



WSM

Reversible air cooled rooftop unit, fully configurable and high efficiency.
Cooling capacity from 23,3 to 459 kW
and air flow from 4,000 to 56,000 m³/h

Maximum flexibility

Superior reliability

High versatility

Innovative heat recovery system

One single unit for small, medium and large applications.

Shopping centres, supermarkets and cinemas are all characterised by specific air treatment and air renewal requirements.

Our biggest challenge is delivering integrated solutions that can meet all these needs.



Increasingly challenging market requirements



SPECIFIC SOLUTION FOR EACH PROJECT

Shopping centres, supermarkets, outlets, cinemas, exhibition centres, etc...

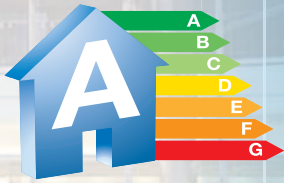
In all these applications, the object is to optimize the conditioning system of one single small, medium, or large size area. The need is to have a single compact and self-contained solution capable of meeting different needs throughout the year: air conditioning, air treatment and air renewal. This is the distinguishing feature of rooftop units.

Reliability and continuous operation



Ensuring continuous and efficient unit operation in any conditions or situations is a fundamental preliminary requirement to guarantee a wide range application framework. The rooftop unit must be able to independently manage the additional air treatment resources, and take advantage of any favourable weather conditions. Moreover, it must also be able to deal with critical operating conditions that could reduce the power delivered.

Reduced energy consumption



Energy efficiency has nowadays a fundamental role in all fields. Therefore, also as far as rooftop units the reduction in energy consumption is an important objective that must be pursued. In order to obtain maximum system performance, the utmost attention must be given, during the design stage, to the use of heat recovery systems and the optimization of ventilation in air treatment.

Quick and easy installation



Although sometimes seen as marginal, as far as rooftop units the installation and connection of air ducts has a fundamental role that can have important effects on the final cost of the system. The availability of a flexible unit makes it possible to optimise the installation of the ducts, to overcome the limitations of the building, and to adapt existing systems. In addition, optimisation of internal spaces provides easy access to the components.

Space saving



In small and medium applications, the technical space available for the installation of the units is often restricted. The footprint of the unit being installed must therefore be as minimal as possible.

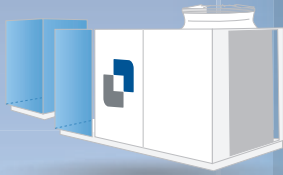
However, it is also necessary to guarantee a sturdy and strong structure that can be moved easily and safely and that ensures a high level of thermal insulation.

The solutions

System reliability, energy efficiency and maximum configurability during the design phase. All this in a single unit.



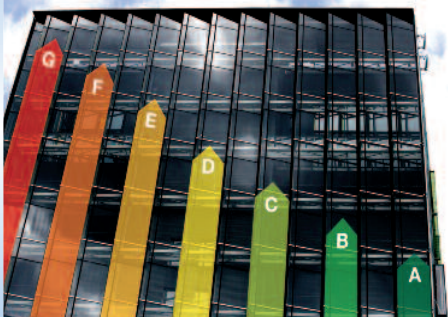
Highest configurability



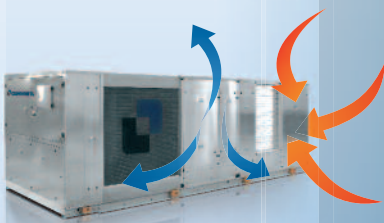
Superior reliability



Energy efficiency



High versatility and flexibility



Minimum footprint



WSM is the first self-contained solution that can be fully configured according to the specific system requirements.

All the units are available both in reversible and cooling only versions and offer five different air treatment chamber options.

The unit can be further customized with a wide range of accessories capable to perform air treatment, and to manage and operate the unit.

All the WSM units can independently manage all the additional air treatment and heating resources. Thanks to the free-cooling operation, they can take advantage of favourable external weather conditions to cool the environment without using compressors. Units with cooling capacities of 50 kW and above are also available with two cooling circuits completely independent from each other.

WSM units are available both with an exclusive plate based air-air heat recovery system, ideal for either cold or hot climates, and with the innovative Refrigerant Booster recovery system, well suited to the Mediterranean climate.

The ventilation section has been carefully sized to provide a wide operating range, in compliance with the current energy efficiency regulations.

High efficiency plug fans with EC motor are also available.

WSM guarantees maximum freedom in choosing the direction of the air flow (supply or return), which makes it possible to adapt the units to all application frameworks.

The installation of ducts is also significantly simplified, as there are no restrictions due to the unit layout when positioning the connections of the supply or return ducts.

The Mini WSM packaged solution is ideal for small and medium surface applications, as it contains in one single compact unit all that is required for the air-conditioning of the environment.

Maximum care has been paid to its structural design, providing flexibility, sturdiness, and full functionality, with minimum space requirements.

Technological choices

Plug fans



Air management is entrusted to plug type fans with backward blades, directly coupled to electronically controlled brushless motors.

This solution provides maximum reliability and high efficiency over a wide operating range.

AIR3000TE control

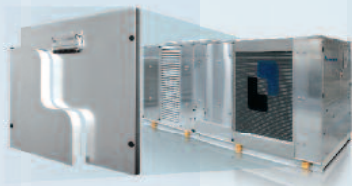


The management and control of the WSM unit is entrusted to the innovative AIR3000TE controller, specifically developed for rooftop units.

