Data for quick identification

- Coil efficiency up to 1000 W/m active @ 100 Pa 10°C DT
- Air flow rate 14 - 28 l/sm active @ 100 Pa
- Standard lengths from 0.8 to 1.6 metres
- Directional air jet



Dimensions						
TFI		0.8	1.0	1.2	1.4	1.6
B	mm	550	550	550	550	550
H	mm	180	180	180	180	180
L	mm	800	1000	1200	1400	1600
Weight	kg	17	22	26	30	35

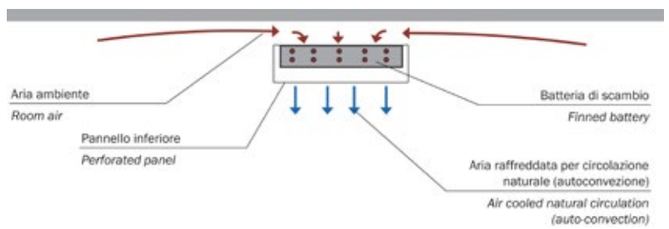
TFP

PASSIVE CHILLED BEAM FOR EXPOSED OR CONCEALED INSTALLATION

Applications

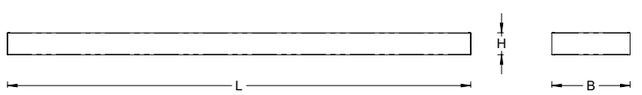
- Offices
- Spaces with very high ceilings
- To integrate efficiencies in cooling without further addition of primary air
- Renovations

Operation diagram



Data for quick identification

- Coil efficiency about 630 W/m active @ 10°C DT
- Radiant coil efficiency about 720 W/m active @ 10°C DT
- Standard lengths from 1.2 to 3.6 metres
- Can be fully inspected through removable panels
- Powder coating of exposed parts for the suspended model (Standard white RAL9010)



Dimensions						
TFP28		1.2	1.8	2.4	3.0	3.6
B	mm	286	286	286	286	286
H	mm	114	114	114	114	114
L	mm	1200	1800	2400	3000	3600
Weight	kg	11	17	23	28	34
TFP42						
B	mm	426	426	426	426	426
H	mm	114	114	114	114	114
L	mm	1200	1800	2400	3000	3600
Weight	kg	16	25	34	42	51

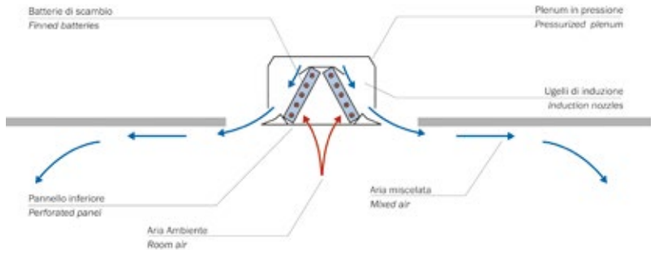
TF2-300

CHILLED BEAM WITH 2-WAY AIR JET WITH DOUBLE VERTICAL COIL FOR FALSE CEILING MOUNTING - NOMINAL WIDTH 300 MM

Applications

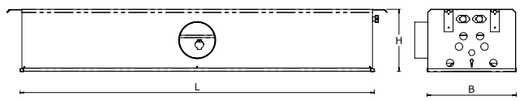
- Hotel rooms with false ceiling
- Hospital rooms with false ceiling
- Shopping Centres
- Open-space and divided offices
- Banks

Operation diagram



Data for quick identification

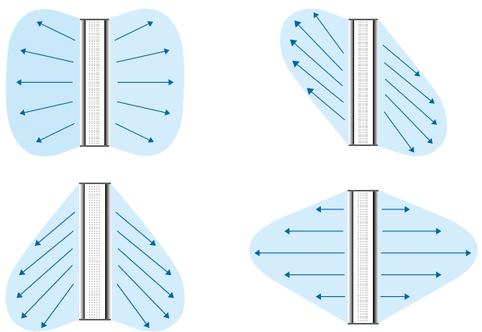
- Coil efficiency up to 460 W/m active @ 60 Pa - 10°C DT
- Air flow rate 4.9 - 23 l/sm active @ 60 Pa
- Standard lengths from 1.2 to 3.6 metres
- Possibility of long seamless applications
- Integrated TRIM air balancing device with constant pressure
- Patented directional air jet system
- Powder coating of exposed parts (Standard white RAL9010)
- Visual separation from the false ceiling

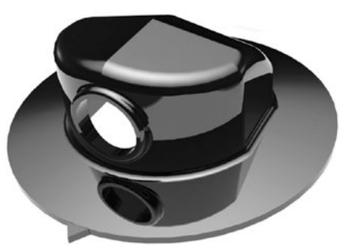


Dimensions						
TF2-300		1.2	1.8	2.4	3.0	3.6
B	mm	1192	1792	2392	2992	3592
H	mm	210	210	210	210	210
L	mm	296	296	296	296	296
Weight	kg	15	24	33	43	52

PATENTED DIRECTIONAL AIR JET SYSTEM

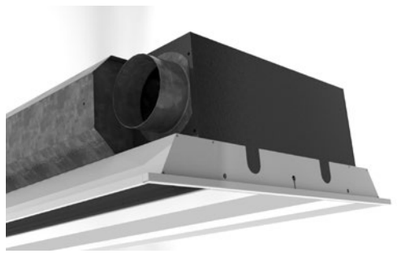
The air is fully under control without any drops in efficiency.





INTEGRATED RETURN PLENUM

The terminal can be supplied complete with plenum for removal of integrated air.



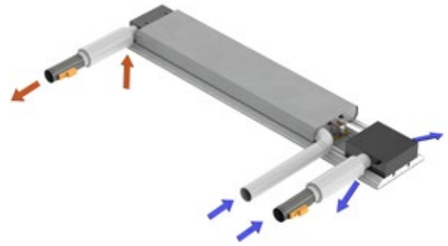
MASKING OF MECHANICAL PARTS

The internal mechanical parts of the product cannot be seen in the room.

ROCCHEGGIANI care for air
HYDRONIC TERMINAL UNITS
CHILLED BEAMS

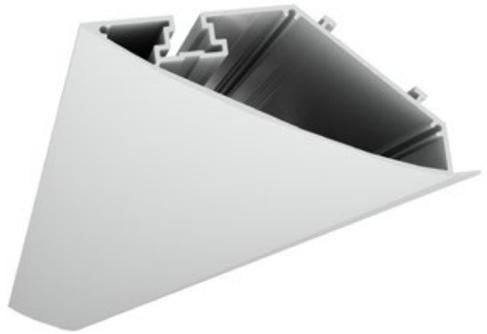
SUPPLEMENTARY PRIMARY AIR INTEGRATION AND REMOVAL

- The TFS2 chilled beam can integrate on board the Primary Air supplemental adduction module (TFS2-AP) and the return plenum for removal of room air (TFS2-R).
- The use of this kit is particularly suitable if there are spaces which are not continuously occupied: when the space is occupied according to the project standard, only the chilled beam is switched ON but when it is occupied significantly, the TFS2-AP kit is activated and provides a considerable increase in renewal air with the same Coanda-effect diffusion as the chilled beam. The system can be managed by a CAV or VAV (optional) flow regulator.



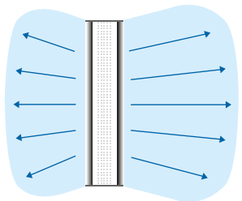
HIGH STANDARD FINISHES OF EXPOSED PORTIONS

- Extruded aluminium profiles
- Powder coating of all exposed parts (standard RAL9010)
- The exposed portions are independent from the mechanical parts and can be made the same.



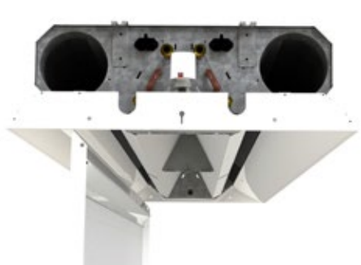
INTEGRATED AIR BALANCING

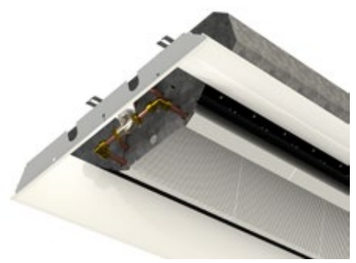
TRIM system for recalibrating the air flow at constant pressure.



CAN BE FULLY INSPECTED

- Lower panel with drop opening on both sides
- It does not need to be moved for maintenance work (1.2-3.6 m)
- The coils can be easily inspected and cleaned.
- Valves, actuators, anti-condensation probe and hydraulic and air distribution connections can be reached via the exposed part
- No further inspection hatches are required.





TCU

DUCTABLE FAN COILS

- Air flows from 330 to 880 m³/h
- EC fans adjustable with 0… 10V signal

BIM READY

The TCU Roccheggiani series ductable terminals are the result of continuous research geared to the most current system requirements and represent a unique proposal on the market for their flexibility.
The unit consists of A filter, a 4-row water cooling/heating coil, 1-ow water heating coil (optional), fan, primary air intake (optional).
This series is produced in 2 different models with a nominal air flow rate from 330 to 880 m³/h and with an available static pressure of 140-270 Pa.
These appliances, built with a particular "U" configuration, and only 280 mm in height, have been designed and built to be installed in a false ceiling, preferably in a position where the hot-cold water distribution networks are located and primary air.
The air can be distributed using different types of diffusers which are connected to the units through flexible ducts with sound and thermal insulation
The compactness, the high air flow, the high head available, the silence and the particular configuration make their use decisive and optimal in civil / commercial environments, in medium-small rooms, such as offices, shops, apartments and villas .
Due to the high available static pressure at the mouth of the fan, these units can be installed in comfortable and easy locations for maintenance, away from the room requiring air-conditioning and adapting to the existing plant designs.
A rapid selection software is available.

Download the technical bulletin

APPLICATIONS

- Hotel
- Medium-small rooms
- Tertiary
- Single-family homes
- Shops
- Offices

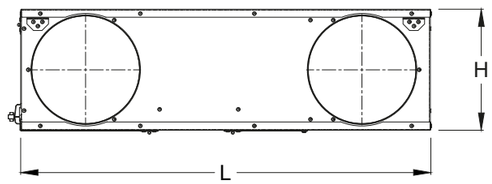
ACCESSORIES

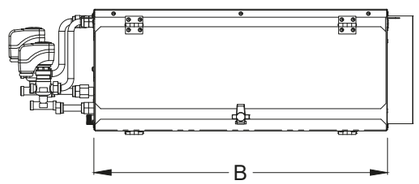
- Constant air flow regulator on primary/fresh air intake
- ON/OFF or modulating solenoid controlled valves
- Flexible circular silencer ZSCF
- DER-DEF series helical effect diffusers
- Linear diffusers DIF
- Double order grilles for horizontal / vertical fins BM-20
- Thermaflex ISO insulated flexible duct
- RIR Regulation
- Regulation RAC1
- Regulation RAC2

ROCCHEGGIANI care for air
HYDRONIC TERMINAL UNITS
TCU

General technical data

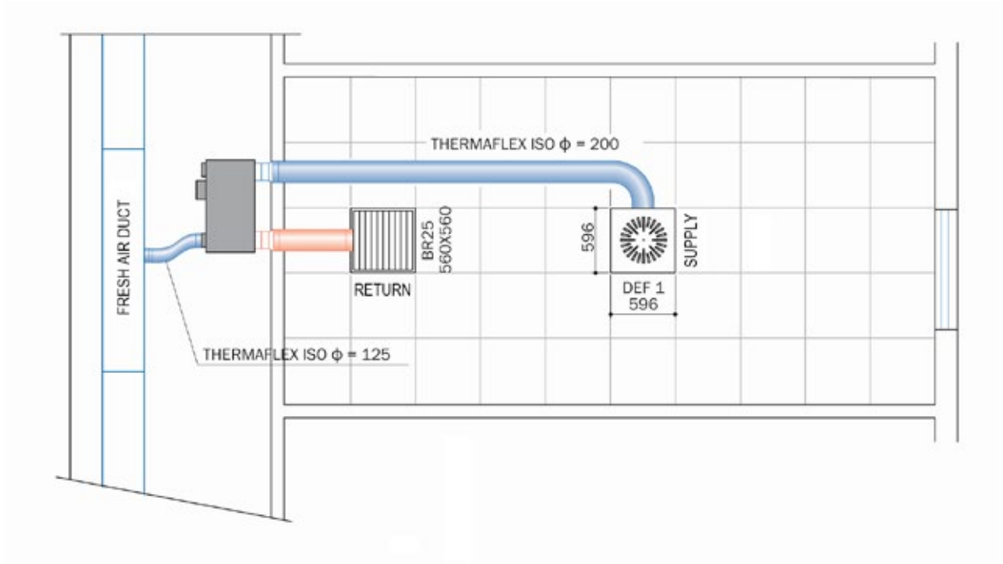
TCU model		12	34
Nominal air flow	m³/h	540	880
External Static Pressure maximum	Pa	200	140
Performance			
Total Heating Capacity with 4-row coil (1)	kW	2.1	3.3
Total Heating Capacity with 1-row coil - optional (1)	kW	0.8	1.4
Total Cooling Capacity with 4-row coil (2)	kW	3.0	6.4
Sensible Cooling Capacity with 4-row coil (2)	kW	2.1	4.3
Fans			
Supply Fan Motor Rating	kW	0.168	0.168
Supply Fan Nominal Current	A	1.40	1.40
Power supply	V/Ph/Hz	230/1/50	230/1/50
Filtration			
Filtration class		ISO Coarse 55% (ISO 16890) / G4 (EN 779)	
Compliance EN 1253/2014		-	
Unit type		Full recirculation unit	
Ventilation Control		Variable turns	
Absorbed power (3)	kW	0.06	0.16
Specific Fan Power	W/m³/s	400	654
Airborne Sound Power Level	dB (A)	53.7	60.7
Dimensions			
B	mm	850	950
H	mm	280	280
L	mm	450	680
Weight (version with 4-row coil)	kg	24	36
Weight (version with 4-row coil + optional 1-row coil)	kg	27	40



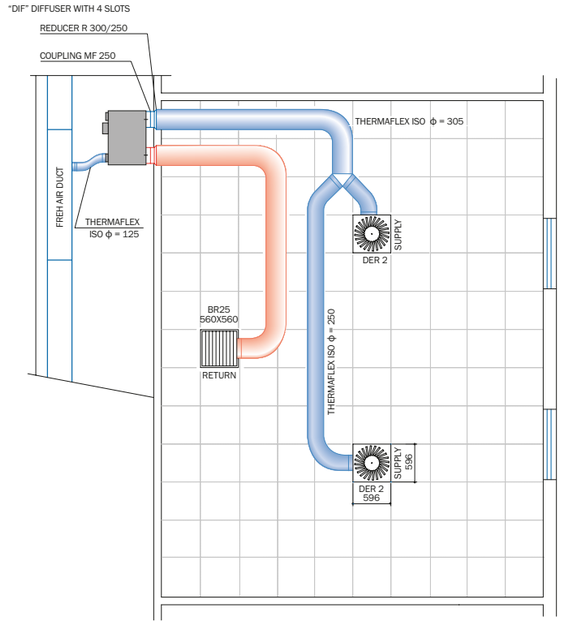


NOTES: **(1)** Performance related to conditions: incoming air 20°C / 50% RH - water temperature on entry 35°-30° C; **(2)** Performance related to conditions: incoming air 27°C / 50% RH - water temperature on entry 7°-12° C; **(3)** Values referring to the base configuration, with available static pressure of 100Pa.

