

Cooling only air cooled Rooftop unit, fully configurable and high efficiency



**Stand-alone cooling only air-to-air rooftop unit, for air treatment, filtration and renewal, in medium-large surface and volume ambient (supermarkets, shopping or exhibition centres).**

**Hermetic rotary scroll compressors in tandem with R410A refrigerant; double refrigerant circuit with electronic lamination valves; aluminium structure and coated galvanized steel base; air treatment section with sandwich panels with external surface made with coated galvanized steel RAL 7035 painted 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 motorized dampers for return, exhaust 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 unit capacity and the global efficiency.

### Control



### AIR3000TE

AIR3000TE is made up by two control boards, dedicated to the air side and the refrigerant side respectively. The LCD display has multi-level menu that allows for the monitoring and intervention on the unit. Thermoregulation is proportional to steps, referred to 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 or pressure regulation: as pressure drop varies, the fans change speed so as to maintain the flow-rate at the designed value. The controller independently manages several optional thermal resources and the amount of fresh air. The presence of the programmable timer allows the user to create an operating profile containing up to 4 typical days and 10 time bands. Diagnostics include complete alarm management, "black box" function (via PC) and alarm history (via display or even PC). Supervision can be developed 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.

### Refrigerant



### Configurations

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

#### ENERGY EFFICIENCY

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

The unit is available with 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 efficiency 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.

#### ELECTRONIC EXPANSION VALVE SUPPLIED STANDARD

The use of the electronic expansion valve generates considerable benefits, especially in cases of variable demand and different external conditions. It was introduced into these units as a result of accurate design choices concerning the cooling circuit and the optimisation of operation in various different working conditions

### Accessories

- Ambient humidity control: hot gas post heating coil and humidifier.
- High efficiency filters: electronic or bag type ePM01 50% (ISO16890, F7 EN779) or ePM01 85% (ISO16890, F9 EN779)
- Enthalpy free-cooling
- Air flow regulation with CO2 probe
- Vair: variable air flow function, it allows to vary supply and return air flow according to the actual request of the HVAC system.

WSM2-T			0264	0304	0354	0404	0444	0484	0524	0604
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
<b>COOLING ONLY (GROSS VALUE)</b>										
Total cooling capacity	(1)	kW	81,1	88,7	104	122	133	144	159	182
Total sensible capacity	(1)	kW	62,1	68,1	80,8	94,2	102	110	121	141
Compressors power input	(1)	kW	22,6	25,2	29,6	34,7	34,8	35,5	39,4	49,6
EER (total)	(1)(10)	kW/kW	2,9	3,0	2,9	3,0	3,1	3,1	3,1	2,9
<b>COOLING ONLY (EN14511 VALUE)</b>										
Cooling capacity	(1)(2)	kW	81,8	89,7	105	123	134	146	161	185
EER	(1)(2)	kW/kW	3,04	3,16	3,06	3,08	3,20	3,21	3,19	2,99
Cooling energy class			A	A	-	-	-	-	-	-
<b>SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)</b>										
<b>Ambient refrigeration</b>										
Prated,c	(6)	kW	81,8	89,7	105	123	134	146	161	185
SEER	(6)(7)		3,71	3,96	3,99	4,03	3,90	3,74	3,62	3,61
Performance ηs	(6)(8)	%	145,27	155,55	156,65	158,32	152,92	146,46	141,85	141,32
<b>SUPPLY FANS</b>										
Air flow rate		m³/h	13500	15500	18000	20500	22500	25000	28000	30500
Nominal ESP	(3)	Pa	200	250	250	300	300	300	350	350
Total power input	(10)	kW	2,13	2,30	2,74	3,17	3,63	4,74	5,85	7,03
<b>REFRIGERANT CIRCUIT</b>										
No. Compressors/No. Circuits		N°	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2
Refrigerant charge	(5)(9)	kg	15,0	19,0	22,0	27,0	33,0	36,0	39,0	46,0
<b>NOISE LEVEL</b>										
Unit sound power level	(4)	dB(A)	83	83	84	84	85	86	87	87
Sound Power on outlet side	(4)	dB(A)	79	80	80	82	83	90	93	96
<b>SIZE</b>										
Length A	(5)	mm	3665	3665	3665	3665	4465	4465	4465	4465
Width B	(5)	mm	2250	2250	2250	2250	2250	2250	2250	2250
Height H	(5)	mm	2410	2410	2410	2410	2410	2410	2410	2410
Operating weight	(5)	kg	1630	1740	1780	1840	2100	2170	2290	2320

#### Notes

- Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 0%.
- Values in compliance with EN14511
- 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.
- Parameter calculated according to [REGULATION (EU) N. 2016/2281]
- Seasonal energy efficiency ratio
- Seasonal space cooling energy efficiency
- The gas charge is obtained from a theoretical calculation and may differ from the real one present in the unit and shown on the plate.
- Available static pressure 250Pa (pressure drop resulting from any available accessories not included).

The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.

Certified data in EUROVENT

#### Dimensional drawing

