

Reversible air cooled fully configurable high efficiency Rooftop units
51,7-317 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 with R410A refrigerant; double 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 thermodynamic Refrigerant Booster heat recovery or air-to air Plate type, 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
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.

Features

FLEXIBILITY

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

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.

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 humidifer.
- 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		A164	A184	A204	A704	A804	A904	A1004
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
COOLING								
Total cooling capacity	(1) kW	51,7	56,3	62,2	218	244	280	317
Total sensible capacity	(1) kW	38,3	43,0	47,4	171	195	213	242
Compressors power input	(1) kW	13,5	15,6	17,4	60,0	70,5	70,5	80,7
EER (total)	(1) kW/kW	3,10	2,93	2,93	2,95	2,82	3,09	3,08
HEATING								
Total heating capacity	(2) kW	55,1	55,8	63,0	219	251	282	318
Compressors power input	(2) kW	13,2	14,4	17,3	49,6	57,4	68,3	76,9
COP (total)	(2) kW/kW	3,34	3,10	2,99	3,44	3,41	3,19	3,21
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(6) kW	52,1	56,8	62,8	221	248	284	321
SEER	(6)	3,65	3,60	3,51	3,77	3,63	3,60	3,46
Performance ηs	(6) %	142,91	140,88	137,46	147,72	142,09	141,00	135,46
SEASONAL EFFICIENCY IN HEATING (Reg. EU 2016/2281)								
Ambient heating								
PDesign	(7) kW	46,3	46,9	53,1	183	209	236	268
SCOP	(7)	3,06	3,05	3,04	3,10	3,07	3,02	3,03
Performance ηs	(7) %	119,49	118,84	118,74	121,13	119,96	117,87	118,10
SUPPLY FANS								
Supply air flow rate	m³/h	7700	9400	10500	36500	42200	45000	50000
External static pressure	(3) Pa	250	250	250	250	250	250	250
Total power input	kW	1,16	1,47	1,73	6,87	8,90	9,35	11,5
REFRIGERANT CIRCUIT								
No. Compressors/No. Circuits	N°	4/2	4/2	4/1	4/2	4/2	4/2	4/2
Refrigerant charge	kg							
NOISE LEVEL								
Sound Power	(4) dB(A)	82	84	85	92	94	97	97
SIZE								
Length A	mm	3065	3065	3065	5565	5565	7430	7430
Width B	mm	1700	1700	1700	2250	2250	2250	2250
Height H	mm	1660	1660	1660	2380	2380	2380	2380
Operating weight	(5) kg	770	900	960	2674	2751	3800	3800

Notes:

- Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 0%.
 - Heating: Outdoor 7°C 87% R.H. / Indoor 20°C 50% R.H. / Mix 0%.
 - ESP for standard configuration (optional accessories not included/calculated).
 - Sound power on the basis of measurements made in compliance with ISO 9614.
 - Unit in AR configuration and standard execution, without optional accessories.
 - Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
 - 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.