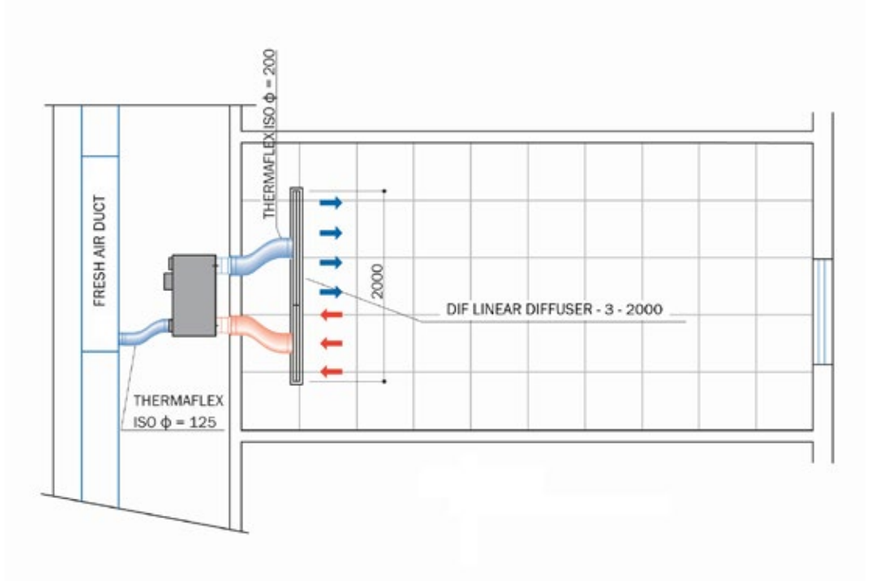
Examples of possible configurations



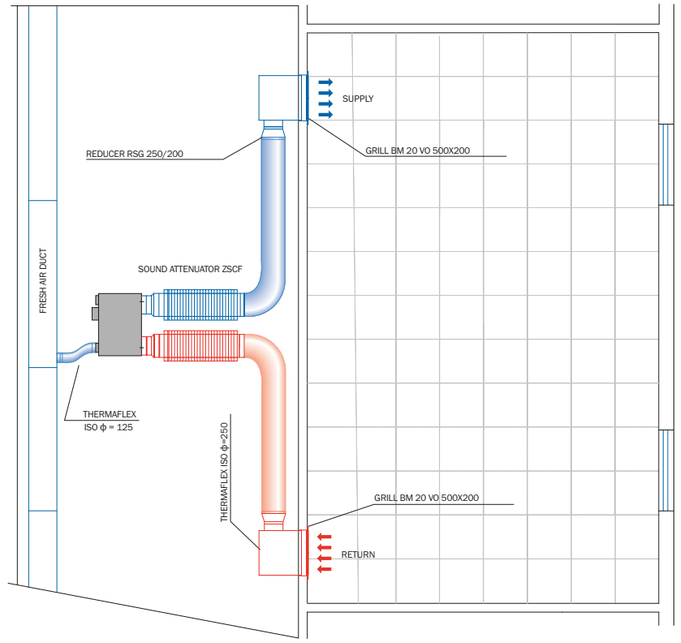
TCU 12 module with DEF1 diffuser



TCU 34 module with DER 2 diffuser



TCU 12 module with DIF diffuser



TCU 34 module with BM 20 air supply intake

FR UF

UNDER FLOOR CONVECTORS

- Perfect integration for any architectural need thanks to the wide range of models
- Possibility of customised solutions
- Maximum yield in heating: over 5700 W per linear metre of convector
- Maximum yield in cooling: over 2400 W per linear metre of convector

MINIB®

Download the technical bulletin

Roccheggiani offers a wide range of MINIB-design floor-mounted convectors that are ideal for fast heat distribution, for air conditioning areas with particular architectural requirements and in order to prevent misting on large glass surfaces.
The series includes convectors with water-fed heat exchange coils, with natural or forced convection which provide heating, cooling and ventilation to humid or dry environments and ensure low energy consumption, low noise and perfect integration with the internal architecture.
The range of MINIB design floor-mounted fan coil units is distributed exclusively by Roccheggiani in Italy and Switzerland.

ACCESSORIES

- Electronic control
- Decorated frame
- Grilles

MATERIALS

Oak

Maple

Beech

Dark bronze

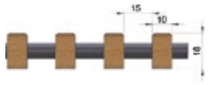
Light bronze

Silver

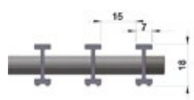
Stainless steel

PROFILES

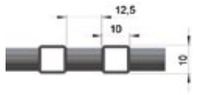
Wood roller



Aluminium roller



Stainless steel roller**



Aluminium in sections*

* not available for the HCM and HCX ranges
** special grille to be requested when ordering the convector
Possibility of longitudinal grilles upon request

Silence

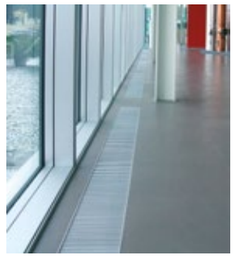
The sound pressure values of the fan coil units were measured in a furnished environment with a sound pressure background level of 22 dBA (significantly larger than measured in laboratory anechoic chambers), highlighting that the contribution to the ambient noise of the fan coil units is practically negligible.

Design

The range of curved or corner-joined convector units, the wide variety of roller and linear grilles, the vast selection of sizes and designs and the ability to manufacture non-standard-sized convector units means that we can meet the most demanding architectural requirements.

Technology

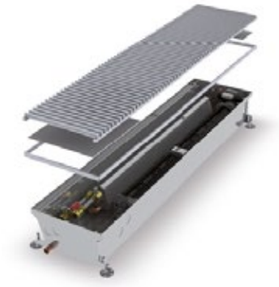
By using tangential fans, uniform distribution of air is assured throughout the entire length of the fan coil supply grille.



ROCCHEGGIANI care for air
HYDRONIC TERMINAL UNITS
FR UF

FR UF - HC 260x110

FLUSH FLOOR-MOUNTED, SINGLE-CIRCUIT HEATING AND COOLING UNITS



Characteristics

- Casing in stainless steel
- High efficiency in forced convection mode
- Rapid area heating and also designed for cooling
- Designed for dry area (EC motor)
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Low power consumption
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	260 mm
Construction height	110 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	2185 W/m
Cooling capacity	803 W/m

FR UF - HC 340x110 - STD/AIR

FLUSH FLOOR-MOUNTED, SINGLE-CIRCUIT HEATING AND COOLING UNIT WITH AIR CONNECTION AVAILABLE WITH PRIMARY AIR CONNECTION

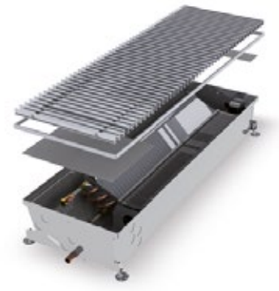
Characteristics

- Casing in stainless steel
- Primary air connection (AIR Version)
- High efficiency in forced convection mode
- Rapid area heating and also designed for cooling
- Possibility of heating also with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Low power consumption
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	340 mm - AIR Version 356 mm
Construction height	110 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	2984 W/m
Cooling capacity	1263 W/m

FR UF - HC 340x150

FLUSH FLOOR-MOUNTED, SINGLE-CIRCUIT HEATING AND COOLING UNIT



Characteristics

- Casing in stainless steel
- High efficiency in forced convection mode
- Rapid area heating and also designed for cooling
- Possibility of heating also with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Low power consumption
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	340 mm
Construction height	150 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	4288 W/m
Cooling capacity	1473 W/m

* Performance referred to: Water HEATING 75-65°C / room temperature 20°Cs/ medium speed; Water COOLING 7-12°C / room temperature 27°C - 50%RH / medium speed

FR UF - HC 260x110 4T

FLUSH FLOOR-MOUNTED, DOUBLE-CIRCUIT HEATING AND COOLING UNIT

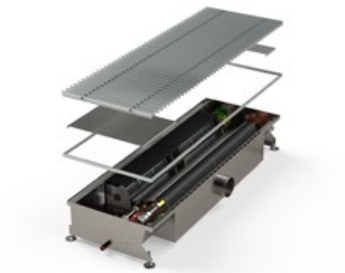
Characteristics

- Casing in stainless steel
- Double circuit connection: the heating circuit and the cooling circuit can be used separately
- High efficiency in forced convection mode
- Rapid area heating and also designed for cooling
- Possibility of heating also with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Low power consumption
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	260 mm
Construction height	110 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	1070 W/m
Cooling capacity	294 W/m

FR UF - HC 340X1104T - STD/ AIR

FLUSH FLOOR-MOUNTED, DOUBLE-CIRCUIT HEATING AND COOLING UNIT WITH AIR CONNECTION AVAILABLE WITH PRIMARY AIR CONNECTION



Characteristics

- Casing in stainless steel
- Double circuit connection: the heating circuit and the cooling circuit can be used separately
- Primary air connection (AIR Version)
- High efficiency in forced convection mode
- Rapid area heating and also designed for cooling
- Possibility of heating with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Low power consumption
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	340 mm - Version AIR 356 mm
Construction height	110 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	1650 W/m
Cooling capacity	820 W/m

FR UF - HC 340X150 4T

FLUSH FLOOR-MOUNTED, DOUBLE-CIRCUIT HEATING AND COOLING UNIT

Characteristics

- Casing in stainless steel
- Double circuit connection: the heating circuit and the cooling circuit can be used separately
- High efficiency in forced convection mode
- Rapid area heating and also designed for cooling
- Possibility of heating also with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Low power consumption
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	340 mm
Construction height	150 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	1598 W/m
Cooling capacity	1031 W/m

* Performance referred to: Water HEATING 75-65°C / room temperature 20°Cs/ medium speed; Water COOLING 7-12°C / room temperature 27°C - 50%RH / medium speed

FR UF - HC 340X185

FLUSH FLOOR-MOUNTED, SINGLE-CIRCUIT HEATING AND COOLING UNIT- MAXIMUM CAPACITY

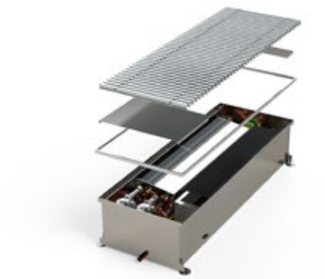
Characteristics

- Casing in stainless steel
- High efficiency in forced convection mode – Model with best performance in the whole range
- Rapid area heating and also designed for cooling
- Possibility of heating also with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	340 mm
Construction height	185 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	5715 W/m
Cooling capacity	2470 W/m

FR UF - HC 340X185 4T

FLUSH FLOOR-MOUNTED, DOUBLE-CIRCUIT HEATING AND COOLING UNIT- MAXIMUM CAPACITY



Characteristics

- Casing in stainless steel
- Double circuit connection: the heating circuit and the cooling circuit can be used separately
- High efficiency in forced convection mode – 4-tube model with the best performance
- Rapid area heating and also designed for cooling
- Possibility of heating also with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 24V DC
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	340 mm
Construction height	185 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	1982 W/m
Cooling capacity	2422 W/m

FR UF - T80

FLUSH FLOOR-MOUNTED, ONLY HEATING UNIT- MINIMUM THICKNESS

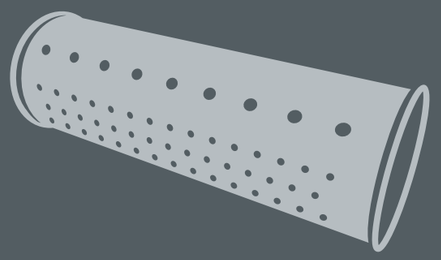
Characteristics

- Minimum depth for floor mounting (80 mm)
- Casing in stainless steel
- Rapid area heating
- Possibility of heating also with natural convection
- Complete with control unit and microprocessor
- EC motor with safe operating voltage at 12V DC
- Low power consumption
- Can also be used in plants with a heat pump

Dimensions and performance*	
Width with standard frame	243 mm
Construction height	80 mm
Length (L)	900 - 3000 mm
Type of plumbing connection	G1/2"
Total Heating Capacity	1183 W/m

* Performance referred to: Water HEATING 75-65°C / room temperature 20°Cs/ medium speed; Water COOLING 7-12°C / room temperature 27°C - 50%RH / medium speed

Air distribution and diffusion



INDUTAIR

HIGH INDUCTION PERFORATED METALLIC DUCT

- Diameters from Ø200 to Ø1400 mm
- TIG continuous welding
- Galvanised finish; pre-coated; powder coated according to RAL table; AISI304 or AISI316 polished or matt stainless steel; copper

BIM READY

Environmental conditions, temperature, humidity and air quality are key elements for wellbeing and climate comfort within enclosed spaces (work environments, commercial premises, sports and recreational premises).
The characteristics of the new generation of casings with greater thermal performance have allowed consumption and the amount of air needed for air conditioning to be reduced, but making it more difficult to evenly wash volumes to be handled with traditional diffusers.
The high-induction micro-perforated duct in the INDUTAIR range with its diffusion characteristics and sizing specifically suited for the space to be treated, makes up for the limitations of traditional diffusion systems and proves to be an excellent solution that can be adopted in a vast range of plant applications.
The speed of the out-going air, in the initial part of the duct, has a tangential component due to the speed in the pipe, so it pushes the room air towards the end part of the duct and then sucks it back to the initial part, thereby generating longitudinal circulation in the room as well as perpendicular circulation.
The sizing of the micro-perforated duct, performed exclusively using the design data of the specific space to be treated provides multiple advantages compared to traditional plants, both in economic and technical terms.

ACCESSORIES

- Conical flow rectifier in perforated metal sheet
- Curves, connections, reductions, T-pieces and special parts
- Anti-vibration couplings
- Iris regulation dampers of the butterfly type or with pressure gauge-regulator
- Plenum with direct integration with the AHU for independent management of air flows and rapid standard operating conditions

Total control of air movement

The smaller diameter holes generate a strong induction effect while the larger ones drive the mixed air in the required direction and at the required speed, ensuring low residual speeds in the occupied zones.

ROCCHEGGIANI care for air
AIR DISTRIBUTION AND DIFFUSION
INDUTAIR

Large-scale mixing and uniformity of temperatures

The high inductive effect generated by the micro turbulences of the air coming out of the holes triggers a strong call for air in the immediate proximity of the duct (induction ratio from 10 to 30), considerably increasing the amount of ambient air in movement with low DeltaT and low speed already a few centimetres away from the duct. This allows standard operating conditions to be achieved very quickly in the entire volume of handled air, enabling effective mixing and extremely even temperatures, both in a longitudinal and vertical direction, thus maintaining very low levels of stratification.

No stagnation zones

The type of diffusion ensures the elimination of any stagnation zones, which are particularly difficult to eliminate with traditional diffusion systems.

Highly-simplified return air ducting

The effective mixing generated by the micro-perforated duct allows return ducting to be drastically reduced, as it no longer requires its distribution located at strategic points within the space: the return grilles located near the UTAs are sufficient.

No risk of the formation of condensate

Due to the particular type of diffusion, which triggers a strong induction, the surface of the duct is permanently affected by a flow of air, even in areas with no holes.
This ensures that no condensation is formed even when the operating conditions mean that the temperature on the surface of the duct are a few degrees below the dew point.
For this reason, the application is also suitable in combination with direct expansion units.

Wide range of possible finishes

- BA polished stainless steel, 2B matt stainless steel (0.5 mm up to Ø250, 0.6 mm up to Ø400, 0.8 mm up to Ø1400)
- Copper, (0.6 mm up to Ø250, 0.8 mm up to Ø500, 1 mm up to Ø1400)
- Galvanised or Galvanised and powder coated (0.8 mm up to Ø750, 1 mm up to Ø1400). Coating in any colour according to the RAL table
- Galvanised and powder coated simil RAL9010 (0.8 mm up to Ø750, 1 mm up to Ø1400)

This means:
- reduced installation costs;
- system engineering savings and energy savings;
- quick installation;
- exposed plant with visual appeal from an architectural point of view.

ROCCHEGGIANI care for air
AIR DISTRIBUTION AND DIFFUSION
INDUTAIR

Construction features

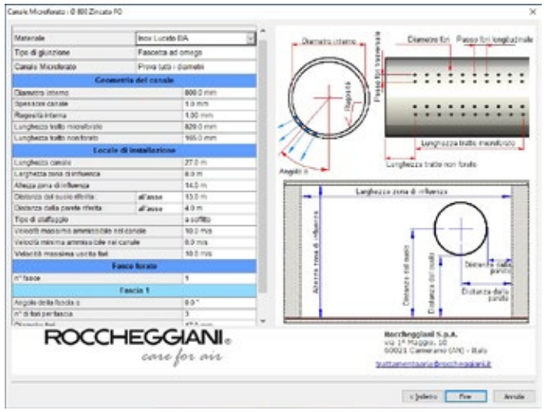
The diffusers are made of steel that is hot-galvanised with the “sendzmir” type procedure covering 200gr/sq.m.; calendered type of construction with longitudinal joint welded with the TIG in-line procedure and transverse attachment for the modules.
The standard nominal length of the elements is 1000 mm (up to Ø400 mm) and 1250 mm (up to Ø1400).
This includes the collars for joining the ducts, saddle support brackets, bottom closures and accessories to assemble them.
The diffusers can alternatively be provided open so that they can be closed on site with rivets or screws to optimise transport costs.