The controller for the management of the refrigerant circuit is joined by the

control of the air treatment section. This offers many functions that provide a completely independent operation of the unit.

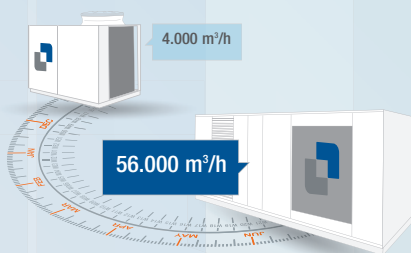
Casing



WSM units are sturdy and perfectly insulated. Thanks to the aluminium profiles and the double wall sandwich panelling, these units ensure:

- Zero energy waste due to air leakages and penetration
- Quick and safe handling and installation
- Easy access to inner components

Extension of the range and operating limits



The complete range includes 28 different sizes (from 4,000 m³/h to 56,000 m³/h), split into Mini WSM units for the air conditioning of small spaces, and WSM units intended for the air conditioning of medium to large areas. All are available in the reversible or in the cooling only version, with five different configurations that make it possible to adapt the units to the specific system requirement, thanks to the completeness of the standard versions, and a wide range of accessories also available.

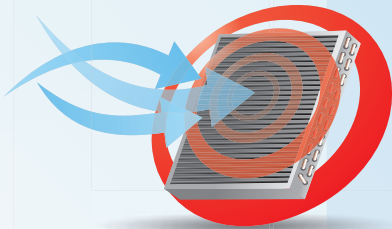
Technical choices:

- Reverse-cycle refrigerant circuit: free-cooling/free-heating operation and the careful sizing of the components ensure continuous operation of the unit within the wide operating limits.
- External air high temperature equipment that ensures the operation of the unit in critical conditions outside the normal operating limits.

The result of careful planning, the new WSM boasts innovative technical and structural characteristics that make it suitable for applications with different sizes and volumes.

Refrigerant Booster heat recovery

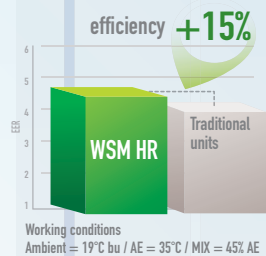
WSM HR-B



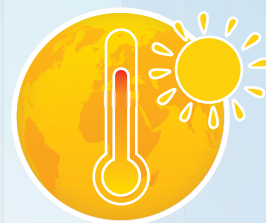
WSM/HR-B and WSM-T/HR-B units are fitted with the exclusive Refrigerant Booster heat recovery system, which promptly and fully recovers heat from the exhaust air. This recovered energy is transferred to the refrigerant circuit, which increases the capacity of the air handling coil, whilst reducing the consumption of the compressor. The recovery system consists of a finned coil installed at the air exhaust damper. The system takes advantage of the favourable conditions of the exhaust air, during both summer and winter operation.



Always measurable benefits



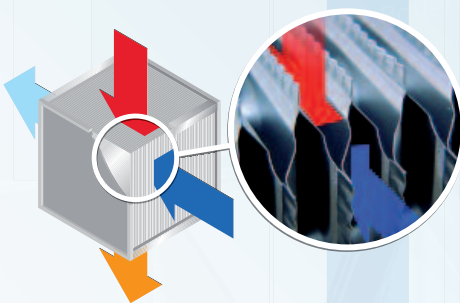
+ 15% Efficiency



Ideal for the Mediterranean climate

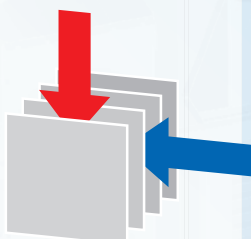
Cross-flow heat recovery

WSM HR-P



For installation in both cold and hot climates, WSM units are available in the HR-P version with cross-flow heat recovery, an innovative system that transfers the thermal energy contained in the expulsion air to the renewal air flow.

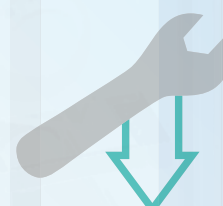
The plate heat recovery system extends the operating limits of the unit, allowing it to work with higher flow rates of external air. To reduce system pressure drops when the thermal conditions do not allow the use of the heat recovery function, the units are equipped with by-pass dampers for free-cooling operation.



Complete separation between the two air flows



High operating reliability and safety

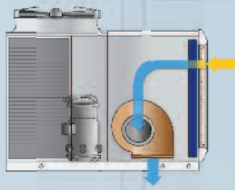


Quick and easy cleaning and maintenance

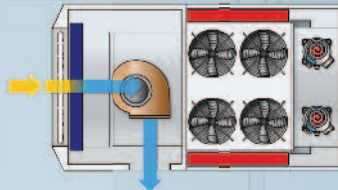
Versions

A comprehensive range of products split into Mini WSM for the air conditioning of small areas, and WSM for medium to large areas.

AR function



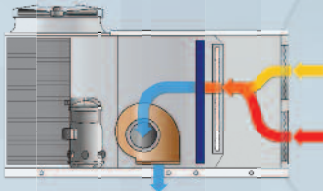
Mini WSM
Mini WSM-T



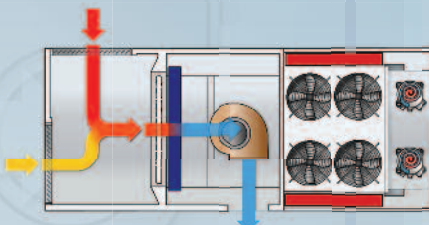
WSM
WSM-T

Unit specifically conceived for operation using 100% recirculated air, where the renewal and the expulsion of the air are managed independently by the rooftop unit.

