INDUSTRIAL SERVICES

HRA

OUTSIDE AIR UNIT WITH ROTARY HEAT EXCHANGER

16–405 kW

- MULTI-PROTOCOL COMMUNICATION INTERFACE
- SCROLL COMPRESSORS
- EC RADIAL FANS
- AXIAL FANS
- INVERTER DRIVEN COMPRESSORS
- MODULATING HOT GAS POST-HEATING
- CORROSION RESISTANT MATERIAL
- ENTHALPIC ROTARY HEAT RECOVERY UNIT
- ON-BOARD HUMIDIFIER

HRA is the new range of 100% outside air units with rotary heat exchanger. The components and their internal arrangement were first and foremost designed for **enhanced energy efficiency**: the BLDC modulating compressors, rotary heat exchanger and a system of modulating dampers allow **the highest COPs** (Coefficients of Performance) **and EERs** (Electrical Efficiency Ratios) to be reached under any operating mode. Finally, an **advanced management software** designed and developed by HiRef **guarantees that the required thermal-hygrometric conditions can be maintained in the target environments**. HRA also complies with Regulation (EU) 2016/2281 - ERP 2021 and meets, in Italy, the technical requirements for access to tax deductions for the energy requalification of buildings - Ecobonus, Decree of 6 August 2020 (Annex F).

Smart Defrost System

To enhance occupant comfort, the on-board software manages different frost control methods, selected depending on the type of application.

- Refrigerant R410A
- Available versions: cool only or reversible heat pump
- G4 and F7 filtration
- Hot-gas pre-heating heat exchanger
- Electronically commutated EC fans
- Hydrophilic coated coils with wider fin pitch
- Condensate collection tray equipped with an electric heater to prevent defrost water from freezing
- Measurement of supply and return airflows
- Pre-cooling or pre-heating water heat exchanger on request

Perfectly balanced airflow

Airflows are measured both at the delivery end and the return end. This ensures that flows are **perfectly balanced and maintains a zero pressure difference in the environment.**

Grater summer-time efficiency

Modulating dampers use some fresh air to increase the air flow rate through the condenser; **this reduces compressor consumption and improves the overall performance of the system.**

Enthalpy recovery

The on-board rotary heat exchanger **reduces the work of the compressor** by recovering thermal energy from the exhaust air flow. Its special material enables the recovery of both sensible and latent heat, **resulting in over 80% temperature and humidity efficiency.**

Thermodynamic recovery

In order to improve refrigeration circuit efficiency, active thermodynamic energy recovery is ensured in the exhaust air flow: in this way, the heat exchanger at source end operates at more favourable condensation and evaporation temperatures both in summer and in winter.

Efficiency and precision

Variable speed BLDC compressors and electronic expansion valves enable the unit to continuously modulate capacity and maximum efficiency at part loads, **controlling the supply of power with high precision.**

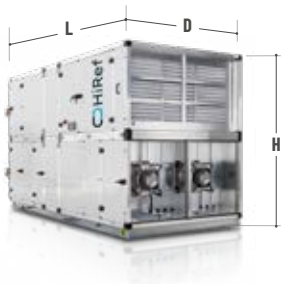
Ventilation 2.0

The supply and return fans are of the EC type with **brushless permanent magnet motor,second generation** integrated electronics and **fluid dynamics optimised** for installation.

Air quality probe

With the VOC/CO_2 probe, HRA monitors the amount of CO_2 and other pollutants in the indoor air and modulates air renewal accordingly. This ensures **excellent air quality at all times with the lowest energy expenditure.**

HRA		050	100	150	200	250
Cooling A-C 32°C - 60% u.r						
Cooling capacity	kW	66.5	134.9	194.1	255.8	302.5
Total absorbed power	kW	12.6	26.8	33.3	49.6	54.8
EER		5.28	5.03	5.83	5.16	5.52
Cooling B-C						
Cycle absorbed power	kW	10	20.1	25.1	36.6	38.6
EER Cycle		3.1	3.22	3.48	3.32	3.95
Mechanical cooling capacity	kW	30.9	64.9	87.3	121.6	152.7
Cooling D-C 26°C, 50% u.r.						
Cooling capacity	kW	24.6	51.4	67	87.8	94.2
Supply temperature	°C	14.1	13.9	14.9	15.3	16
Sensible cooling capacity	kW	19.4	39.5	54.2	69.6	81.2
Latent cooling capacity	kW	5.2	12.8	12.8	18.1	13.1
Heating A-C -10°C, 90% u.r.						
Thermal power	kW	86.2	173.7	256.5	330.3	404.5
Total absorbed power	kW	10.4	20.6	30.3	36	47.2
TER		8.29	8.43	8.46	9,17	8,57
Total COP		8.29	8.43	8.46	9,17	8,57
Heating B-C						
Cycle absorbed power	kW	8	15	23.4	25.1	33.6
COP Cycle		2.82	3.24	2.8	3.42	3.09
Mechanical thermal power	kW	22.6	58.7	65.6	85.8	103.6
Heating D-C 20°C, 50% u.r						
Thermal power	kW	15.8	30.7	40.3	46.8	55.3
Supply temperature	°C	29.8	29.5	28.3	27.2	26.8
Air flow	m^3/h	5000	10000	15000	20000	25000
Dimensions [LxHxD]	mm	4400x2030x1650	4620x2570x2065		4670x2980x2730	4770x3080x3000



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