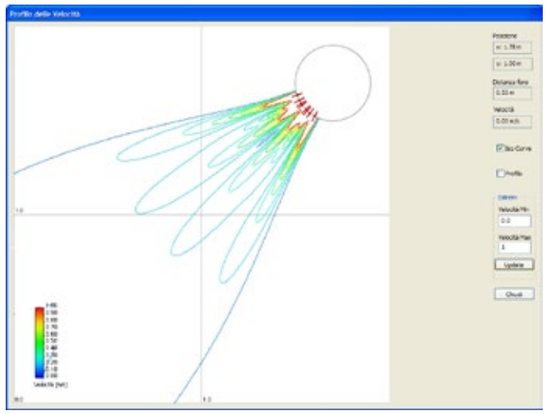
Identification of the elements on site

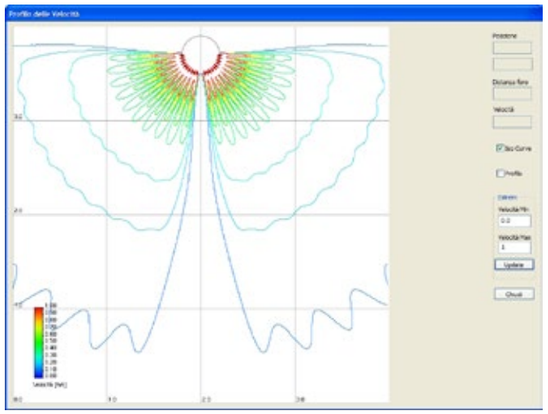
Each element is indelibly marked, directly with a puncher, with an identification acronym corresponding to the diffusion line specified in the project.
This is to assist in cases where there are a number of different INDUTAIR lines being used.

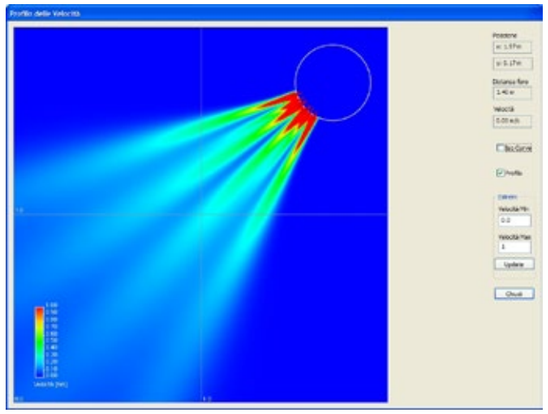
Sizing the diffuser

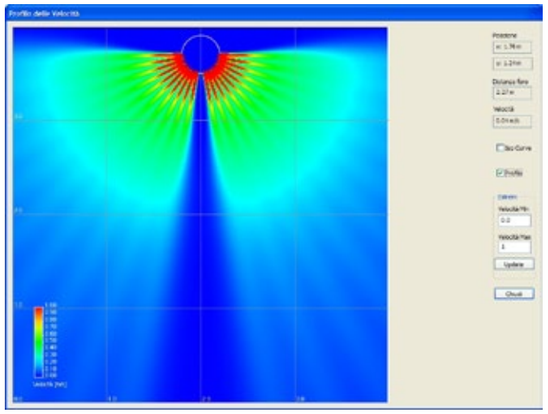
INDUTAIR perforated metal ducts are specially designed for each project with software-assisted techniques which use mathematical models and CFD systems to check the dew point and establish the right diameters and forms for the holes in order to positively check on all the comfort design requirements for each single installation, in compliance with UNI 10339.











ROCCHEGGIANI
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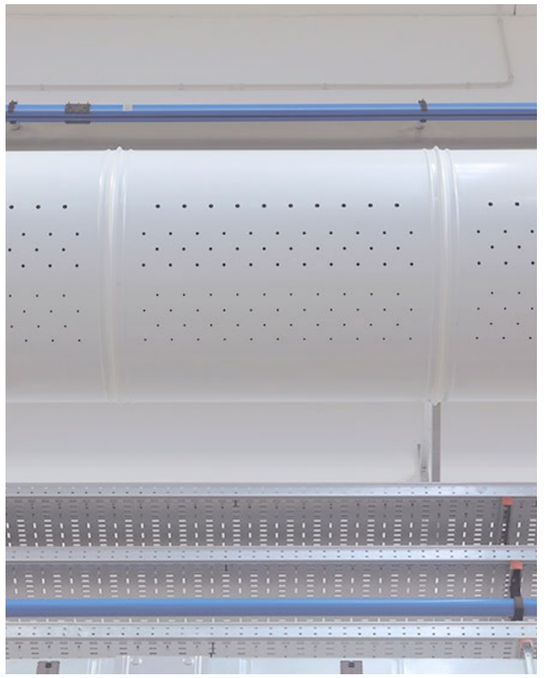
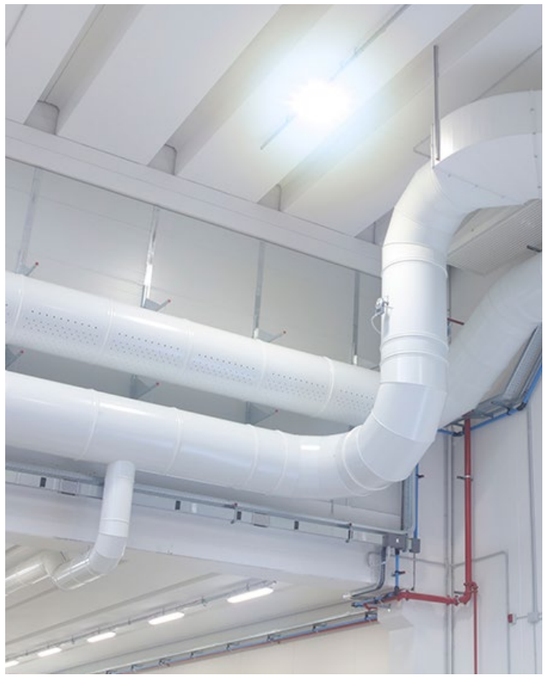
AIR DISTRIBUTION AND DIFFUSION
INDUTAIR





DUCTS AND AIR DIFFUSION

The Roccheggiani range dedicated to air diffusion includes distribution ducts, ducts for controlling fumes and heat, vents, dampers and valves for the regulation and measurement of air flows and is completed with an assorted range of various types of diffusers.

Download the technical bulletin

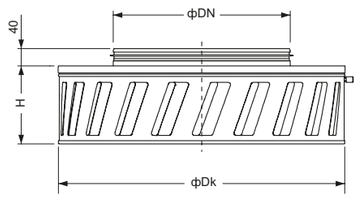
APPLICATIONS

- Industrial
- Tertiary
- Restaurants
- Sports facilities
- Medium-to-large sized shopping centres
- Hospitals, clinics and nursing homes
- Schools and Colleges
- Shops
- Offices
- Logistics

ROCCHEGGIANI care for air
AIR DISTRIBUTION AND DIFFUSION
DIFFUSION

RBI
ADJUSTABLE DIFFUSER

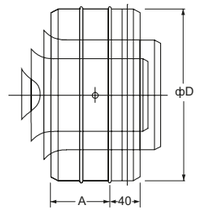
The RBI adjustable diffuser is designed to supply air into areas with very high ceilings (industrial premises, stores, warehouses and sport halls).



RBI Dimensions (mm)				
Size	ΦDN	ΦDK	H	Weight (kg)
200	199	337	128	3,9
250	249	412	138	5,0
315	314	510	150	6,8
400	399	640	175	9,8
500	499	791	205	14,0
560	599	881	229	17,1
630	629	990	259	21,3

JET
MULTI-CONE INDUSTRIAL SWIVEL DIFFUSER

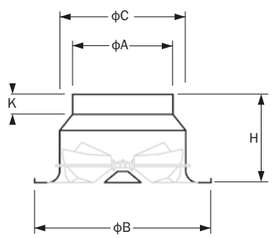
The JET diffuser is designed for industrial buildings, warehouses and sport halls.



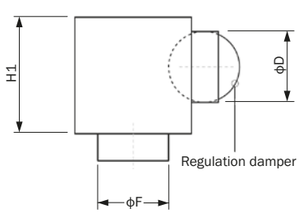
JET Dimensions (mm)		
Size	A	ΦD
200	60	198
250	85	248
315	120	313
400	160	398

DV
ADJUSTABLE INDUSTRIAL DIFFUSER

The DV adjustable diffuser is designed to supply air into industrial premises, stores, warehouses and sports halls with medium-height ceilings.



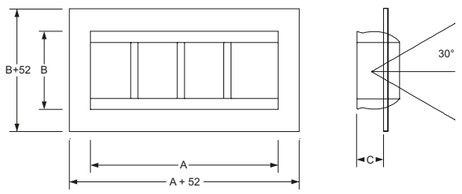
DV Dimensions (mm)					
Size	ΦA	ΦB	ΦC	H	K
200	198	350	248	180	40
250	248	400	298	205	40
315	313	500	398	230	40
400	398	615	465	270	50
500	498	780	565	320	60
630	628	935	665	390	80
800	798	1020	798	390	-



DV Dimensions (mm)					
Size	A1xB1	ΦD	ΦF	H1	K
200	300x300	248	202	300	40
250	350x350	313	252	365	40
315	415x415	348	317	400	40
400	500x500	448	402	500	50
500	600x600	498	502	550	60
630	730x730	2x448	632	600	80
800	900x900	2x498	802	650	-

UBD
JET SWIVEL DIFFUSER

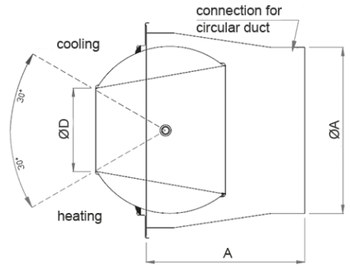
The UBD diffuser is designed to input air into industrial premises, warehouses, sport halls and premises with large spaces, requiring long range penetration.



UBD Dimensions (mm)			
Size	Inner connections		
	A	B	C
300x150	324	165	76
450x150	477	165	76
600x150	629	165	76

UG
NOZZLE DIFFUSER

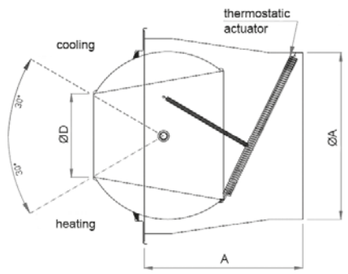
The UG swivel-nozzle diffuser is used to input handled air into industrial premises, shopping centres, warehouses and in all installations where considerable depth of air flow penetration is required. The jet air flow direction is adjusted manually.



UG Dimensions (mm)			
Size	ΦD	ΦA	A
UG 1	40	98	250
UG 2	50	123	-
UG 3	80	158	300
UG 4	150	298	300
UG 5	200	398	300
UG 6	230	398	300

UGT
NOZZLE DIFFUSER

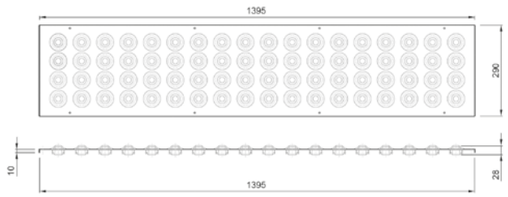
The UGT swivel-nozzle diffuser is used to input handled air into industrial premises, shopping centres, warehouses and in all installations where considerable depth of air flow penetration is required. The direction of the jet of air is adjusted automatically.



UGT Dimensions (mm)			
Size	ΦD	ΦA	A
UGT 4	150	298	285
UGT 5	200	398	290
UGT 8	230	398	290

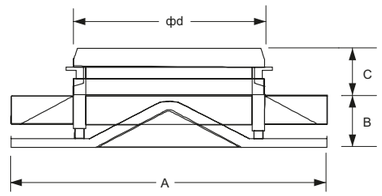
MUG
SWIVEL MICRO-NOZZLE DIFFUSER

The MUG swivel micro-nozzle diffuser is suitable for use in spaces where the aim is to achieve a considerable depth of air penetration and air distribution that is as flexible as possible.
It is suitable for both horizontal and vertical installations and allows an infinite variety of air distribution forms ranging from the tangential to vertical.

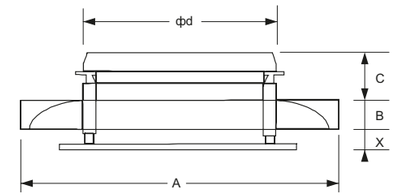


USK/UNC
ROUND SINGLE-CONE CEILING DIFFUSERS

USK and UNC diffusers are suitable for ceiling installation. Air flow range is between 30 and 1000 m³/h (10-280 l/s).
The USK diffuser is more suitable for horizontal mounting whereas the UNC diffuser can be installed in a horizontal or vertical position.
The air flow can be adjusted by modifying the distance of the bottom plate.
We recommend use with a minimum temperature of input air that is a maximum of 10°C lower than that of the room.
USK diffusers come in 5 sizes: 100; 125; 160; 200; 250. The UNC series comes in 4 sizes: 125; 160; 200; 250.



USK Dimensions (mm)				
Size	A	B	C	Φd
100	165	26-32	30	98
125	205	28-37	35	123
160	260	39-50	35	158
200	330	44-59	40	198
250	410	49-64	40	248

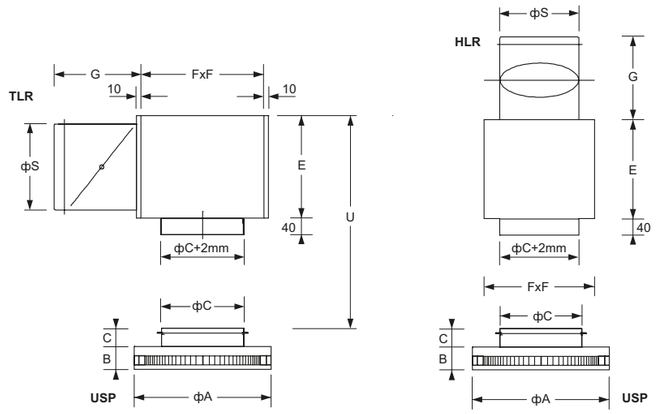


UNC Dimensions (mm)				
Size	A	B	C	Φd
125	205	17	35	123
160	260	25	35	158
200	330	26	40	198
250	410	26	40	248

USP
ROUND PERFORATED CEILING DIFFUSER

The USP ceiling diffuser is suitable for use in restaurants, schools, apartments, offices. It can be used with a 1-way or 4-way air jet.

USP Dimensions (mm)									
Size	A	B	C	ΦC	E	F	G	ΦS	U
100	160	38	30	98	130	170	130	98	170
125	205	40	35	123	170	190	150	123	210
160	260	42	35	158	220	270	175	158	260
200	330	50	40	198	250	300	220	198	290
250	410	50	40	248	300	350	300	248	340



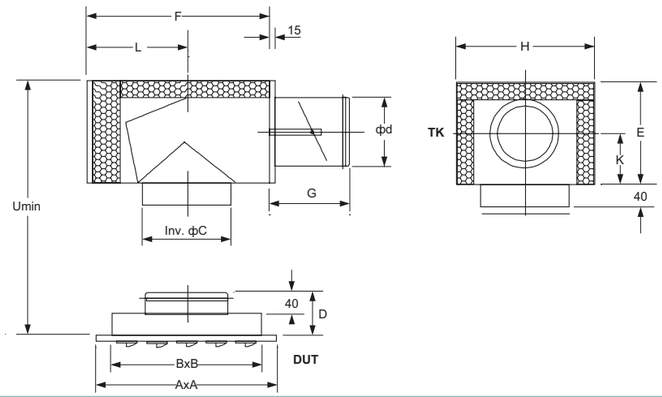
DUT

SQUARE DISC DIFFUSER FOR CEILING MOUNTING

The DUT diffuser allows numerous varieties of air distribution, from the tangential to the vertical. It is suitable for use in offices, hospitals, shops and premises where high flexibility in air distribution is needed.

DUT Dimensions (mm)

Size	A	B	D	ΦC	Φd	E	F	L	G	H	K	U
125/12-100	390	365	35	123	98	145	280	155	130	210	60	220
160/16-100	390	365	35	158	98	185	340	180	150	250	82	260
160/16-125	390	365	35	158	123	185	340	180	150	250	82	260
200/20-160	470	450	50	198	158	220	400	205	175	300	100	310
250/25-200	610	585	65	248	198	250	480	240	220	360	115	355
315/31-250	610	585	65	313	248	300	580	290	300	440	140	410



DER

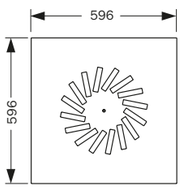
SWIRL DIFFUSER FOR CEILING MOUNTING

The DER is a ceiling swirl diffuser, suitable for use in offices, hospitals and shops. It can mounted inside false ceilings or exposed.