MF function



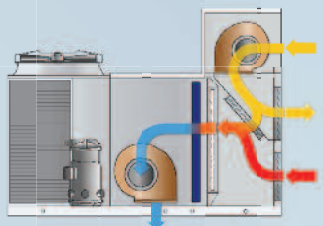
Mini WSM
Mini WSM-T



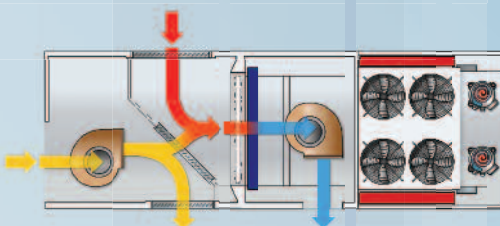
WSM
WSM-T

Unit with two motorized modulating dampers for air treatment, air renewal and free-cooling operation. The unit can therefore provide both constant and variable air renewal, according to the installation requirements.

CE function

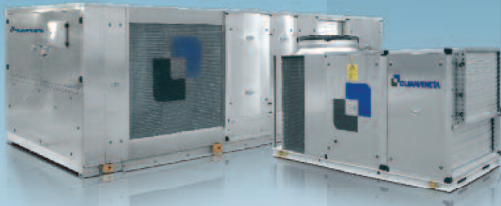


Mini WSM
Mini WSM-T



WSM
WSM-T

Unit with three motorized modulating dampers for independent air treatment, air mixing, free-cooling and air extraction/expulsion management.



Versions:

Reversible units

Mini WSM 0081-0152
Cooling capacity:
23,3 to 58,2 kW
Air flow:
4.000 to 8.500 m³/h

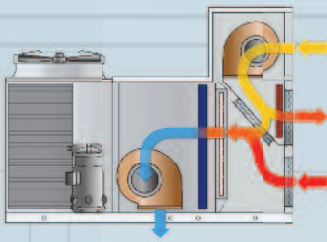
WSM 0162-1204
Cooling capacity:
48,9 to 459 kW
Air flow:
7.700 to 56.000 m³/h

Cooling only unit

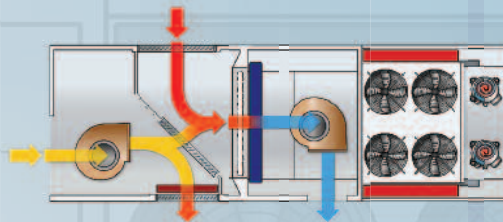
Mini WSM-T 0081-0152
Cooling capacity:
23,4 of 58,7 kW
Air flow:
4.000 of 8.500 m³/h

WSM-T 0162-1204
Cooling capacity:
49,2 of 459 kW
Air flow:
7.700 of 56.000 m³/h

HR-B function



Mini WSM
Mini WSM-T

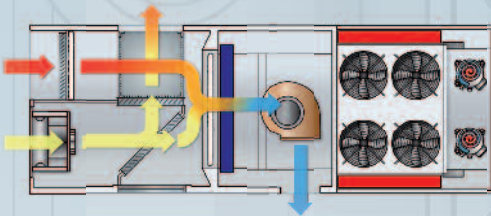


WSM
WSM-T

Unit with three motorized modulating dampers and Refrigerant Booster heat recovery.

This unit provides independent air treatment, air renewal, air extraction, excess air expulsion, complete recovery of the energy in the air, and free-cooling operation.

HR-P function



WSM
WSM-T

Unit with four motorized modulating dampers and plate heat recovery.

This unit provides independent air treatment, air renewal, air extraction, excess air expulsion, complete recovery of the energy in the air, and free-cooling operation.

Accessories

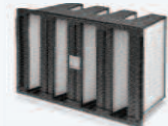
HIGH 
CONFIGURABILITY



Air treatment section management functions.



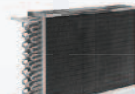
Connection with BMS systems.



High filtering efficiency, F7 bag filters or electronic filters.



Control over the ambient air quality by means of the CO₂ or VCO probes.



Water, electric or hot gas coils for the heating and pre-heating operations



Modulating or two-stage thermal module

Mini WSM

Reversible and cooling only air cooled rooftop unit, with scroll compressor, R410A refrigerant and centrifugal fans.
Cooling capacity from 23,3 to 58,7 kW and air flow from 4.000 to 8.500 m³/h.

