

Reversible air cooled fully configurable high efficiency Rooftop units
24,4-54,9 kW



Autonomous reversible air-to-air Rooftop unit, for the thermo-hygrometric treatment, filtration and air renovation, depending on the selected configuration. Mini WSM units are specifically designed for installation in small to medium sized spaces, such as shops, bars and service areas. Hermetic rotary scroll compressors with R410A refrigerant; single refrigerant circuit; aluminum structure and coated galvanized steel base; air treatment section with sandwich panel and EC plug fans. 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 heat recovery Refrigerant Booster to recover the energy from the exhaust air, increasing the units capacity and the global efficiency.

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 the monitoring and intervention on the unit by means of a multi-level menu with selectable user's language. The step proportional capacity adjustment is based on the return temperature; proportional-integral management can also be set. Its functions include the adjustment of the ambient humidity, the thermal or enthalpic (optional) free-cooling and supply temperature limitation. Defrosting is based on a self-adaptive propriety logic with monitoring of several operating and environmental parameters. The management of the ventilation can be realized with constant air flow regulation (optional): as pressure drop varies, the fans change speed so as to maintain the flow-rate at the designed value for the system, regardless of filter clogging. The controller allows to integrate and automatically manage different optional thermal resources (hot water coil, electrical heater and gas thermal module), hot gas post-heating (optional) and the fresh air percentage (optional with CO2 sensor or remote signal 4-20 mA). The presence of the programmable timer allows the user to create an operating profile containing up to 4 typical days and 10 time bands. The diagnostics comprises a complete alarm management system, including 'black box' (via PC) functions and an alarm log list (via display or also a PC) for optimized analysis of the unit performance. Supervision can be easily developed via proprietary devices or via third party systems by means of the most common protocols as ModBus, Bacnet, Bacnet-over-IP, Echelon LonWorks protocols. Compatibility with the remote keyboard managing up to 8 units.



Configurations

AR	Air recirculation function
MF	Mixing and Free cooling function
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

Features

FLEXIBILITY

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

REDUCED FOOTPRINT

One single packaged unit that encloses everything is required for the ambient air conditioning. Particular attention has been given to the structural design of the unit, providing a smaller footprint combined with flexibility, sturdiness and complete operation.

VERSATILITY

Different possibilities for the air treatment chambers; from total recirculation only to mixing with fresh air and extraction from the ambient with heat recovery. Each different configuration can be further customized thanks to a wide range of accessories.

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.

INSTALLATION AND MAINTENANCE

Simplified operations, reduced costs and maintenance directly on site thanks to: the strong and perfectly insulated structure, easy access to internal sections, plug & play approach and automatic setting of the air flow (optional).

Accessory

- Ambient humidity control: hot gas post heating coil and humidifier.
- Ambient air quality control: CO2 sensor or 4-20 mA remote signal.
- Integration or substitution heating resources: hot water heating coil, electrical heaters, gas heating module
- High efficiency filters: electronic or rigid pocket F7
- Enthalpy free-cooling
- Remote control keyboard (distance to 200m and to 500m)
- Set-up for remote connectivity with ModBus/Echelon protocol cards

WSM		A082	A092	A102	A122	A132	A152
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
COOLING							
Total cooling capacity	(1) kW	24,4	30,6	33,7	37,9	42,6	47,5
Total sensible capacity	(1) kW	19,4	23,6	25,6	29,2	33,6	38,4
Compressors power input	(1) kW	5,39	6,95	8,21	10,2	12,1	13,5
EER (total)	(1) kW/kW	3,40	3,23	3,15	2,98	2,88	2,88
HEATING							
Total heating capacity	(2) kW	25,4	31,9	32,4	38,2	42,8	46,2
Compressors power input	(2) kW	5,31	7,03	8,43	9,31	10,3	11,0
COP (total)	(2) kW/kW	3,59	3,34	2,97	3,24	3,27	3,30
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(6) kW	24,6	30,9	34,0	38,2	42,9	47,9
SEER	(6)	3,86	4,08	3,99	3,91	3,86	3,76
Performance ηs	(6) %	151,40	160,29	156,56	153,34	151,25	147,54
SEASONAL EFFICIENCY IN HEATING (Reg. EU 2016/2281)							
Ambient heating							
PDesign	(7) kW	21,0	26,8	27,3	32,4	36,0	39,0
SCOP	(7)	3,09	3,18	3,07	3,23	3,31	3,20
Performance ηs	(7) %	120,47	124,06	120,00	126,36	129,51	125,13
SUPPLY FANS							
Supply air flow rate	m³/h	4500	5500	5700	6000	7250	8500
External static pressure	(3) Pa	250	250	250	250	250	250
Total power input	kW	0,78	0,83	0,86	0,90	1,16	1,38
REFRIGERANT CIRCUIT							
No. Compressors/No. Circuits	N°	2/1	2/1	2/1	2/1	2/1	2/1
Refrigerant charge	kg						
NOISE LEVEL							
Sound Power	(4) dB(A)	79	80	82	83	82	85
SIZE							
Length A	mm	2055	2055	2055	2055	2055	2055
Width B	mm	1300	1300	1300	1300	1300	1300
Height H	mm	1640	1640	1640	1640	1640	1640
Operating weight	(5) kg	540	560	580	630	650	690

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 [GWP₁₀₀ 2088] fluorinated greenhouse gases.