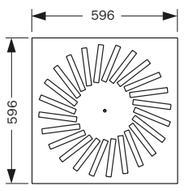
DER Dimensions (mm)

Size	No of slots	A x B	A1 x B1	A2 x B2	H1	ΦD
DER 1	16	596 x 596	560 x 560	585 x 585	372	196
DER 2	24	596 x 596	560 x 560	585 x 585	372	246
DER 3	48	596 x 596	560 x 560	585 x 585	372	246

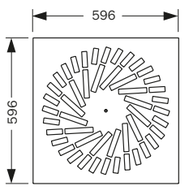
DER 1
16 SLOTS

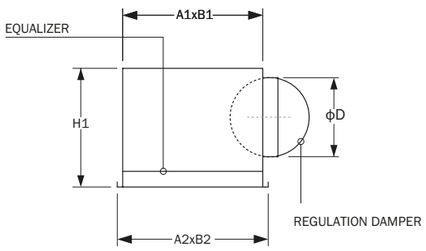


DER 2
24 SLOTS



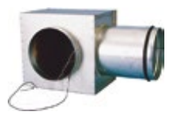
DER 3
48 SLOTS





DEB

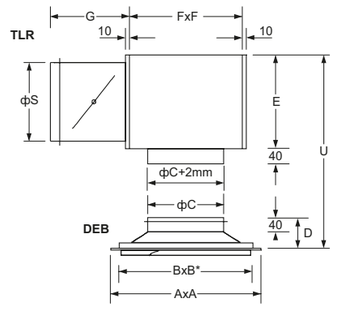
PERFORATED CEILING DIFFUSER

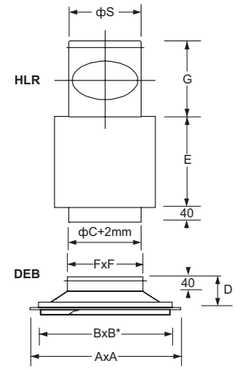


The DEB ceiling diffuser is suitable for use in offices, hospitals and stores. It also enables the selection of various air distribution modes (from 1-way to 4-way).

DEB Dimensions (mm)

Size	A	B	D	ΦC
10	230	168	65	98
12	270	215	70	123
16	325	270	80	158
20	425	370	90	198
25	525	470	105	248
31-250	600	545	110	248
31-315	600	545	110	313





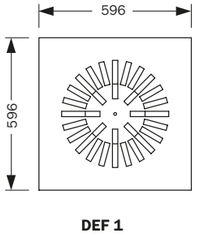
DEF

SWIRL DIFFUSER FOR CEILING MOUNTING

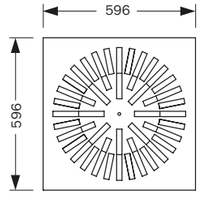
The DEF is a ceiling swirl diffuser, suitable for use in offices, hospitals and shops. It can mounted exposed or inside false ceilings.

DEF Dimensions-plenum (mm)

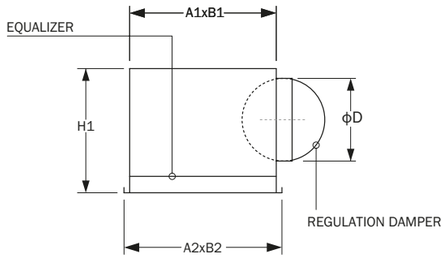
Size	AxB	A1xB1	A2xB2	H1	ΦD
DEF 1	560x560	585x585	372	196	196
DEF 2	560x560	585x585	372	246	246



DEF 1



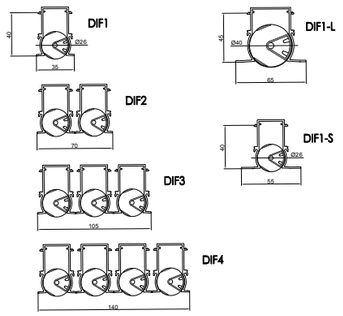
DEF 2



DIF

LINEAR SLOT DIFFUSER

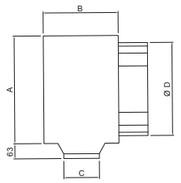
The DIF is an induction diffuser with linear slots. It can be mounted on the ceiling or wall and is suitable for showrooms, offices, meeting rooms and all those areas where seamless air diffusion terminals are required to ensure comfortable conditions with an eye on visual appeal.



DIF Dimensions (slot Ø26 mm)				
No of slots	A	B	C	Φ
1	92	227	25	1x125
2	129	263	60	1x160
3	164	303	95	1x200
4	199	353	130	1x250

DIF1-S Dimensions (slot Ø26 mm)				
No of slots	A	B	C	Φ
1	92	227	25	1x125

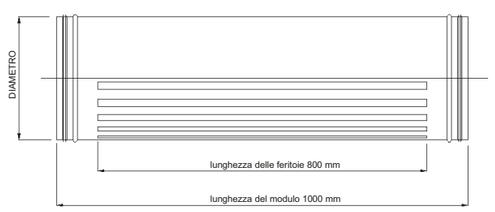
DIF1-L Dimensions (slot Ø40 mm)				
No of slots	A	B	C	Φ
1	164	305	38	1x200

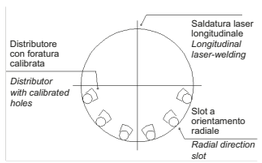


DTFL

LINEAR SLOT DIFFUSER FOR CIRCULAR DUCTS

The DFTL is an induction diffuser with linear slots for round ducts for exposed installation at medium heights. It is suitable for showrooms, offices, meeting rooms and all those refined spaces where comfort but also an eye on visual appeal are required.



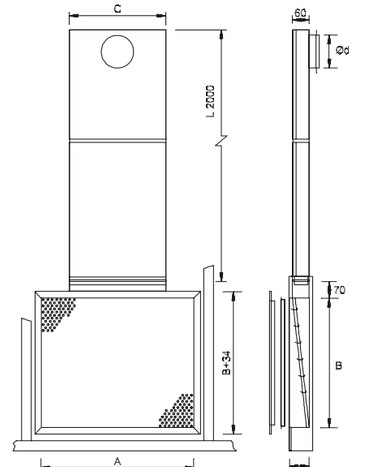


MDPI

RECTANGULAR DISPLACEMENT DIFFUSER FOR FLUSH MOUNTING

The MDPI is a rectangular displacement diffuser for flush mounting on walls, suitable for use in all types of premises. The MDPI and the connected duct are mounted in the wall. The deflectors located inside the diffusers provide even air distribution inside the relevant space.

MDPI Dimensions (mm)						
Size	A	B	C	D	E	Ød
5030	500	300	300	82	60	123
5040	500	400	400	82	60	158
5050	500	500	400	82	60	158
5560	550	600	450	82	60	198
5580	550	800	500	102	80	248
5590	550	900	500	102	80	248

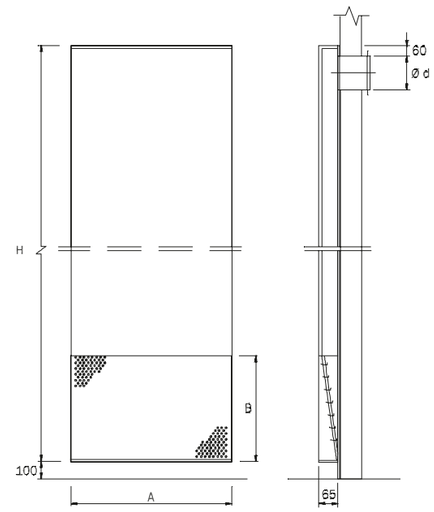


MDPV

RECTANGULAR DISPLACEMENT DIFFUSER FOR WALL MOUNTING

The MDPV is a rectangular displacement diffuser for flush mounting on walls, suitable for use in all types of premises. Particularly suitable for reconstruction or renovation work, as the MDPV diffuser and its connection duct are installed on the wall. The deflectors located inside the diffusers provide even air distribution inside the relevant space.

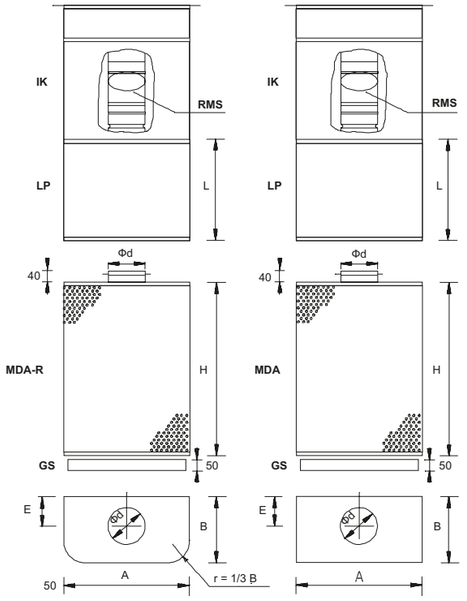
MDPV Dimensions (mm)				
Size	A	B	H	Φd
5030	500	300	2500	123
5040	500	400	2500	158
5050	500	500	2500	158
5560	550	600	2500	198



MDA/MDA-R

ROUND PERFORATED CEILING DIFFUSER

The MDA and MDA-R are rectangular displacement diffusers, suitable for use in all types of premises. The MDA and MDA-R diffusers can be installed up against the wall or inside the wall, and the deflectors located inside the diffusers provide excellent air distribution inside the relevant space

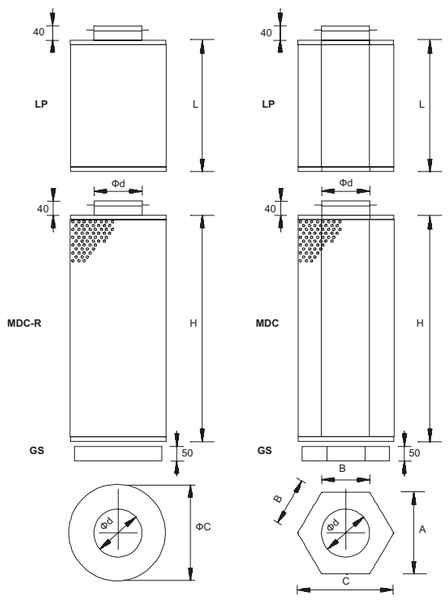


MDA/MDA-R Dimensions - (mm)						
Size	A	B	H	L	E	Φd
100	350	155	400	300	80	98
125	400	180	500	300	93	123
160	500	250	700	400	130	198
200	600	300	800	400	130	198
250	700	350	900	500	155	248
315	850	425	1000	600	188	313
400	1000	500	1250	700	230	398
500	1200	600	1500	800	280	498

MDC/MDC-R

ROUND DISPLACEMENT DIFFUSION

The MDC and MDC-R are displacement diffusers, suitable for use in all types of premises. The MDC and MDC-R diffusers are mounted on the floor and deliver fresh air on all sides. The deflectors located inside the diffuser provide even air distribution inside the relevant space.



MDC/MDC-R Dimensions - (mm)						
Size	A	B	C/ΦC	H	L	Φd
315	520	300	600	1000	600	313
400	658	380	760	1250	700	398
500	823	475	950	1500	800	498
630	823	475	950	1800	900	628

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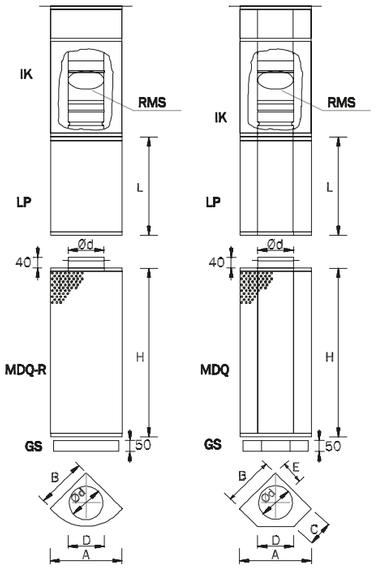
AIR DISTRIBUTION AND DIFFUSION
DIFFUSION

MDQ/MDQ-R

CORNER-FITTED DISPLACEMENT DIFFUSER

The MDQ and MDQ-R are displacement diffusers, suitable for use in all types of premises. The MDQ and MDQ-R diffusers are suitable for installation in corners and the deflectors located inside the diffusers provide excellent air distribution inside the relevant space.

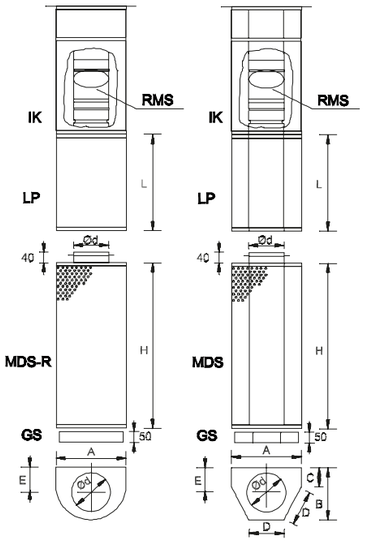


MDQ/MDQ-R Dimensions - (mm)								
Size	A	B	C	D	H	L	E	Φd
100	240	170	81	127	400	300	70	98
125	286	203	96	151	500	300	85	123
160	341	242	114	181	700	400	100	158
200	406	288	135	216	800	400	120	198
250	480	340	162	252	900	500	145	248
315	609	432	206	320	1000	600	185	313
400	740	525	250	389	1250	700	230	398
500	902	640	305	474	1500	800	280	498

MDS/MDS-R

SEMI-CIRCULAR DISPLACEMENT DIFFUSER

The MDS and MDS-R are displacement diffusers, suitable for use in all types of premises. The MDS and MDS-R diffusers are mounted on the floor and secured to the wall. The deflectors located inside the diffusers provide even air distribution inside the relevant space.

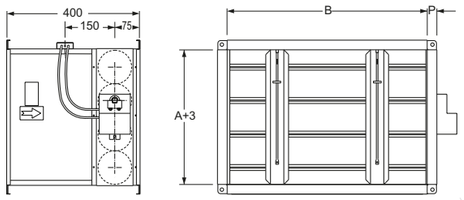


MDS/MDS-R Dimensions - (mm)								
Size	A	B	C	D	H	L	E	Φd
100	200	156	70	100	400	300	78	98
125	250	183	75	125	500	300	95	123
160	300	210	80	150	700	400	110	158
200	380	254	90	190	800	400	130	198
250	480	310	102	240	900	500	155	248
315	600	385	125	300	1000	600	188	313
400	760	480	151	380	1250	700	230	398
500	950	590	179	475	1500	800	280	498
630	950	720	309	475	1800	900	345	628

RAQ

AIR VOLUME VAV UNIT AND AIR FLOW GAUGE

The RAQ-series air volume VAV units can be used for accurately regulating air flow in rectangular ducts and for keeping the air flow constant at the desired rate.
A RAQ air volume regulator unit can be used on supply ducts or on return ducts.

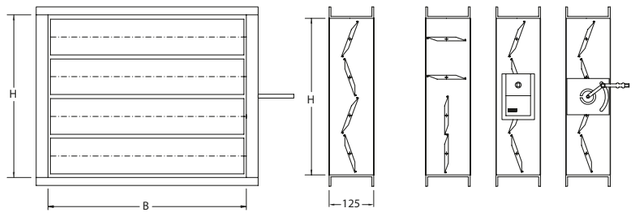


RAQ Dimensions (mm)		
B x H	P	Weight (kg)
200x200	20	5,2
400x200	20	7,2
400x300	20	8,6
400x400	20	10,1
600x200	20	9,1
600x300	20	10,8
600x400	20	12,5
800x300	20	13,0
800x400	20	14,9
800x500	20	16,8
1000x400	30	17,3
1000x500	30	19,4
1000x600	30	21,5
1200x600	30	24,3

SCA

REGULATION DAMPERS

The SCA aluminium regulation damper with opposite moving fins reduces the air flow by modifying the net flow area and thus generates an increase in pressure within the duct upstream of the damper itself.
The nylon gear system for the blades is inserted within the side profiles. The standard damper supply is with the activation pin only.



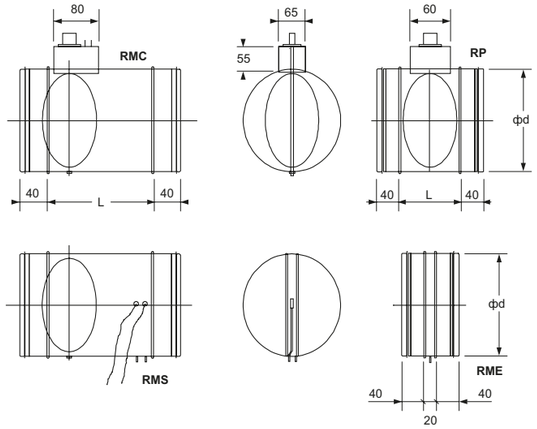
Damper rotation torque standard dimensions (mm)																					
		B																			
		110	210	310	410	510	610	710	810	910	1010	1110	1210	1310	1410	1510	1610	1710	1810	1910	2010
H	200	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
	300	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10	10	10	10	10
	400	5	5	5	5	5	5	5	5	5	10	10	10	10	10	10	10	10	10	10	18
	500	5	5	5	5	5	5	5	10	10	10	10	10	10	10	10	18	18	18	18	18
	600	5	5	5	5	5	5	10	10	10	10	10	10	10	18	18	18	18	18	18	18
	700	5	5	5	5	5	10	10	10	10	10	10	18	18	18	18	18	18	18	18	18
	800	5	5	5	5	10	10	10	10	10	18	18	18	18	18	18	18	18	18	18	18
	900	5	5	5	5	10	10	10	10	10	18	18	18	18	18	18	18	18	18	18	18
	1000	5	5	5	10	10	10	10	18	18	18	18	18	18	18	18	18	18	18	18	36
	1100	5	5	5	10	10	10	10	18	18	18	18	18	18	18	18	18	18	18	36	36
	1200	5	5	5	10	10	10	18	18	18	18	18	18	18	18	18	18	36	36	36	36
	1300	5	5	10	10	10	10	18	18	18	18	18	18	18	18	18	36	36	36	36	36
	1400	5	5	10	10	10	18	18	18	18	18	18	18	18	18	36	36	36	36	36	36
	1500	5	5	10	10	10	18	18	18	18	18	18	18	18	36	36	36	36	36	36	36
	1600	5	5	10	10	18	18	18	18	18	18	18	18	36	36	36	36	36	36	36	36
	1700	5	5	10	10	18	18	18	18	18	18	18	36	36	36	36	36	36	36	36	36
	1800	5	5	10	10	18	18	18	18	18	18	18	36	36	36	36	36	36	36	36	36
	1900	5	5	10	10	18	18	18	18	18	18	36	36	36	36	36	36	36	36	36	36
	2000	5	10	10	18	18	18	18	18	18	36	36	36	36	36	36	36	36	36	36	36

RMC/RMS/RME/RP

AIR FLOW REGULATION AND MEASURING DAMPERS

The air flow regulation and measuring dampers are available in 4 different models: RMC; RMS; RME and RP.
The RMC and RMS are air flow regulation and measuring devices; the RME is a device solely for measuring air flow whereas the RP is solely an air flow regulation damper.