Funzione AR		0081	0082	0091	0092	0101	0102	0121	0122	0131	0132	0151	0152
WSM/AR													
Cooling													
Total cooling capacity	(1) kW	24,6	23,3	28,8	28,5	32,6	32,7	37,1	37,1	40,8	42,0	47,3	47,2
Total sensible capacity	(1) kW	18,6	18,1	22,3	22,2	25,6	25,6	28,4	28,4	32,4	33,0	37,6	37,6
Compressors power input	(1) kW	6,01	5,28	7,36	7,00	8,40	8,23	10,0	10,0	10,8	12,3	12,5	12,6
Heating													
Total heating capacity	(2) kW	24,9	23,2	28,9	28,7	31,8	32,0	35,7	36,0	38,4	40,0	46,0	46,1
Compressors power input	(2) kW	5,70	5,02	6,64	6,49	7,14	7,38	8,23	8,38	8,19	9,16	10,3	10,2
WSM-T/AR													
Cooling													
Total cooling capacity	(1) kW	24,8	23,4	29,0	28,7	32,6	32,9	37,5	37,6	41,3	42,5	47,7	47,6
Total sensible capacity	(1) kW	18,7	18,1	22,4	22,3	25,6	25,8	28,5	28,5	32,6	33,2	37,8	37,8
Compressors power input	(1) kW	5,91	5,19	7,24	6,85	8,40	8,06	9,79	10,0	10,5	12,0	12,3	12,4
Supply fans													
Supply air flow rate	m ³ /h	4000	4000	5000	5000	5700	5700	6000	6000	7250	7250	8500	8500
Available external static pressure	(3) Pa	350	350	350	350	350	350	350	350	350	350	350	350
Total power input	kW	0,96	0,96	1,35	1,35	1,64	1,64	1,77	1,77	1,77	1,77	2,40	2,40
Compressors													
No. compressors / No. Circuits	N°	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1
Noise level													
Sound power	(4) dB(A)	79	79	80	80	82	82	83	83	82	82	85	85
Size													
Length	mm	2055	2055	2055	2055	2055	2055	2055	2055	2055	2055	2055	2055
Width	mm	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
Height	mm	1640	1640	1640	1640	1640	1640	1640	1640	1640	1640	1640	1640
Operating weight	(5) kg	526	526	538	538	570	570	600	600	632	632	669	669
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 3744. 5 Unit in standard configuration/execution, without optional accessories.													

Funzione MF		0081	0082	0091	0092	0101	0102	0121	0122	0131	0132	0151	0152
WSM/MF													
Cooling													
Total cooling capacity	(1) kW	26,3	24,8	30,6	30,3	34,7	34,8	39,5	39,5	43,2	44,6	50,2	50,0
Total sensible capacity	(1) kW	18,7	18,2	22,4	22,3	25,7	25,8	28,4	28,4	32,5	33,1	37,8	37,7
Compressors power input	(1) kW	6,09	5,32	7,48	7,05	8,54	8,26	10,2	10,2	11,0	12,6	12,7	12,9
Heating													
Total heating capacity	(2) kW	25,3	23,5	29,2	29,0	32,2	32,3	36,1	36,4	38,7	40,3	46,6	46,7
Compressors power input	(2) kW	5,29	4,57	6,17	5,89	6,61	6,77	7,62	7,66	7,52	8,33	9,53	9,38
WSM-T/MF													
Cooling													
Total cooling capacity	(1) kW	26,5	25,0	30,8	30,5	34,7	35,1	40,0	40,0	43,8	45,2	50,7	50,4
Total sensible capacity	(1) kW	18,8	18,2	22,5	22,4	25,7	25,9	28,6	28,6	32,7	33,3	38,0	37,9
Compressors power input	(1) kW	5,99	5,23	7,36	6,90	8,54	8,08	10,0	10,2	10,7	12,2	12,5	12,7
Supply fans													
Supply air flow rate	m ³ /h	4000	4000	5000	5000	5700	5700	6000	6000	7250	7250	8500	8500
Available external static pressure	(3) Pa	350	350	350	350	350	350	350	350	350	350	350	350
Total power input	kW	0,96	0,96	1,35	1,35	1,64	1,64	1,77	1,77	1,77	1,77	2,40	2,40
Compressors													
No. compressors / No. Circuits	N°	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1
Noise level													
Sound power	(4) dB(A)	82	82	84	84	86	86	87	87	85	85	88	88
Size													
Length	mm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
Width	mm	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
Height	mm	1640	1640	1640	1640	1640	1640	1640	1640	1640	1640	1640	1640
Operating weight	(5) kg	579	579	589	589	621	621	649	649	679	679	714	714
1 Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 30%. 2 Heating: Outdoor 7°C 87% R.H. / Indoor 20°C 50% R.H. / Mix 30%. 3 ESP for standard configuration (optional accessories not included/calculated). 4 Sound power on the basis of measurements made in compliance with ISO 3744. 5 Unit in standard configuration/execution, without optional accessories.													



Funzione CE

0081 0082 0091 0092 0101 0102 0121 0122 0131 0132 0151 0152

WSM/CE

		0081	0082	0091	0092	0101	0102	0121	0122	0131	0132	0151	0152
Cooling													
Total cooling capacity	(1) kW	26,3	24,8	30,6	30,3	34,7	34,8	39,5	39,5	43,2	44,6	50,2	50,0
Total sensible capacity	(1) kW	18,7	18,2	22,4	22,3	25,7	25,8	28,4	28,4	32,5	33,1	37,8	37,7
Compressors power input	(1) kW	6,09	5,32	7,48	7,05	8,54	8,26	10,2	10,2	11,0	12,6	12,7	12,9
Heating													
Total heating capacity	(2) kW	25,3	23,5	29,2	29,0	32,2	32,3	36,1	36,4	38,7	40,3	46,6	46,7
Compressors power input	(2) kW	5,29	4,57	6,17	5,89	6,61	6,77	7,62	7,66	7,52	8,33	9,53	9,38

