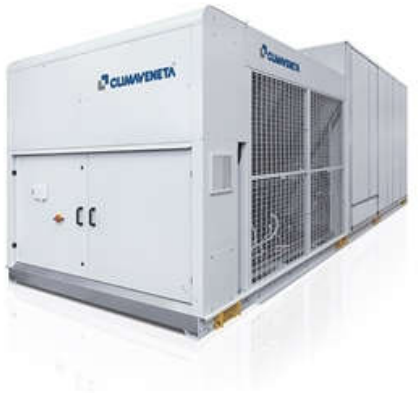
ROOFTOP UNITS

WSM2 0264 - 0604

Reversible air cooled fully configurable high efficiency Rooftop units
81,1-182 kW



Autonomous reversible air-to-air Rooftop unit, for the thermo-hygrometric treatment, filtration and air renovation, in medium-large surface and volume ambient, such as supermarkets, shopping or exhibition centres.
Hermetic rotary scroll compressors in tandem with R410A refrigerant; double refrigerant circuit; aluminium structure and coated galvanized steel base; air treatment section with sandwich panel with external surface made with coated galvanized steel RAL 7035 and EC fans.
The condensing side is made with hot galvanized sheet metal painted with polyester powders RAL 7035
According to the selected version, the unit allows for the management of free cooling, with supply and return fans with motorized dampers for return, expulsion and fresh air. The unit is also available with the thermodynamic Refrigerant Booster heat recovery, air-to air Plate type or rotary heat exchanger, to recover the energy from the exhaust air, increasing the units capacity and the global efficiency.

Configurations

AR	Air recirculation function
MF	Mixing and Free cooling function
AX	Mixing and Free cooling function with Exhaust air Axial fan
CE	Function with fans for extraction and expulsion and Free cooling
HR-B	Heat Recovery Refrigerant Booster function: air extractor fan(s), free cooling function and heat recovery from exhaust air flow thanks to Refrigerant Booster coil
HR-P	Heat Recovery Plate function: air extractor fan(s), free cooling function and heat recovery from exhaust air flow thanks to Plate heat Exchanger.
HR-E	Heat Recovery Enthalpy function: air extractor fan(s), free cooling function and heat recovery from exhaust air flow thanks to Rotary Enthalpic Wheel.

Features

ENERGY EFFICENCY

The unit fulfill EU regulation 2016/2281; in particular, the unit is in line with energy efficiency limits starting from January 1st, 2021 (ErP 2021).

HIGH RELIABILITY

The wide working range, the double refrigerant circuit and the accurate design of the components ensure optimum performance and comfort, with a continuous and constant operation also during heavy thermoigrometric conditions.

FLEXIBILITY

Climaveneta's units offer the opportunity to choose different supply and return airflows directions.

ROTARY-TYPE ENTHALPY RECOVERY

The exclusive enthalpic rotary heat recovery allows to recover from the exhaust air both sensible and latent heat, both in winter and summer operation.
The recovery of the latent heat improves the dehumidification capability of the unit in summer and the humidification in winter, with a very high efficiency ratio.

STATIC PLATE HEAT RECOVERY

The static plate heat recovery provides a constant and effective recovery of the sensible energy from the exhaust air. In winter mode the efficency can reach values higher than 50%, that, together with the zero energy consumption of the component, grant an effective energy and economic saving.

REFRIGERANT BOOSTER

Cutting-edge Refrigerant booster heat recovery system that allows for the complete and precise recovery of the energy from the exhaust air, without any waste due to the mixing with external air. The performance of the cooling circuit is maximized, increasing by 15% the cooling capacity and the compressor working at the same condition.

PLUG-FAN VENTILATION

The supply and return plug fans combine the high efficiency of the ventilation section with an easy and fast installation of the unit, both electrical and aeraulic.

Accessory

- Ambient humidity control: hot gas post heating coil and humidifer.
- High efficiency filters: electronic or rigid pocket F7
- Enthalpy free-cooling
- Air flow regulation with CO2 or CO2+VOC probe

Controls

AIR3000TE

The AIR3000 TE controller offers advanced functions and algorithms. It is made up by two control boards, dedicated to the air side and the refrigerant side respectively. The keypad features functional controls and a complete LCD display that allows for unit monitoring and intervention by means of a multilevel menu with a selectable user language. Temperature control is based on PID logic according to the supply temperature set point. It is possible to have set point compensation according to outdoor temperature, both in winter and summer. The operating mode of the unit, cooling/heating/free cooling, is managed automatically. Constant air volume ventilation control is standard: as pressure drop varies, the fans change speed to maintain flow-rate at the design value for the system, according to how dirty the filters are. As an option the air flow can be managed according to a CO2 or CO2 + VOC probe. The controller can also integrate and automatically manage different optional devices: pre-treatment coil, electric heater, gas-fired heating module, humidifier. Unloading modulation function is available for part-load refrigerant circuit operation in critical conditions. Supervision is available with different options, using proprietary
devices or by integration with third party systems using ModBus, BACnet, BACnet-over-IP and Echelon LonWorks protocols. Compatible with remote keypad (management of up to 8 units). The timer can be used to create an operating profile with up to 4 typical days and 10 different time bands.

WSM2			0444	0484	0524	0604
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50
COOLING						
Total cooling capacity	(1)	kW	133	144	159	182
Total sensible capacity	(1)	kW	102	110	121	141
Compressors power input	(1)	kW	34,8	35,5	39,4	49,6
EER (total)	(1)	kW/kW	3,08	3,08	3,06	2,88
HEATING						
Total heating capacity	(2)	kW	133	143	163	189
Compressors power input	(2)	kW	33,7	35,7	39,6	45,9
COP (total)	(2)	kW/kW	3,15	3,05	3,13	3,17
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)						
Ambient refrigeration						
Prated,c	(6)	kW	134	146	161	185
SEER	(6)		3,88	3,74	3,62	3,61
Performance ηs	(6)	%	152,35	146,46	141,86	141,31
SEASONAL EFFICIENCY IN HEATING (Reg. EU 2016/2281)						
Ambient heating						
PDesign	(7)	kW	104	112	128	147
SCOP	(7)		3,31	3,21	3,21	3,21
Performance ηs	(7)	%	129,34	125,54	125,40	125,24
SUPPLY FANS						
Supply air flow rate		m³/h	22500	25000	28000	30500
External static pressure	(3)	Pa	250	250	250	250
Total power input		kW	3,67	4,74	5,85	7,03
REFRIGERANT CIRCUIT						
No. Compressors/No. Circuits		N°	4/2	4/2	4/2	4/2
Refrigerant charge		kg				
NOISE LEVEL						
Sound Power	(4)	dB(A)	85	86	87	87
SIZE						
Length A		mm	4465	4465	4465	4465
Width B		mm	2250	2250	2250	2250
Height H		mm	2410	2410	2410	2410
Operating weight	(5)	kg	2205	2275	2445	2471

Notes:
1 Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 0%.
2 Heating: Outdoor 7°C 87% R.H. / Indoor 20°C 50% R.H. / Mix 0%.
3 ESP for standard configuration (optional accessories not included/calculated).
4 Sound power on the basis of measurements made in compliance with ISO 9614.
5 Unit in AR configuration and standard execution, without optional accessories.
6 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
7 Seasonal energy efficiency of the heating environment in AVERAGE climatic conditions [REGULATION (EU) N. 2016/2281]
The units highlighted in this publication contain HFC R410A [GWP_{100} 2088] fluorinated greenhouse gases.