Dimensions (mm)											
Series	Ød										
		78	98	123	158	198	248	313	398	498	628
RMC, RMS	L	125	140	240	255	190	210	240	340	400	455
RP and variants	L	100	100	100	100	120	150	150	200	250	250

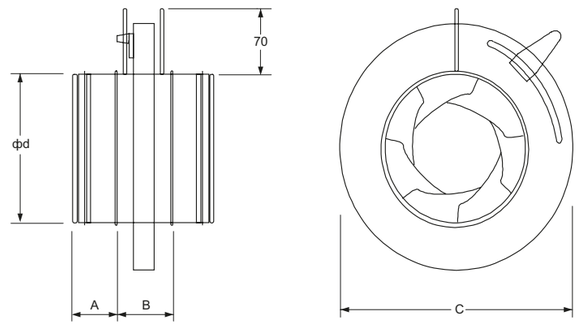


RKB

AIR FLOW MEASURING UNIT AND IRIS DAMPER

The RKB iris damper is made of galvanised sheet steel and equipped internally with an elastic rubber gasket.

RKB Dimensions (mm)				
Size	Φd	A	B	C
100	100	35	50	160
125	125	35	50	205
160	160	35	55	230
200	200	35	60	280
250	250	40	60	330
315	315	40	60	405
400	400	65	70	530

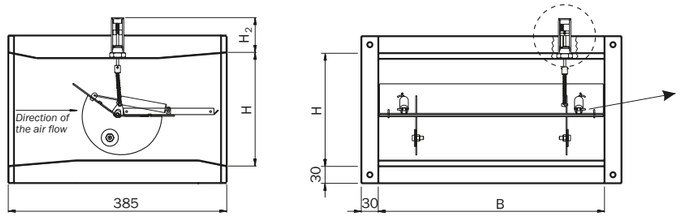


RQ

RECTANGULAR MANUAL REGULATOR

The RQ air flow regulator is suitable for use in plants with rectangular-section ducts. Its task is to maintain a constant air flow regardless of the changes in pressure in the system.

RQ Dimensions		
Size (BxH) (mm)	Qmin (m^3/h)	Qmax (m^3/h)
200x100	200	700
300x100	215	800
400x100	300	1095
150x150	245	730
300x150	485	1460
200x200	430	1300
300x200	650	1945
400x200	865	2595
300x300	970	2915
450x300	1460	4375
600x300	1945	5830

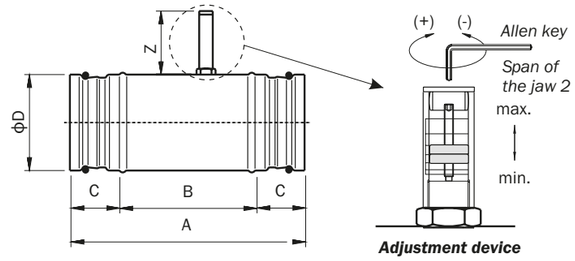


RV

CONSTANT FLOW MANUAL REGULATOR

The RV air flow regulator is suitable for use in plants with round-section ducts. Its task is to maintain a constant air flow regardless of the changes in pressure in the system.

RV Dimensions (mm)							
Size	Qmin (m^3/h)	Qmax (m^3/h)	A	B	C	Z	ΦD
80	40	125	200	120	40	70	79
100	70	220	250	170	40	70	99
125	100	280	250	170	40	70	124
140	150	400	250	170	40	70	139
160	180	500	320	240	40	70	159
200	250	900	320	240	40	70	199
250	500	1500	320	240	40	70	249
315	800	2800	350	220	60	110	314
400	1000	4000	420	295	60	110	399

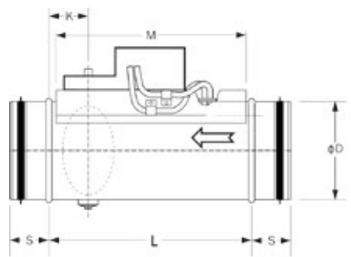


RVS

AIR VOLUME VAV UNIT AND AIR FLOW GAUGE

The RVS-series air volume VAV units can be used for accurately regulating air flow in rectangular ducts and for keeping the air flow constant at the desired rate.

RVS Dimensions (mm)						
Size	ΦD	L	S	K	M	Weight (kg)
100	98	250	40	40	242	2,5
125	123	275	40	55	267	2,7
160	158	310	40	70	296	3,1
200	198	350	40	90	335	3,7
250	248	390	50	115	376	4,5
315	313	455	50	150	441	5,7
400	398	530	60	190	516	7,8
500	498	630	60	240	607	10,6
630	628	630	60	255	610	13,6



SZ
SPIRAL DUCTS

Thanks to a wide range of standard elements, the round spiral ducts can solve all sorts of application issues with civil and industrial ventilation and air-conditioning systems.
A particular feature of the Spiro system is that it is really quick and easy to install and its quality/price ratio is high.
- Standard joint with sleeve
- Standard lengths 3 m
- Standard stiffening ribs starting from diameter Φ 630 mm
- Can be made with stainless steel, copper, aluminium, pre-coated metal sheet

Joint with circular flanges.

SZC
DOUBLE WALL INSULATED SPIRAL DUCTS

Double wall circular insulated spiral ducts are used to reduce possible heat dispersion in civil and industrial air-conditioning systems.
Their thermal insulation, anti-condensation and airtightness characteristics make these ducts particularly suitable for outside applications.
The duct is made of two concentric spiral pipes in galvanised sheet iron, with a gap insulated with high density mineral wool, 25 and 50 mm thick, perfectly separated from the air flow.
- Joint with double sleeve
- Standard length 3 m
- Standard stiffening ribs starting from diameter Φ 630 mm
- Can be made with stainless steel and copper

CAN
RECTANGULAR DUCTS

Rectangular straight ducts are produced on a highly automated production line allowing ducts of all sizes to be made and guaranteeing final product high quality.
Longitudinal junctions for ducts are made using Pittsburgh-type seams.
Duct manufacturing is in compliance with UNI 10381 standards.
The transverse flanges are directly part of the metal sheet of the duct, eliminating the need to have a profiled frame to be secured onto the duct. This technique provides better sealing against air leaks, in accordance with the current regulations, and increases mechanical resistance.

TA
FLEXIBLE DUCT MADE OF THIN ALUMINIUM SHEET.

Flexible duct made of thin aluminium sheet.
The possibility of extending it to a length of 3 m makes it particularly convenient for transportation, storage and installation.
Suitable for warm air ventilation, kitchen extractor hoods, suction of vapour and fumes.
- Working temperature: up to 300°C
- Packaging: 3 m bars (compressed 90 cm)

TZ
FLEXIBLE DUCT MADE OF GALVANISED STEEL

Flexible duct made of galvanised steel with spiral seam.
Suitable for ventilation and vapour suction.
- Working temperature: up to 400°C
- Electrolytically galvanised steel
- Packaging: 6 m bars

TA ISO
INSULATED ALUMINIUM FLEXIBLE DUCT

Insulated flexible duct with aluminium inner and outer wall.
Insulation in mineral wool (thickness 25 mm). Suitable for low and medium temperatures in heating and air-conditioning systems.
- Working temperature: up to 140°C
- Packaging: 3 m bars

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AIR DISTRIBUTION AND DIFFUSION
DUCTS

BCZ
CIRCULAR DUCT GRILLE

The BCZ grille for round section ducts with double row of swivel fins is made of galvanised steel.

THERMAFLEX N
FLEXIBLE DUCT MADE OF ALUMINIUM/POLYESTER COMPLEX

Flexible duct made of aluminium/polyester complex incorporating helical reinforcement in harmonic steel wire.
Suitable for air-conditioning, heating and low, medium and high pressure suction systems.
- Length 10 m
- Working temperature: -30°C to +130°C
- Colour: aluminium
- Packaging: cardboard box for single bars compressed in length 0.5 m

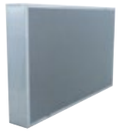
ACOUSTIC THERMAFLEX
ALUMINIUM/POLYESTER INSULATED DUCT

Flexible, insulated, sound-proofing duct with internal wall made of micro-perforated aluminium/polyester material incorporating a helical reinforcement in harmonic steel wire; insulated with a covering of high thermal-sound insulation material (thickness 25 mm), outer anti-vapour protection in aluminised kraft paper reinforced with fibreglass mesh.
Suitable for noise reduction in air-conditioning, heating and suction systems with low, medium and high pressure.
- Length 10 m
- Working temperature: -30°C to +130°C
- Colour: aluminium
- Packaging: cardboard box for single bars compressed in length 0.8 m

THERMAFLEX ISO
ALUMINIUM/POLYESTER COMPLEX, INSULATED DUCT

Flexible duct made of aluminium polyester incorporating a helical reinforcement in harmonic steel wire, insulated with a covering of high thermal-sound insulation material (thickness 25 mm), outer anti-vapour protection in aluminised kraft paper reinforced with fibreglass mesh.
Suitable for air-conditioning, heating and low, medium and high pressure suction systems.
- Length 10 m
- Working temperature: -30°C to +130°C
- Colour: aluminium
- Packaging: cardboard box for single bars compressed in length 0.8 m

A AK AS
SOUND-PROOFING BAFFLES

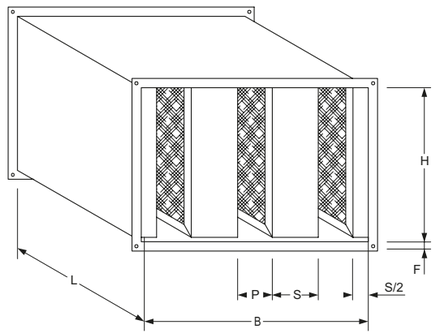


Roccheggiani's A, AK and AS Series sound-proofing baffles are used to reduce the noise level in civil and industrial air conditioning systems.
Sound-proofing baffles are available in 3 versions:

- A: frame made of galvanised sheet iron, containing mineral wool panels and glass fabric covering.
- AK: the same as A, with additional protective covering made of perforated metal sheet.
- AS: the same as A, with additional protective covering made of stretched metal sheet.

ZSR
RECTANGULAR SILENCERS

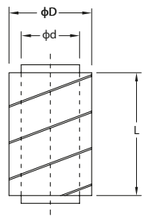
The ZSR rectangular silencers are used to reduce the noise level in civil and industrial air conditioning systems.



ZSR-ZSR K 200 100 Dimensions (mm)				
B x H	S	P	L	F
300 x 300	200	100	1000-1690	20
600 x 300	200	100	1000-1690	20
600 x 600	200	100	1000-1640	30
900 x 600	200	100	1000-1640	30
1200 x 600	200	100	1000-1640	30
900 x 900	200	100	1000-1640	30
1200 x 900	200	100	1000-1640	30
1500 x 900	200	100	1000-1640	30
1200 x 1200	200	100	1000-1640	30
1500 x 1200	200	100	1000-1640	30
1800 x 1500	200	100	1000-1640	30

ZSC
ROUND SILENCERS

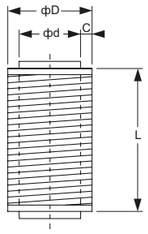
The ZSC round silencers are used to reduce the noise level in civil and industrial air conditioning systems.



ZSC Dimensions (mm)			
ϕd	ϕD	L=1d	L=2d
315	400	315	630
355	450	355	710
400	500	400	800
450	560	450	900
500	630	500	1000
560	710	560	1120
630	800	630	1260
710	900	710	1420
800	1000	800	1600
900	1120	900	1800
1000	1250	1000	2000

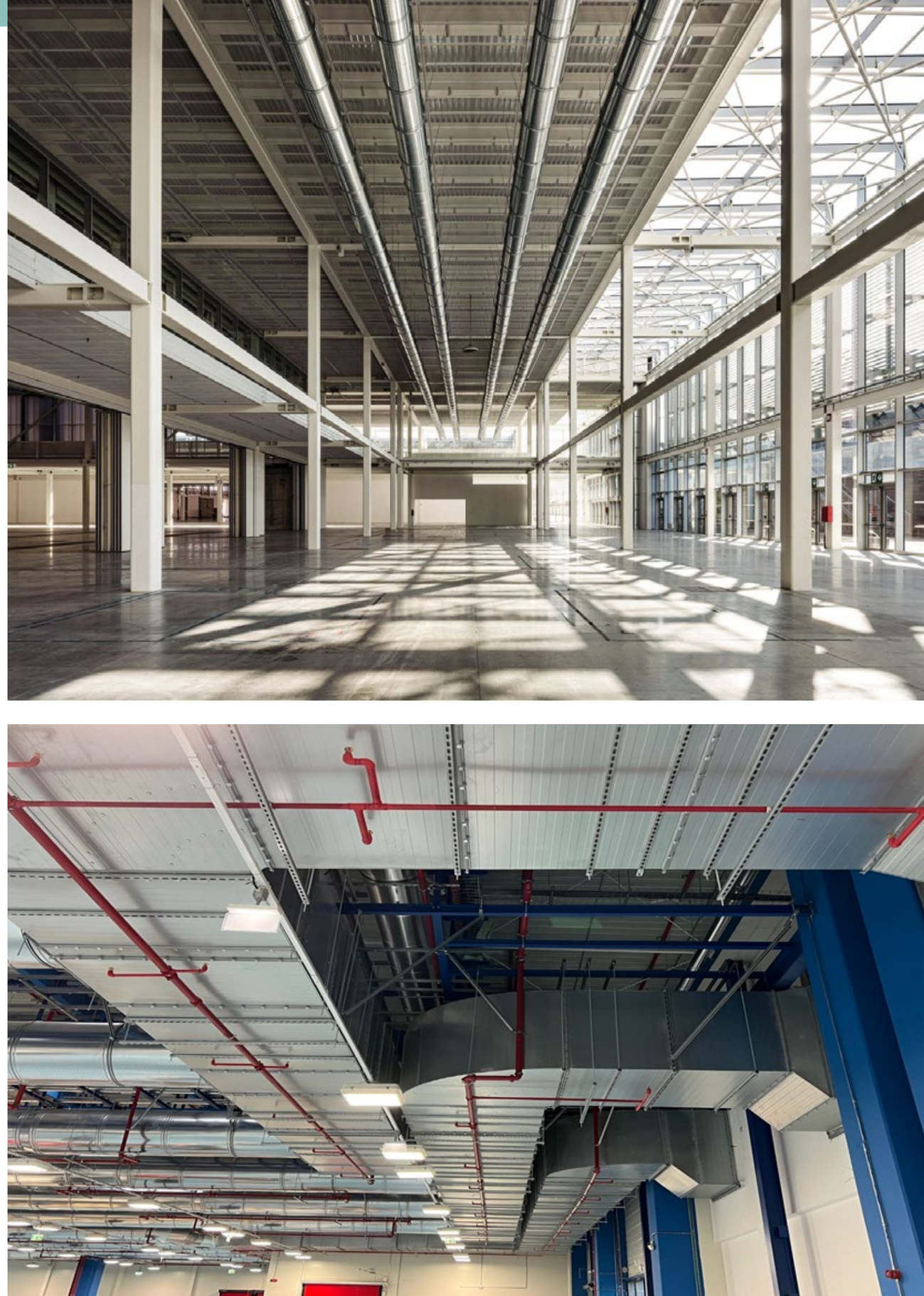
ZSCF
FLEXIBLE ROUND SILENCERS

The ZSCF flexible round silencers are used to reduce the noise level in civil and industrial air conditioning systems.
Its excellent flexibility makes it suitable for use in places with limited space.