WSM-T/CE

Cooling													
Total cooling capacity	(1) kW	26,5	25,0	30,8	30,5	34,7	35,1	40,0	40,0	43,8	45,2	50,7	50,4
Total sensible capacity	(1) kW	18,8	18,2	22,5	22,4	25,7	25,9	28,6	28,6	32,7	33,3	38,0	37,9
Compressors power input	(1) kW	5,99	5,23	7,36	6,90	8,54	8,08	10,0	10,2	10,7	12,2	12,5	12,7

Supply fans

Supply air flow rate	m³/h	4000	4000	5000	5000	5700	5700	6000	6000	7250	7250	8500	8500
Available external static pressure	(3) Pa	350	350	350	350	350	350	350	350	350	350	350	350
Total power input	kW	0,96	0,96	1,35	1,35	1,64	1,64	1,77	1,77	1,77	1,77	2,40	2,40

Return/expulsion fans

Supply air flow rate	m³/h	4000	4000	5000	5000	5700	5700	6000	6000	7250	7250	8500	8500
Available external static pressure	(3) Pa	250	250	250	250	250	250	250	250	250	250	250	250
Total power input	kW	0,77	0,77	1,15	1,15	1,50	1,50	1,69	1,69	1,92	1,92	2,76	2,76

Compressors

No. compressors / No. Circuits	N°	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1
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Noise level

Sound power	(4) dB(A)	84	84	87	87	89	89	90	90	88	88	91	91
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Size

Length	mm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
Width	mm	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
Height	mm	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050
Operating weight	(5) kg	637	637	649	649	684	684	712	712	744	744	796	796

1 Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 30%.

2 Heating: Outdoor 7°C 87% R.H. / Indoor 20°C 50% R.H. / Mix 30%.

3 ESP for standard configuration (optional accessories not included/calculated).

4 Sound power on the basis of measurements made in compliance with ISO 3744.

5 Unit in standard configuration/execution, without optional accessories.

Funzione HR-B

0081 0082 0091 0092 0101 0102 0121 0122 0131 0132 0151 0152

WSM/HR

		0081	0082	0091	0092	0101	0102	0121	0122	0131	0132	0151	0152
Cooling													
Total cooling capacity	(1) kW	30,5	28,8	35,4	35,0	40,2	40,3	45,8	45,8	49,9	51,7	58,2	57,8
Total sensible capacity	(1) kW	20,1	19,5	24,1	24,0	27,6	27,7	30,5	30,5	34,9	35,5	40,7	40,5
Heat recovery cooling capacity	(1) kW	3,10	2,92	3,60	3,56	4,08	4,10	4,65	4,65	5,07	5,25	5,91	5,87
Compressors power input	(1) kW	6,15	5,36	7,57	7,09	8,64	8,29	10,3	10,3	11,1	12,8	12,9	13,1
Heating													
Total heating capacity	(2) kW	28,1	26,2	32,4	32,2	35,9	35,9	40,2	40,5	43,0	44,7	51,9	51,9
Heat recovery heating capacity	(2) kW	2,65	2,47	3,05	3,04	3,38	3,38	3,78	3,81	4,05	4,21	4,89	4,89
Compressors power input	(2) kW	5,25	4,48	6,13	5,76	6,55	6,66	7,56	7,54	7,42	8,16	9,43	9,28

WSM-T/HR

Cooling													
Total cooling capacity	(1) kW	30,8	29,0	35,8	35,4	40,2	40,7	46,3	46,3	50,6	52,4	58,7	58,3
Total sensible capacity	(1) kW	20,1	19,6	24,2	24,1	27,6	27,8	30,6	30,6	35,1	35,7	40,8	40,7
Heat recovery cooling capacity	(1) kW	3,12	2,94	3,63	3,59	4,08	4,14	4,70	4,70	5,14	5,32	5,97	5,92
Compressors power input	(1) kW	6,04	5,25	7,44	6,93	8,64	8,10	10,1	10,3	10,8	12,4	12,6	12,8

Supply fans

Supply air flow rate	m³/h	4000	4000	5000	5000	5700	5700	6000	6000	7250	7250	8500	8500
Available external static pressure	(3) Pa	350	350	350	350	350	350	350	350	350	350	350	350
Total power input	kW	0,96	0,96	1,35	1,35	1,64	1,64	1,77	1,77	1,77	1,77	2,40	2,40

Return/expulsion fans

Supply air flow rate	m³/h	4000	4000	5000	5000	5700	5700	6000	6000	7250	7250	8500	8500
Available external static pressure	(3) Pa	250	250	250	250	250	250	250	250	250	250	250	250
Total power input	kW	0,87	0,87	1,26	1,26	1,63	1,63	1,83	1,83	2,07	2,07	2,95	2,95

Compressors

No. compressors / No. Circuits	N°	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1	1/1	2/1
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Noise level

Sound power	(4) dB(A)	84	84	87	87	89	89	90	90	88	88	91	91
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Size

Length	mm	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
Width	mm	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
Height	mm	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050
Operating weight	(5) kg	637	637	649	649	684	684	712	712	744	744	796	796

1 Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 50%.

2 Heating: Outdoor 7°C 87% R.H. / Indoor 20°C 50% R.H. / Mix 50%.

3 ESP for standard configuration (optional accessories not included/calculated).

4 Sound power on the basis of measurements made in compliance with ISO 3744.

5 Unit in standard configuration/execution, without optional accessories.

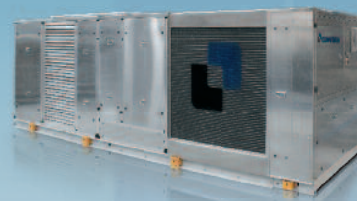
WSM 2 compressors unit

Reversible and cooling only air cooled rooftop unit, with scroll compressor, R410A refrigerant and centrifugal fans.
Cooling capacity from 48,9 to 159 kW and air flow from 7.700 a 21.100 m³/h

Funzione AR-MF-CE		0162	0182	0202	0262	0302	0352	0402
WSM								
Cooling								
Total cooling capacity	(1) kW	48,9	56,6	62,8	82,6	91,9	107	126
Total sensible capacity	(1) kW	37,1	43,9	48,8	63,9	71,8	84,4	98,3
Compressors power input	(1) kW	12,7	15,6	17,2	20,5	25,7	30,6	34,1
Heating								
Total heating capacity	(2) kW	49,0	56,7	64,2	81,4	91,6	109	123
Compressors power input	(2) kW	11,2	13,1	14,8	17,1	21,1	25,0	28,3
WSM-T								
Cooling								
Total cooling capacity	(1) kW	49,2	57,1	63,2	81,0	92,6	108	127
Total sensible capacity	(1) kW	37,2	44,1	48,9	63,2	72,1	84,6	98,9
Compressors power input	(1) kW	12,5	15,4	17,0	21,4	25,2	30,2	33,3
Supply fans WSM/AR-MF-CE								
Supply air flow rate	m ³ /h	7700	9400	10500	13500	15400	18200	21100
Available external static pressure	(3) Pa	350	350	350	350	350	350	350
Total power input	kW	1,70	2,30	2,76	3,21	4,00	4,47	5,46
Return/expulsion fans WSM/CE								
Supply air flow rate	m/h	7700	9400	10500	13500	15400	18200	21100
Available external static pressure	(3) Pa	250	250	250	250	250	250	250
Total power input	kW	1,34	1,93	2,40	2,39	3,03	4,19	3,84
Compressors								
No. compressors / No. Circuits	N°	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Noise level WSM/AR								
Sound power	(4) dB(A)	82	84	85	84	86	86	89
Noise level WSM/MF								
Sound power	(4) dB(A)	85	87	89	87	88	88	90
Noise level WSM/CE								
Sound power	(4) dB(A)	87	89	91	88	90	91	91
Size WSM/AR								
Length	mm	3065	3065	3065	3565	3565	3565	4265
Width	mm	1700	1700	1700	2250	2250	2250	2250
Height	mm	1660	1660	1660	1840	1840	1840	2380
Operating weight	(5) kg	755	892	941	1279	1380	1492	1689
Size WSM/MF								
Length	mm	4400	4400	4400	4900	4900	4900	5600
Width	mm	1700	1700	1700	2250	2250	2250	2250
Height	mm	1660	1660	1660	1840	1840	1840	2380
Operating weight	(5) kg	1079	1218	1268	1733	1839	1942	2268
Size WSM/CE								
Length	mm	5300	5300	5300	5800	5800	5800	6500
Width	mm	1700	1700	1700	2250	2250	2250	2250
Height	mm	1660	1660	1660	1840	1840	1840	2380
Operating weight	(5) kg	1339	1487	1551	2128	2234	2357	2772

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 3744.
5 Unit in standard configuration/execution, without optional accessories.

**Funzione HR-B**

0162 0182 0202 0262 0302 0352 0402

WSM/HR-B

			0162	0182	0202	0262	0302	0352	0402
Cooling									
Total cooling capacity	(1)	kW	60,4	69,7	77,3	102	113	132	155
Total sensible capacity	(1)	kW	39,8	47,1	52,4	68,5	77,3	90,8	106
Heat recovery cooling capacity	(1)	kW	6,13	7,07	7,85	10,3	11,5	13,4	15,7
Compressors power input	(1)	kW	13,0	16,1	17,7	21,1	26,4	31,5	35,1
Heating									
Total heating capacity	(2)	kW	55,3	63,4	72,3	91,4	103	123	138
Heat recovery heating capacity	(2)	kW	5,20	5,97	6,81	8,61	9,72	11,6	13,0
Compressors power input	(2)	kW	10,3	12,1	13,5	15,5	19,3	22,7	25,5

WSM-T/CE

			0162	0182	0202	0262	0302	0352	0402
Cooling									
Total cooling capacity	(1)	kW	60,8	70,3	77,8	99	114	133	157
Total sensible capacity	(1)	kW	40,0	47,3	52,6	67,8	77,7	91,0	106
Heat recovery cooling capacity	(1)	kW	6,2	7,1	7,9	10,1	11,6	13,5	15,9
Compressors power input	(1)	kW	12,8	15,9	17,5	22,1	25,9	31,1	34,2

Supply fans

			0162	0182	0202	0262	0302	0352	0402
Supply air flow rate		m³/h	7700	9400	10500	13500	15400	18200	21100
Available external static pressure	(3)	Pa	350	350	350	350	350	350	350
Total power input		kW	1,70	2,30	2,76	3,21	4,00	4,47	5,46

Return/expulsion fans

			0162	0182	0202	0262	0302	0352	0402
Supply air flow rate		m³/h	7700	9400	10500	13500	15400	18200	21100
Available external static pressure	(3)	Pa	250	250	250	250	250	250	250
Total power input		kW	1,50	2,12	2,61	2,71	3,37	4,57	4,28