ZSCF 25 Dimensions (mm)					
ϕd	ϕD	L			
80	125	500	1000	1500	
100	150	500	1000	1500	
125	180	500	1000	1500	
150	200	500	1000	1500	
200	250	500	1000	1500	
250	300	500	1000	1500	
300	350	500	1000	1500	
350	400	500	1000	1500	

ZSCF 50 Dimensions (mm)					
ϕd	ϕD	L			
80	180	500	1000	1500	
100	200	500	1000	1500	
150	250	500	1000	1500	
200	300	500	1000	1500	
250	350	500	1000	1500	
300	400	500	1000	1500	

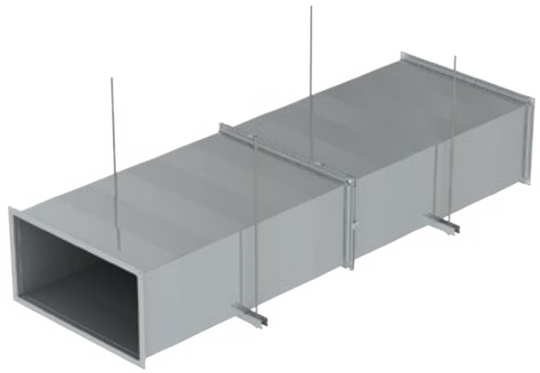


ROCCHEGGIANI®
care for air

Heat & smoke control systems

DUCTFIRE SR

FIRE RATED DUCTWORKS FOR SINGLE COMPARTMENTS INSTALLATIONS



- Single-compartment smoke and heat extraction system
- Smoke extraction and supply of fresh air
- Horizontal and vertical use
- Smoke integrity for 120 minutes at temperatures <= 600°C
- CE certified according to Standard EN 12101-7:2011
- Product designation E600 120 (ho) S 1500 single
- Class C airtightness according to the standard UNI EN 1507-2008

DUCTFIRE SR is the Roccheggiani fire rated duct system designed to guarantee greater safety in ventilation systems. It is ideal as a solution for the control and extraction of smoke and heat in single-compartment installations.
It is made of 1-mm-thick Z200 galvanised steel with “Pittsburgh” longitudinal joints and transverse flange joints, with a maximum section of 1250 x 1000 mm.
The ducts can be installed both horizontally and vertically, with maximum internal depression of up to 1500 Pa. DUCTFIRE SR has passed the tests required by the EN 1366-9 standard and obtained the CE Certificate of Constancy of Performance according to the EN 12101-7:2011 standard. When used in accordance with current regulations, in the event of a fire it reduces heat effects on structures and limits harm to people and damage to systems and goods.

APPLICATIONS

- Enclosed car parks
- Galleries
- Garages
- Smoke-filter zones
- Logistics warehouses

Standard sizes

- Base: max 1250 mm
- Height: max 1000 mm
- Length max: 1635 mm
- Flange size: 30 mm

Certificate of Constancy of Performance

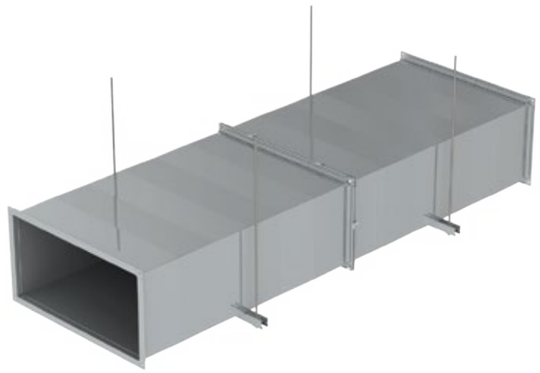
- Single-compartment smoke and heat extraction ducts with horizontal and vertical layout; integrity maintained for 120 minutes.
- Rectangular section ducts made of 1-mm-thick Z200 galvanised steel with “Pittsburgh” longitudinal type joints and transverse joints with 30 mm flanges.

CERTIFICATO DI COSTANZA DELLE PRESTAZIONI
LGAI Technological Center, S.A. (APPLUS)
Organismo Notificato Nr. 0370
No. 0370-CPR-8898

ROCCHEGGIANI SPA
VIA 1° MAGGIO, 10
60021 CAMERANO (ANCONA) ITALY

DUCTFIRE SR-BS

FIRE RATED DUCTWORKS FOR SINGLE COMPARTMENTS INSTALLATIONS “BIG SIZE” UP TO CERTIFIED SECTION OF 2000X1500 MM



- Single-compartment smoke and heat extraction system
- Smoke extraction and supply of fresh air
- Horizontal and vertical use
- Smoke integrity for 120 minutes at temperatures <= 600°C
- CE certified according to Standard EN 12101-7:2011
- Product designation E600 120 (ho) S 1500 single
- Class C airtightness according to the standard UNI EN 1507-2008
- CE marking extension for sizes of up to 2000x1500 mm

DUCTFIRE SR-BS is the Roccheggiani fire rated duct system designed to guarantee greater safety in ventilation systems. It is ideal as a solution for the control and extraction of smoke and heat in single-compartment installations.
It is made of 1-mm-thick Z200 galvanised steel with “Pittsburgh” longitudinal joints and transverse flange joints, with a certified section of up to 2000x1500 mm.
The ducts can be installed both horizontally and vertically, with maximum internal depression of up to 1500 Pa. DUCTFIRE SR-BS has passed the tests required by the EN 1366-9 standard and obtained the CE Certificate of Constancy of Performance according to the EN 12101-7:2011 standard. When used in accordance with current regulations, in the event of a fire it reduces heat effects on structures and limits harm to people and damage to systems and goods.

APPLICATIONS

- Enclosed car parks
- Galleries
- Garages
- Smoke-filter zones
- Logistics warehouses

Standard sizes

- Base: max 2000 mm
- Height: max 1500 mm
- Length max: 1635 mm
- Flange size: 30 mm

Certificate of Constancy of Performance

- Single-compartment smoke and heat extraction ducts with horizontal and vertical layout; integrity maintained for 120 minutes.
- Rectangular section ducts made of 1-mm-thick Z200 galvanised steel with “Pittsburgh” longitudinal type joints and transverse joints with 30 mm flanges.
- Certified section of 2000x1500 mm.

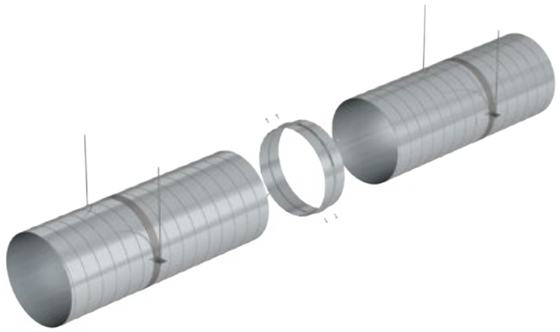
CERTIFICATO DI COSTANZA DELLE PRESTAZIONI
LGAI Technological Center, S.A. (APPLUS)
Organismo Notificato Nr. 0370
No. 0370-CPR-8898

ROCCHEGGIANI SPA
VIA 1° MAGGIO, 10
60021 CAMERANO (ANCONA) ITALY

DUCTFIRE SC

ROUND DUCTS FOR SMOKE AND HEAT CONTROL IN SINGLE-COMPARTMENT INSTALLATIONS

- Single-compartment smoke and heat extraction system
- Smoke extraction and supply of fresh air
- Horizontal use
- Smoke integrity for 120 minutes at temperatures <= 600°C
- CE certified according to Standard EN 12101-7:2011
- Product designation E600 120 (ho) S 1500 single
- Class C airtightness according to the standard UNI EN 1507-2008



DUCTFIRE SC is the range of Roccheggiani round spiral ducts for the control and extraction of smoke and heat in single-compartment installations. Designed to ensure greater safety in ventilation systems, it features extreme versatility and speed of installation.
It is made of 1-mm-thick Z200 galvanised steel with a maximum diameter section of 1000 mm and standard length of 3000 mm. The ducts can be installed horizontally and have a maximum internal depression of up to 1500 Pa. DUCTFIRE SC has passed the tests required by the EN 13669 standard and has obtained the CE Certificate of Constancy of Performance according to the EN 12101-7:2011 standard.
When used in accordance with current regulations, in the event of a fire it reduces heat effects on structures and limits harm to people and damage to systems and goods.

APPLICATIONS

- Enclosed car parks
- Galleries
- Garages
- Smoke-filter zones
- Logistics warehouses

Standard sizes

- Diameter section: min 200 mm - max 1000 mm
- Length max: 3000 mm
- Standard coupling using a special sleeve

Certificate of Constancy of Performance

- Single-compartment smoke and heat extraction ducts with horizontal layout; integrity maintained for 120 minutes.
- Spiral ducts with round section in 1-mm-thick Z200 galvanised steel; connection between the elements by means of a coupling sleeve.

CERTIFICATO DI COSTANZA DELLE PRESTAZIONI

LGAI Technological Center, S.A. (APPLUS)
Organismo Notificato Nr. 0370

No. 0370-CPR-0897

DUCTFIRE M

DUCTS FOR SMOKE AND HEAT CONTROL IN MULTI-COMPARTMENT INSTALLATIONS

- High-quality double-walled stainless steel modular system
- Round section with internal diameters of up to Ø1000 mm
- CE certified on the basis of Standard EN 12101-7:2011
- Designation EI 120 Ve Ho S 1500 multi

DUCTFIRE M is the innovative ventilation duct with modular elements, ideal as a solution for the control and extraction of smoke and heat in multi-compartment installations.
Constructed with a double stainless steel wall, it has special coupled insulation that guarantees excellent performance levels and fire resistance for 120 minutes both from the inside and from the outside. The modularity of the elements, the particular, airtight male/female attachment system and the extreme ductility mean that this system can be installed simply and rapidly both inside and outside buildings, without the need to perform invasive masonry works. Completely waterproof and resistant to all weather conditions, the DUCTFIRE M is the perfect solution for applications in tunnels, underground garages, shopping centres, multi-storey buildings and premises with high humidity levels.
The ducts can be installed both horizontally and vertically, with maximum internal depression of up to 1500 Pa.
Unique on the market with circular section and internal diameters of up to Ø1000 mm, DUCTFIRE M has passed the strict tests required by EN 1366-1/8, obtaining a designation of the highest level. It is EC marked in accordance with the standard EN 12101-7:2011 and has obtained the certificate from the authoritative APPLUS Institute, which specialises in fire-fighting systems.

APPLICATIONS

- Tunnels
- Galleries
- Enclosed car parks
- Garages
- Smoke-filter zones
- Multi-storey buildings
- Underground premises
- Compartmentalised premises requiring ventilation

Recommendations

Model	Certification
DUCTFIRE 100 M	EI 120 Ve Ho S 1500 multi
DUCTFIRE 50 M	EI 120 Ve Ho o -> | S

Certificate of Constancy of Performance

- Multi-compartment duct, with the possibility of horizontal and/or vertical installation under conditions of maximum internal depression of 1500 Pa; integrity and insulation maintained for 120 minutes.
- Round-shaped duct with modular elements made of stainless steel with a maximum section of Ø1000 mm; laser/TIG continuous longitudinal welding with certified process.
- Module connecting system with male/female joint and high mechanical sealing, with exterior locking collar.

CERTIFICATO

No. 0370-CPR-2906

CERTIFICATO DI COSTANZA DELLE PRESTAZIONI

SFSC-MA

SMOKE CONTROL DAMPERS FOR SINGLE-COMPARTMENT INSTALLATIONS

- CE certified in compliance with EN 12101-8
- Tested in accordance with Standard EN 1366-10
- Classified in accordance with Standard EN 13501-4+A1
- External profile dispersion min. class B, minimum internal profile dispersion, class 3, in accordance with Standard EN1751
- Recirculation test in Cmod class in accordance with Standard EN 12101-8
- Declaration of Performance No. PM/SEDS-L/01/20/2
- Hygiene assessment of fire-prevention dampers - Report No. 1.6/pos/19/19c

Smoke and heat control dampers are designed to prevent, in the event of a fire, the propagation of combustion products through the ducts. Their function is to open up to allow the discharge of smoke towards the outside.
The dampers can be installed on various sections and sizes of ventilation ducts in accordance with Standard EN 1366-9.

Product designation:

E_{600} 120 (v_e - i ↔ o) S1500C_{mod}MAsingle

APPLICATIONS

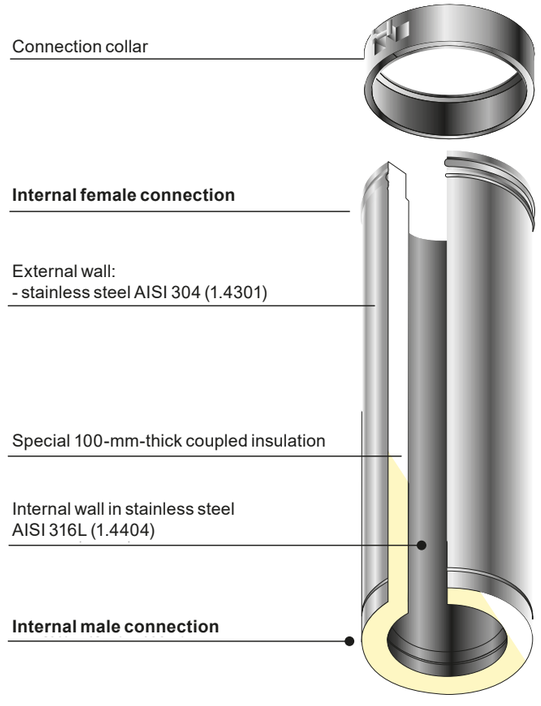
- Enclosed car parks
- Galleries
- Garages
- Smoke-filter zones
- Logistics warehouses

Direction of smoke

DUCTFIRE DF 2

100 MM INSULATION CHIMNEY SYSTEM EN 1856-1 INTERNAL/EXTERNAL FIRE RESISTANCE CLASS EI120

- CE-certified round system, in high-quality stainless steel
- It combines the excellent performance of a double-wall chimney system with fire resistance characteristics (EI 120) thanks to the special double-layer heat insulation
- Suitable for crossing compartmentalised settings ensuring passive fire safety
- Internal diameters from 130 to 700 mm
- Product designation EN 1856-1 (insulation 100 mm)
  - T600 H2 W V2 L50100 G70
  - T600 H2 W V2 L50100 G105
  - T600 H2 W V2 L50100 G140
- Product designation EN 12101 -7 (insulation 100 mm):
  - EI120 (Ve - Ho) S 1500 multi



Steel quality

- Internal wall in stainless steel AISI 316L - thickness 1 mm
- External wall in stainless steel AISI 304

Thermal insulation

- Special 100-mm-thick coupled insulation that provides excellent performance and fire resistance from the inside and outside for 120 minutes

Pressure level

- In high positive pressure H2; the calibrated coupling, with a mechanical seal, guarantees resistance to high positive pressures (5000 Pa) without the use of sealing gaskets

Fuels

- Gas and liquid fuels for operation under wet and dry conditions
- Solid fuels for operation in dry conditions

Certifications

- CE

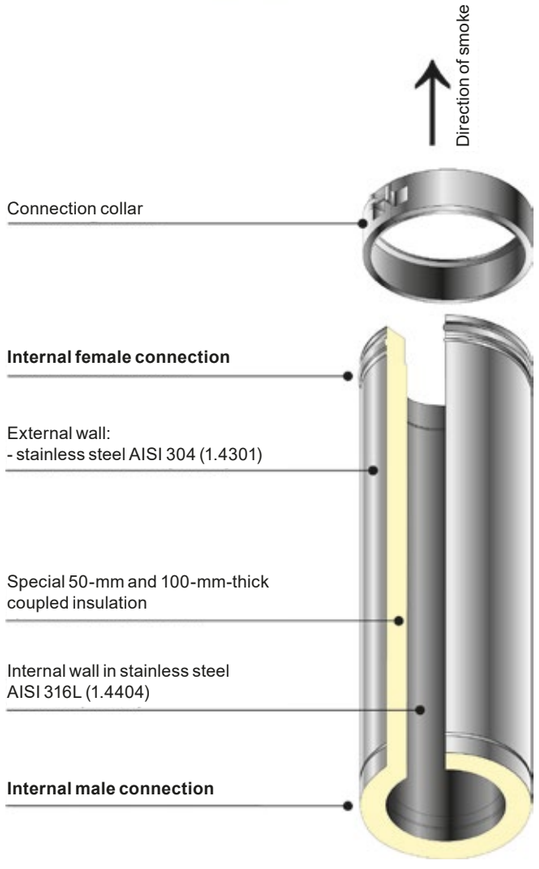
APPLICATIONS

- Power plants
- Generators
- Cogeneration plants
- Rooms to be crossed where there is fire load

DUCTFIRE DF 1

50 MM INSULATION VENTILATION DUCT DESIGNATED ACCORDING TO EN 13501-3 EXTERNAL FIRE RESISTANCE EI120

- CE-certified round system, in high-quality stainless steel
- It combines the excellent performance of a double-wall chimney system with external fire resistance characteristics (EI 120) thanks to the special double-layer heat insulation
- Suitable for crossing compartmentalised settings ensuring passive fire safety
- Internal diameters from 130 to 700 mm
- Product designation EN 13501 -3 (insulation 50 mm):
- EI120 (Ve o — i) S
- EI120 (Ho o — i) S



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Pressure level

- In high positive pressure H2; the calibrated coupling, with a mechanical seal, guarantees resistance to high positive pressures (5000 Pa) without the use of sealing gaskets

Fuels

- Gas and liquid fuels for operation under wet and dry conditions
- Solid fuels for operation in dry conditions

Certifications

- CE

APPLICATIONS

- Natural ventilation in smoke-filter rooms
- Pressurisation of smoke-filter rooms

DUCTFIRE VENT

DUCTED AXIAL FANS FOR DUCTED SMOKE AND HEAT EXTRACTION SYSTEMS

- Certified F400 according to Standard EN12101 -3
- Construction with steel sheet case with hot-dip galvanising treatment and securing flanges made in accordance with the UNI6580 standard
- High performance aerofoil impeller made of die-cast aluminium alloy, balanced in accordance with ISO 1940
- Operating temperature -20°C / +50°C in normal operating conditions, +400°C for 120 minutes in emergency operating conditions
- Low noise levels
- Complete with inspection hatch
- IP55 three-phase asynchronous motor, class H, suitable for S1 service at constant load
- Available diameters from Ø315 to Ø1600 mm
- Air flow rates of up to 200,000 m3/h
- Static pressure of up to 1600 Pa

DUCTFIRE CONTROL

POWER ENCLOSURE

- Electrical enclosure for controlling the extractor and/or supply fans of the SEFFC system complete with wiring
- Consisting of an IP65 fibreglass enclosure which has:
  - o General magnetic-only switch with rotary door-lock control
  - o Contactor for controlling extractor fans
  - o Field board for connection to the loop
  - o Auxiliary relays to make the motor Operation and Fault states available
- Panel which includes a 400/230V Transformer with related protections for the power supply to the auxiliaries, a voltmetric relay for monitoring the presence of voltage on entry to the enclosure, a voltage indicator and a motor-in-operation indicator

COMMAND AND CONTROL PANEL

- Management of the operating logic in automatic mode via the reception of signals from the IRAI system, activation of scenarios via the automatic switching from the stand-by state to the fire-fighting state of the SEFFC system
- Management of the operating logic in manual mode via activation on the synoptic panel
- Management of the loop field
- Display of the system status and active scenarios via the interactive panel
- Display of active faults via the interactive panel
- Display of the event and alarm log

ROCCHEGGIANI care for air
HEAT & SMOKE CONTROL SYSTEMS
DUCTFIRE CONTROL

POWER ENCLOSURE

- Synoptic panel for manual activation of the SEFFC system for clearly displaying the active scenario.
- Consisting of a stylized graphical display of the protected building's layout, selector for switching between manual and automatic operation, buttons for the manual activation of alarm scenarios and related indicator lights to highlight the active scenario.
- To be installed near the command and control panel, both installed in the REI utility room

ROCCHEGGIANI®
care for air

Air purification technologies

Roccheggiani, a solid expertise in Indoor Air Quality

The awareness of the risks related to poor Indoor Air Quality (IAQ) recently increased due to the Covid-19 pandemic. While it is common sense to identify pollution as an outdoor problem, indoor environment, where we spend 90% of our time, poses the major risks to our health and well-being.

The air we breathe at home, at school and at work, carries volatile organic compounds (VOCs), moulds, bacteria, spores, viruses and odours. That is a natural and sustainable condition, unless the concentration of those compounds exceeds given values, resulting in an unhealthy environment.

Poort IAQ negatively impacts our health being responsible for the so called Sick Building Syndrome, whose symptoms are headache, nausea, irritation on eyes, nose, throat, ashtma. These are apparently light symptoms but prolonged exposure to indoor polluting elements might lead to chronicization.

HVAC system effectiveness in delivering excellent levels of IAQ, is therefore of paramount importance. Good practice is to consider all the solutions needed to ensure an healthy environment while approaching the design stage.

Roccheggiani boasts a significant expertise in air sanification, derived from multiple projects on low and very low contamination applications over the past 20 years. Roccheggiani's technologies for air sanification span from systems which can be fitted on air handling units to stand alone units designed to serve a great variety of indoor environments.

For further information and updates please refer to the digital documents on the website
https://www.roccheggiani.it/en/air/catalog/hvac-solutions/air-purification-technologies/all/

UV-C SECTIONS

VERY HIGH OUTPUT UV-C GERMICIDAL LAMPS

- Sterilization rate up to 99,99%
- Bespoke design according to actual conditions
- Integrated within Roccheggiani AHUs

Roccheggiani has been installing UV-C lamps for more than 20 years in air handling units serving applications with low and very low contamination requirements.

All UV-C sections are designed based on customer specific requests and feature cutting edge UV-C technology. The design of the UV-C section accounts for working temperatures, relative humidity, air velocity, contact time between light and polluting particles. The objective is to eliminate viruses, bacteria, moulds and prevent their proliferation by destroying their DNA chains.
These sections provide far higher UV-C dose compared to room UV systems or plug-in systems, thus standing as the major solution to achieve sterilization rate up to 99,99%.

Virus DNA before UV rays action

Virus DNA breakdown due to UV rays action

STERI-LITE

THE ULTIMATE SOLUTION FOR AIR PURIFICATION

- Very high dose germicidal lamps (up to 20.000 µJ/cm²)
- High surface frame coated with Airlite© painting
- Effective against viruses, polluting compounds (NOx) and odours

The new Steri-Lite technology for air sterilization and disinfection originates from the extensive expertise in air quality and purification developed by Roccheggiani and AM Technology.

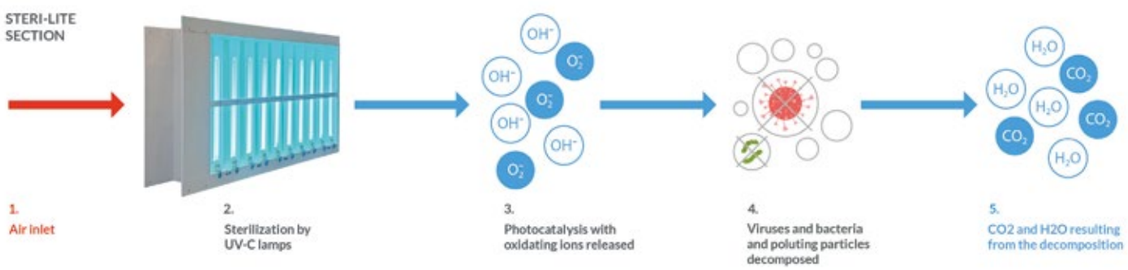
Steri-Lite modules can be installed within Roccheggiani's AHUs and prove extremely effective in eliminating viruses, microbes and airborne. Steri-Lite combines the characteristics of Airlite© developed by AM Technology with the well-known effects of the UV-C technology, thus generating two major effects: sterilization and disinfection.

Sterilization

Very high output UV-C lamps up to 20.000 µJ/cm² (inactivation dose 99,9% Sars-Cov-2=3.700µJ/cm²)*, designed based on the working parameters.

Disinfection

UV-C light promotes the photocatalytic effect on dedicated frames coated with Airlite©, thus generating hydroperoxide ions, hydroxide ions, superoxide ions, all with high oxidation potential but harmless to human and animals. Those ions are especially effective in eliminating viruses, NOx and odours by putting in place the same disinfection process we experience in nature (responsible for the feeling of fresh and clean air after a thunderstorm).



Sterilite ensure a safe and durable air purification effect. While the action of UV-C lamps is safely enclosed within the AHU, the barrier of oxidating ions originates from photocatalysis on the Airlite© coated surfaces and flows along the HVAC system ducts to the occupied spaces where the decomposition of polluting subtances is continued.

* UV-C irradiation is highly effective in inactivating and inhibiting SARS-CoV-2 replication. A.Bianco, G.Pareschi, P.Galli, E.Redaelli, A.Zanutta (Italian National Institute for Astrophysics INAF - Merate), M.Biasin, C.Fenizia, I.Saulle, D.Trabattoni, (Dept. Biomedical and Clinical Sciences Università di Milano), A.Cavalieri, C.Cavatorta (Epidemiology and Prevention Unit IRCCS Foundation, Istituto Nazionale dei Tumori, Milan, Italy), L.Lessio (Italian National Institute for Astrophysics INAF - Padova), M.Lualdi (Department of Imaging Diagnostic and Radioterapy, IRCCS Foundation, Istituto Nazionale dei Tumori, MIlan, Italy) M.Clerici (Dept. Pathophysiology and Transplantation Università di Milano)

ROCCHEGGIANI care for air
AIR PURIFICATION TECHNOLOGIES
STERI-LITE

The effectiveness of Airlite© coating has been extensively proved by several success stories and experimental tests performed by renown laboratories and universities worldwide.

- Antibacterial effect – (Università La Sapienza - Rome)
- Antiviral effect – (Guangdong Detection Center of Microbiology – China, Università La Sapienza – Rome, Virology Research Services Ltd – UK)
- Anti-pollution from NOx effect (Università La Sapienza - Rome, Queens IPS - UK)

Sterilite technology can be applied in all Roccheggiani air handling units. The Sterilite section is designed based on specific working conditions to ensure the highest effectiveness.
Sterilite represents a valuable solution, with tremendous impacts on IAQ and the health, the well-being, and the productivity of the occupants.
Sterilite modules are especially recommended for Roccheggiani units serving hospitals, nursing homes, offices, medium-large commercial spaces and in general wherever a durable, valuable and complete solution for air purification is required.

SRU

CONTROLLED MECHANICAL VENTILATION, STERILIZATION AND DISINFECTION IN CLASSROOMS, OFFICES AND RESTAURANTS

- ErP 2018
- Heat recovery efficiency > 85%
- Roccheggiani Steri-Lite® system for sanification and sterilization
- Airflow up to 1.000 m³/h
- Plu&Play (integrate control)

The SRU series, specifically designed for delivering fresh, purified and odourless air, consistently reduces the concentration of volatile organic compounds (VOCs), moulds, bacteria, spores, viruses and odours.

The SRU unit combines fresh air supply, filtration and relevant energy savings due to the high heat recovery efficiencies. Very high dose UV-C lamps (18.000 µJ/cm2 - Sars-Cov-2 inactivation dose = 3.700 µJ/cm2)* provide air sterilization and promote air disinfection by interacting with Airlite® coated surfaces, thus generating by photocatalysis oxidizing compounds such as hydroperoxide, hydroxide, superoxide ions.

The SRU series stands out as the ideal solution for air renewal and purification in classrooms, offices and restaurants.

APPLICATIONS

- Schools and institutes
- Restaurants
- Offices
- Sport facilities
- Medium surface environments

ACCESSORIES

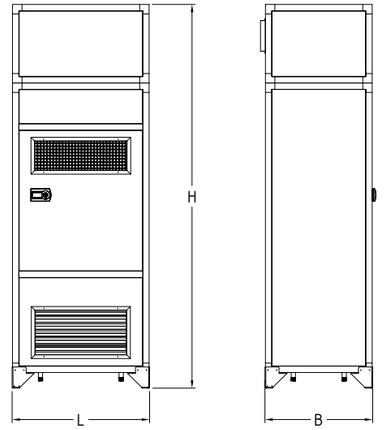
- Additional electric heater
- Fresh/Exhaust air module for wall installation, including circular ducts with telescopic junction
- Outdoor wall terminal
- Steri-Lite

* UV-C irradiation is highly effective in inactivating and inhibiting SARS-CoV-2 replication. A.Bianco, G.Pareschi, P.Galli, E.Redaelli, A.Zanutta (Italian National Institute for Astrophysics INAF - Merate), M.Biasin, C.Fenizia, I.Saulle, D.Trabattoni, (Dept. Biomedical and Clinical Sciences Università di Milano), A.Cavalieri, C.Cavatorta (Epidemiology and Prevention Unit IRCCS Foundation, Istituto Nazionale dei Tumori, Milan, Italy), L.Lessio (Italian National Institute for Astrophysics INAF - Padova), M.Lualdi (Department of Imaging Diagnostic and Radioterapy, IRCCS Foundation, Istituto Nazionale dei Tumori, MIlan, Italy) M.Clerici (Dept. Pathophysiology and Transplantation Università di Milano)

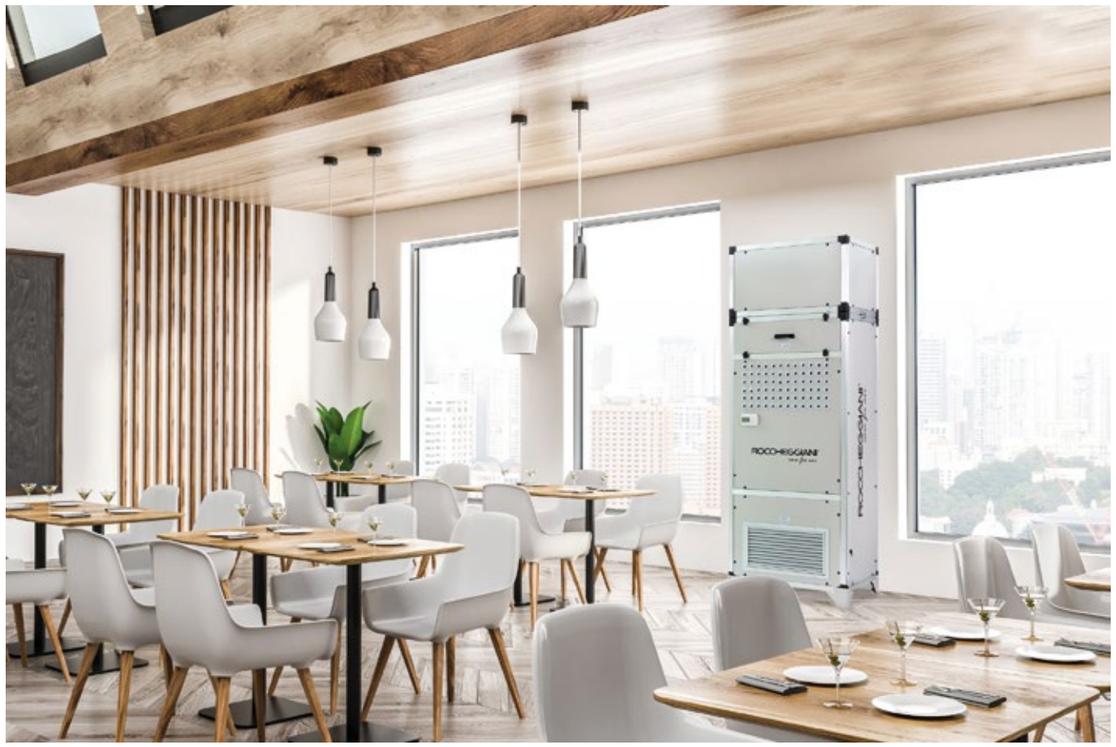
ROCCHEGGIANI care for air
AIR PURIFICATION TECHNOLOGIES
SRU

Model SRU	u.m.	
Nominal Airflow	m³/h	760
Heat recovery	**u.m.**	
Energy efficiency (1)	%	86,8
Total recovery capacity (1)	kW	6,1
Supply air temperature (1)	°C	17,6
Supply air relative humidity (1)	%	16,7
Temperature energy efficiency (2)	%	80,5
Electric characterization	**u.m.**	
Supply fan power	W	170
Supply fan current	A	1,5
Return fan power	W	170
Return fan current	A	1,5
Optional electric heater	W	640
Power supply	V/Ph/Hz	230/1/50
Filtration	**u.m.**	
Supply air filter		ISO Coarse 55% (G4) + ePM1 80% (F9) - ISO 16890
Return air filter		ISO Coarse 55% (G4) - ISO 16890
Sterilization + Disinfection Steri-Lite®	**u.m**	
Total power output within UV 253,7 nm band	W	24
Dose	µJ/cm²	18.053
Airlite® promoted photocatalysis		
Compliance 1253/2014 (3)	**u.m.**	
Declared unit type		NRVU/BVU
Working mode		Variable speed
Thermal efficiency	%	80,90
Specific fan power	W/m³/s	811
Sound power output	dB(A)	57,9

Dimensions	u.m.	
B	mm	686
H	mm	2443
L	mm	876
Weight	kg	343



Notes: **(1)** Performances refer to winter operations: outside air -5°C/80%, indoor air 21°C/50%; **(2)** dry thermal efficiency with 20°C difference between indoor and outdoor air; **(3)** Differential pressure gauges supplied integrated in the unit in compliance with Ecodesign directive.