Compressors

			0162	0182	0202	0262	0302	0352	0402
No. compressors / No. Circuits		N°	2/2	2/2	2/2	2/2	2/2	2/2	2/2

Noise level

			0162	0182	0202	0262	0302	0352	0402
Sound power	(4)	dB(A)	87	89	91	88	90	91	91

Size

			0162	0182	0202	0262	0302	0352	0402
Length		mm	5300	5300	5300	5800	5800	5800	6500
Width		mm	1700	1700	1700	2250	2250	2250	2250
Height		mm	1660	1660	1660	1840	1840	1840	2380
Operating weight	(5)	kg	1386	1543	1612	2207	2317	2448	2883

Funzione HR-P

0162 0182 0202 0262 0302 0352 0402

WSM/HR-P

			0162	0182	0202	0262	0302	0352	0402
Cooling									
Total cooling capacity	(1)	kW	58,6	67,9	75,3	99	111	129	152
Total sensible capacity	(1)	kW	38,5	45,6	50,6	66,5	74,8	87,8	102
Heat recovery cooling capacity	(1)	kW	5,00	6,00	6,60	8,9	9,9	11,5	13,6
Compressors power input	(1)	kW	13,0	16,1	17,7	21,1	26,3	31,4	35,0
Heating									
Total heating capacity	(2)	kW	57,7	66,7	75,5	96,6	109	129	146
Heat recovery heating capacity	(2)	kW	8,10	9,60	10,60	14,40	16,20	18,7	22,1
Compressors power input	(2)	kW	10,5	12,3	13,8	15,9	19,7	23,2	26,2

WSM-T/HR

			0162	0182	0202	0262	0302	0352	0402
Cooling									
Total cooling capacity	(1)	kW	59,0	68,4	75,7	97	111	130	153
Total sensible capacity	(1)	kW	38,6	45,7	50,8	65,8	75,1	88,0	103
Heat recovery cooling capacity	(1)	kW	5,00	6,00	6,60	8,9	9,9	11,5	13,6
Compressors power input	(1)	kW	12,8	15,8	17,5	22,0	25,8	31,0	34,1

Supply fans

			0162	0182	0202	0262	0302	0352	0402
Supply air flow rate		m3/h	7700	9400	10500	13500	15400	18200	21100
Available external static pressure	(3)	Pa	250	250	250	250	250	250	250
Total power input		kW	2,40	3,48	4,40	4,31	5,60	7,03	7,66

Return/expulsion fans

			0162	0182	0202	0262	0302	0352	0402
Supply air flow rate		m3/h	7700	9400	10500	13500	15400	18200	21100
Available external static pressure	(3)	Pa	200	200	200	200	200	200	200
Total power input		kW	1,15	1,67	2,10	2,62	3,12	3,31	3,75

Compressors

			0162	0182	0202	0262	0302	0352	0402
No. compressors / No. Circuits		N°	2/2	2/2	2/2	2/2	2/2	2/2	2/2

Noise level

			0162	0182	0202	0262	0302	0352	0402
Sound power	(4)	dB(A)							

Size

			0162	0182	0202	0262	0302	0352	0402
Length		mm	4800	4800	4800	5800	5800	5800	6500
Width		mm	1700	1700	1700	2250	2250	2250	2250
Height		mm	1660	1660	1660	1840	1840	1840	2380
Operating weight	(5)	kg	1551	1571	1581	2170	2240	2480	3565

1 Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 50%.

2 Heating: Outdoor 7°C 87% R.H. / Indoor 20°C 50% R.H. / Mix 50%.

3 ESP for standard configuration (optional accessories not included/calculated).

4 Sound power on the basis of measurements made in compliance with ISO 3744.

5 Unit in standard configuration/execution, without optional accessories.

WSM 4 compressors unit

Reversible and cooling only air cooled rooftop unit, with scroll compressor, R410A refrigerant and centrifugal fans.
Cooling capacity from 148 to 459 kW and air flow from 24.000 a 56.000 m³/h