SFCU

AIR STERILIZATION AND DISINFECTION UNIT FOR SMALL AND MEDIUM SURFACE ENVIRONMENTS

- Roccheggiani Steri-Lite® system for sanification and sterilization
- H14 absolute filter (integral efficiency ≥99,995 according to EN1822)
- Airflow up to 1.500 m³/h
- Plug&Play (integrated control)

BIM READY

SFCU unit provides trifold action to limit the presence of volatile organic compounds (VOCs), moulds, bacteria, spores, viruses and odours.

- Advanced filtration by multiple stages, including final H14 absolute filter.
- Sterilization by very high dose UV-C germicidal lamps > 12.700 µJ/cm² measured at 1.000 m³/h within accredited laboratory tests performed according to ISO 15714:2019.
- Disinfection by hydroperoxide and hydroxide ions generated by photocatalysis as UV light interacts with extended Airlite® coated structures.

APPLICATIONS

- Restaurants
- Sport facilities
- Schools and institutes
- Wellness centres
- Supermarkets
- Offices
- Shops

ACCESSORI

- Optional sound attenuating module

Main features:

- Brushless EC fans
- Plug&Play unit with LCD integrated backlit display for airflow variation, clogged filters alarm, time programming, ON-OFF.
- Multistage filtration with final H14 absolute filter
- Roccheggiani Steri-Lite® system: very high dose UV-C lamps combined with Airlite® coated surfaces (sterilization and photocatalytic release of oxidizing ions for air disinfection and deodorization)

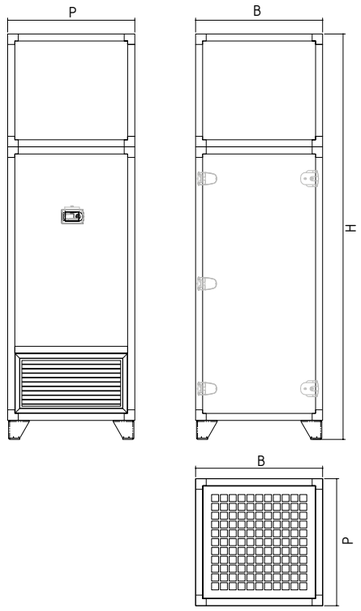
Model SFCU	u.m	
Airflow	m³/h	up to 1.500
Recommended treated surface(1)	m²	up to 150
Airborne sound power (max airflow)	dB(A)	55,1

Fans	u.m.	
Nominal fan power	W	500
Nominal fan current	A	1,57
Power supply	V/Ph/Hz	230/1/50

Filtration	u.m.	
1st + 2nd stage - coarse dust		ISO Coarse 30% (G2)+ISO Coarse 55% (G4)
3rd stage - fine dust		ePM1 65% (F7) - ISO 16890
4th stage - absolute		≥99,995 according to EN1822 (2)

Sterilization + Disinfection Steri-Lite®	u.m	
Total power output within UV 253,7 nm band	W	76
Dose	µJ/cm2	> 12.700 µJ/cm² @ 1.000 m³/h (lab test according to ISO 15714:2019)
Airlite® promoted photocatalysis		

Dimensions	u.m.	
B	mm	720
H	mm	1657 (2297 with sound attenuating optional module)
P	mm	720
Weight	kg	115 (178 with sound attenuator)



Notes: **(1)** reference to rooms with 3 m high ceiling; **(2)** efficiency for particles with reference size 0,3 µm.

ROCCHEGGIANI care for air
AIR PURIFICATION TECHNOLOGIES
SFCU

PLUG-IN MODULES

EASE OF INSTALLATION, ALSO FOR EXISTING HVAC SYSTEMS

Plug-in modules are specifically useful whenever an air sanitization process has to be provided on existing air handling units or HVAC systems. The air purifying action is related to the photocatalytic effect generated by the interaction of UV light with humid air and a catalyst: oxidizing ions are released such as hydroperoxide, hydroxide, superoxide ions, extremely aggressive towards bacteria, viruses, NOx and odours, but harmless to human, animals and vegetables. That is a significant advantage when compared to widely used but potentially harmful sanitization substances, like fluorine and chlorine.

HVAC-MINI

- Effective against bacteria, viruses, moulds, odours, VOCs
- Photo-Hydro-Ionization technology (PHI®)

HVAC-MINI is extremely easy to install and can be combined to compact units such as Roccheggiani's TCL, TCU or existing fan coils.

Technical data	
Cell Power Output	11
Power supply	12Vdc (transformer included)
Max recommended airflow (m³/h)	1500
Cell size WxLxH (mm)	55x265x30

HVAC-REME HALO LED

- Effective against bacteria, viruses, moulds, odours, VOCs, smoke, airborne
- LED UV technology results in long life, ozone-free and mercury-free operations
- Photo-Hydro-Ionization technology (PHI®) and Reflective Electro Magnetic Energy technology (REME®)

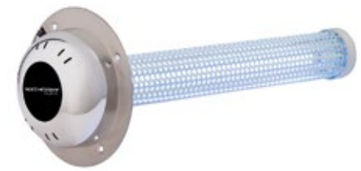
HVAC-REME HALO LED includes a UV LED cell and an technologies hybrid hydrophilic catalyst and combines Photo-Hydro-Ionization technology (PHI®) and Reflective Electro Magnetic Energy technology (REME®). The device promotes the generation of an oxidizing plasma consisting of hydroperoxide, hydroxide, superoxide ions, extremely effective in cleaning the air from polluting elements. Self-cleaning carbon-fiber ionizing brushes make HVAC-REME HALO LED effective in airborne elimination.
HVAC-REME HALO LED might be installed in air ducts or as an optional in Roccheggiani's air handling units. The device is designed to operate when the HVAC is ON.

Technical data	
Cell Power Output	17
Power supply	24Vac (transformer included)
Max recommended airflow (m³/h)	11.000
Plate WxLxH (mm)	165,1x190,5

ROCCHEGGIANI care for air
AIR PURIFICATION TECHNOLOGIES
PLUG-IN MODULES

HVAC-GA

- Effective against bacteria, viruses, odours, VOCs
- Photo-Hydro-Ionization technology (PHI®)



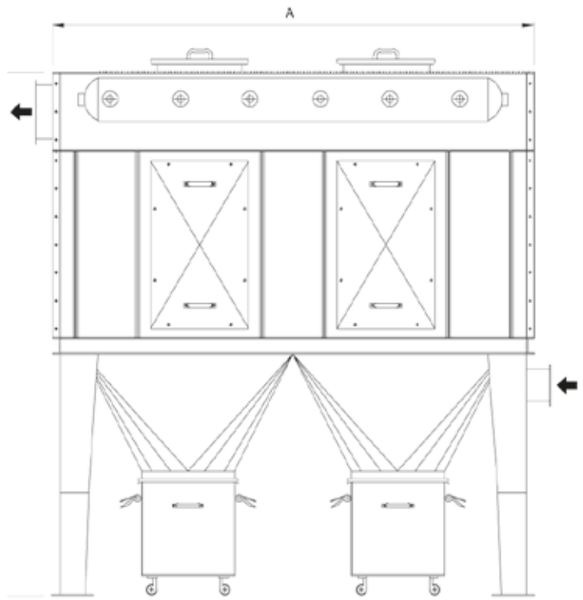
HVAC-REME GA consists of a UV cell and catalyst made of 4 different metals (titanium, silver, rhodium, copper). Photo-Hydro-Ionization (PHI®) is the technology enabling a robust action towards improving Indoor Air Quality.
HVAC-GA might be installed in air ducts or as an optional in Roccheggiani's air handling units. The device is designed to operate when the HVAC is ON.

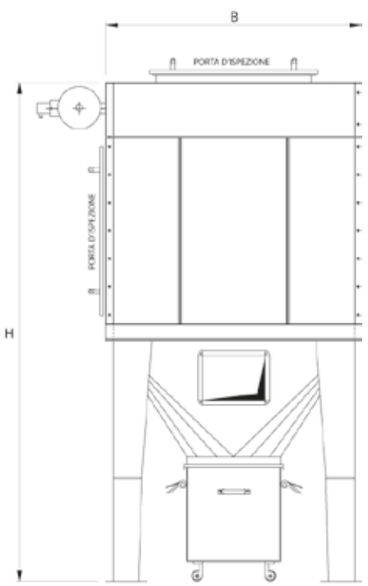
Technical data	AOP HVAC-GA9	AOP HVAC-GA9
Cell Power Output	14	17
Power supply	12Vdc (transformer included)	
Plate WxLxH (mm)	Ø 152,4	
Max recommended airflow (m³/h)	11.000	30.000

Dust reduction filters

FDC
CARTRIDGE FILTERS

The cartridge filter system is a compressed air dust cleaner.
It is used in many industrial sectors such as footwear, textiles, mechanical engineering, chemicals, paints, tyres and generally in industries where air suction and purification from average grain size dust is required.
The filter is designed to work in depression and consists of an upper suction inlet, a central filtering section and a bottom collection part; the scrubbing system is located inside the upper body.
The dusty air is sucked through the channels and sent to the bottom (hopper) of the filter or when specifically required into a settling pre-chamber; due to the abrupt reduction in speed, the heavier particles settle while the others are deposited along the cartridges. The filtered air is then expelled into the atmosphere after the pollutants have been removed.
The cartridges are cleaned using a jet of compressed air, controlled by an electronic control unit (cyclic programmer) that automatically activates the solenoid controlled valves, thus ensuring that the cartridges function at maximum efficiency at all times.



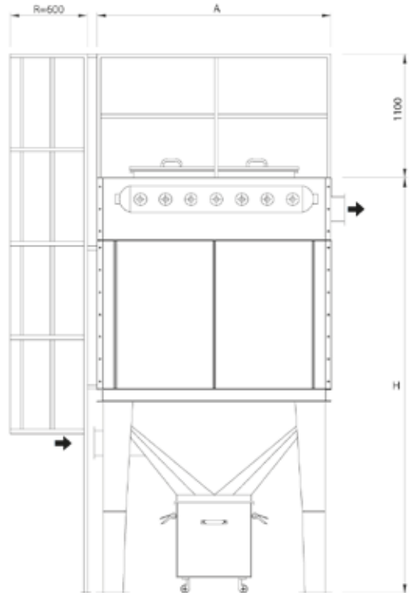


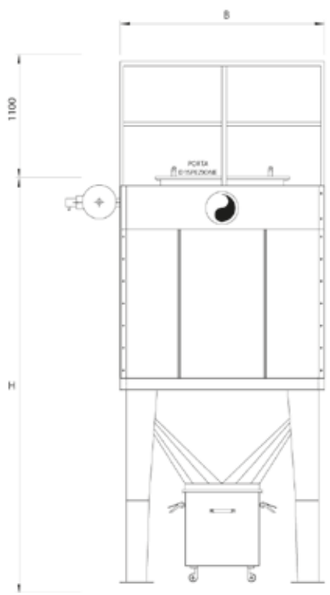
Selection table for cartridge filters - type FDC

Model	Filtering Surface	Dimensions		
	(m^2)	(mm)		
		A	B	H
FDC 010	63	1.200	1.200	3.000
FDC 020	125	2.200	1.200	3.000
FDC 030	187	2.200	1.600	3.300
FDC 040	282	3.000	1.600	3.300
FDC 050	329	3.500	1.600	3.300
FDC 060	375	3.000	2.200	3.500
FDC 070	438	3.500	2.200	3.500

FDM
SLEEVE FILTERS

A sleeve filter is a compressed air dust cleaner.
It is used in many industrial sectors such as footwear, textiles, mechanical engineering, chemicals, paints, tyres and generally in industries where air suction and purification are required, with average grain size dust.
The filter is designed to work in depression.
The filter consists of an upper inlet, a central filtering section and a bottom collection part; the scrubbing system is located inside the upper body.
The dusty air is sucked through the channels and sent to the bottom (hopper) of the filter or when specifically required into a settling pre-chamber; due to the abrupt reduction in speed, the heavier particles settle while the others are deposited along the cartridges. The filtered air is then expelled into the atmosphere after the pollutants have been removed.
The sleeves are cleaned using a jet of compressed air, controlled by an electronic control unit (cyclic programmer) that automatically activates the solenoid controlled valves, thus ensuring that the sleeves function at maximum efficiency at all times.





Selection table for cartridge filters - type FDM

Model	Filtering Surface	Dimensions		
	(m^2)	(mm)		
		A	B	H
FDM 010	57	2.000	2.000	4.400
FDM 020	115	2.800	2.300	4.400
FDM 030	168	4.200	2.300	4.400
FDM 040	200	4.800	2.300	4.400
FDM 050	231	5.500	2.300	4.400
FDM 060	284	6.800	2.300	4.400

ROCCHEGGIANI®
care for air

Service

ROCCHEGGIANI SERVICE

- First start-up
- Routine preventive maintenance programme with periodic check-ups
- Extension to the warranty
- Remote diagnostics
- Major maintenance work
- Original spare parts

ADDED VALUE

- Reduced operating costs
- Maintenance of high energy efficiency
- Reduced downtime costs
- Reduced electricity consumption
- Urgent repairs reduced to a minimum
- Comfort and air-quality guaranteed

High levels of energy efficiency | Reduced operating costs | Functions unchanged over the years | Management and control

At each scheduled visit in the programme, the technicians tick off the activities they have performed on the **Periodic Inspection Checklist**. The service tasks carried out by our authorised technicians are as follows:

- Scheduled service check
- Updating of installed processor management software, if required
- Filling out and issuing the work report and periodic inspection checklist

The Roccheggiani maintenance programmes are available in 2 different types, featuring different levels of intervention and activities in relation to the conditions of use of the systems, ranging from the simplest to the most complex. The **Roccheggiani Service** programme is available in two formats:

- **Roccheggiani Service +2**, which includes two scheduled service checks per year; recommended for units operating on a seasonal basis.
- **Roccheggiani Service +4**, which includes four scheduled service checks per year; recommended for units operating continuously at demanding levels

ROCCHEGGIANI SERVICE + 2	ROCCHEGGIANI SERVICE + 4
• Dedicated to units operating on a seasonal basis • Two scheduled service checks per year	• Dedicated to units operating on a continuous basis • Four scheduled service checks per year

EASY CHECK

SYSTEM FOR THE MANAGEMENT AND MONITORING OF LARGE INSTALLATIONS

The new Easy Check platform provides real-time diagnosis, via smartphones, tablets and PCs, of the operating parameters of Roccheggiani HVAC systems. It enables remote diagnosis, function programming and checks on the operating status so as to optimise their efficiency.

NATURE OF THE SERVICE

The remote diagnostic service allows the Roccheggiani technical support team to remotely check a system to identify any possible anomalies and perform corrective actions, if required, ensuring faster and more effective maintenance. The platform uses the mobile wireless channel.

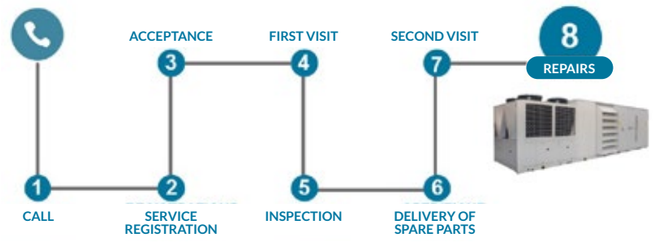
AVAILABLE FUNCTIONS

- Real-time reading and writing of variables
- Alarm management
- Live-trend
- Tuning of Management Parameters
- Online Debugging in the event of malfunctioning
- Remote Programme Updating
- Analysis of the Log on variables
- Reports on the Unit's operation

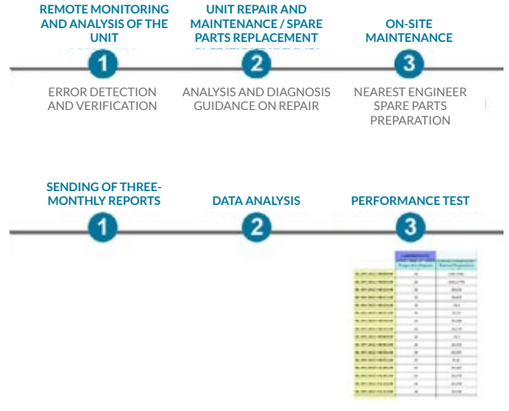
ADVANTAGES OF THE SERVICE

- Real-time control of the systems (temperature selection, operating mode, error codes, etc.)
- Reduction of maintenance work times through remote system diagnosis with the identification of the causes of any problems
- Remote intervention in the event of structural issues, by means of updating the machine's adjustment SW
- Reduced maintenance costs
- Data analysis using variable logs

Service <u>without</u> Easy Check



Service <u>with</u> Easy Check + Reports



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Roccheggiani S.p.a.
Via 1° Maggio, 10 - 60021 Camerano (An) Italy
Tel +39 071 730 00 23
Fax +39 071 730 40 05
info@roccheggiani.it

www.roccheggiani.it

ROCCHEGGIANI®
care for air