Funzione AR-MF-CE		0484	0524	0604	0704	0804	0904	1004	1104	1204
WSM										
Cooling										
Total cooling capacity	(1) kW	148	164	188	218	244	264	303	333	364
Total sensible capacity	(1) kW	114	127	146	171	195	213	241	259	276
Compressors power input	(1) kW	39,2	40,0	50,3	60,0	70,5	71,1	79,0	91,6	106
Heating										
Total heating capacity	(2) kW	147	164	185	219	251	271	309	349	386
Compressors power input	(2) kW	33,5	34,8	41,9	49,6	57,4	62,7	68,7	81,4	91,2
WSM-T										
Cooling										
Total cooling capacity	(1) kW	149	165	189	219	245	266	304	334	365
Total sensible capacity	(1) kW	114	128	146	172	195	214	242	259	277
Compressors power input	(1) kW	38,5	39,3	49,4	59,1	69,8	70,0	78,3	91,1	105
Supply fans WSM/AR-MF-CE										
Supply air flow rate	m ³ /h	24000	27000	30600	36500	42200	50000	54000	56000	56000
Available external static pressure	(3) Pa	350	350	350	350	350	350	350	350	350
Total power input	kW	6,79	8,57	11,4	10,2	14,8	16,3	19,7	21,2	21,8
Return/expulsion fans WSM/CE										
Supply air flow rate	m/h	24000	27000	30600	36500	42200	50000	54000	56000	56000
Available external static pressure	(3) Pa	250	250	250	250	250	250	250	250	250
Total power input	kW	4,85	6,11	8,06	7,28	9,85	10,7	12,4	13,4	13,4
Compressors										
No. compressors / No. Circuits	N°	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2
Noise level WSM/AR										
Sound power	(4) dB(A)	88	90	92	92	94	97	97	97	97
Noise level WSM/MF										
Sound power	(4) dB(A)	91	93	96	95	98	98	98	99	98
Noise level WSM/CE										
Sound power	(4) dB(A)	92	94	97	98	101	99	99	99	99
Size WSM/AR										
Length	mm	4265	4265	4265	5565	5565	7430	7430	7430	7430
Width	mm	2250	2250	2250	2250	2250	2250	2250	2250	2250
Height	mm	2380	2380	2380	2380	2380	2380	2380	2380	2380
Operating weight	(5) kg	1886	1964	2216	2674	2751	3457	3739	3853	3912
Size WSM/MF										
Length	mm	5600	5600	5600	7260	7260	9260	9260	9260	9260
Width	mm	2250	2250	2250	2250	2250	2250	2250	2250	2250
Height	mm	2380	2380	2380	2380	2380	2380	2380	2380	2380
Operating weight	(5) kg	2468	2542	2834	3368	3448	4133	4415	4529	4588
Size WSM/CE										
Length	mm	6500	6500	6500	8700	8700	10030	10030	10030	10030
Width	mm	2250	2250	2250	2250	2250	2250	2250	2250	2250
Height	mm	2380	2380	2380	2380	2380	2380	2380	2380	2380
Operating weight	(5) kg	3000	3074	3386	4206	4301	5013	5295	5409	5468

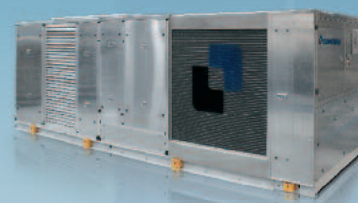
1 Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 0%.

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 3744.

5 Unit in standard configuration/execution, without optional accessories.

**Funzione HR-B**

0484 0524 0604 0704 0804 0904 1004 1104 1204

WSM/HR-B

			0484	0524	0604	0704	0804	0904	1004	1104	1204
Cooling											
Total cooling capacity	(1)	kW	182	202	231	268	299	323	371	409	448
Total sensible capacity	(1)	kW	122	137	157	184	210	230	260	278	296
Heat recovery cooling capacity	(1)	kW	18,5	20,5	23,5	27,2	30,4	32,8	37,7	41,5	45,5
Compressors power input	(1)	kW	40,2	41,1	51,6	61,6	72,6	73,2	81,2	94,5	110
Heating											
Total heating capacity	(2)	kW	165	184	208	247	282	305	348	393	435
Heat recovery heating capacity	(2)	kW	15,5	17,3	19,6	23,2	26,5	28,7	32,8	37,0	40,9
Compressors power input	(2)	kW	30,8	31,6	38,3	45,0	51,8	57,6	63,1	74,6	83,4

WSM-T/HR-B

			0484	0524	0604	0704	0804	0904	1004	1104	1204
Cooling											
Total cooling capacity	(1)	kW	184	204	233	270	301	326	373	410	450
Total sensible capacity	(1)	kW	123	137	158	185	210	231	260	278	296
Heat recovery cooling capacity	(1)	kW	18,7	20,7	23,7	27,4	30,6	33,1	37,9	41,6	45,7
Compressors power input	(1)	kW	39,6	40,4	50,6	60,7	71,8	71,9	80,4	94,0	109

Supply fans

			0484	0524	0604	0704	0804	0904	1004	1104	1204
Supply air flow rate		m³/h	24000	27000	30600	36500	42200	50000	54000	56000	56000
Available external static pressure	(3)	Pa	350	350	350	350	350	350	350	350	350
Total power input		kW	6,79	8,57	11,4	10,2	14,8	16,3	19,7	21,2	21,8

Return/expulsion fans

			0484	0524	0604	0704	0804	0904	1004	1104	1204
Supply air flow rate		m³/h	24000	27000	30600	36500	42200	50000	54000	56000	56000
Available external static pressure	(3)	Pa	250	250	250	250	250	250	250	250	250
Total power input		kW	5,32	6,62	8,65	7,90	10,7	11,6	13,4	15,4	15,4

Compressors

			0484	0524	0604	0704	0804	0904	1004	1104	1204
No. compressors / No. Circuits		N°	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2

Noise level

			0484	0524	0604	0704	0804	0904	1004	1104	1204
Sound power	(4)	dB(A)	92	94	97	98	101	99	99	99	99

Size

			0484	0524	0604	0704	0804	0904	1004	1104	1204
Length		mm	6500	6500	6500	8700	8700	10030	10030	10030	10030
Width		mm	2250	2250	2250	2250	2250	2250	2250	2250	2250
Height		mm	2380	2380	2380	2380	2380	2380	2380	2380	2380
Operating weight	(5)	kg	3120	3207	3524	4370	4465	5165	5447	5578	5637

Funzione HR-P

0484 0524 0604 0704 0804

WSM/HR-P

			0484	0524	0604	0704	0804
Cooling							
Total cooling capacity	(1)	kW	177	196	224	259	290
Total sensible capacity	(1)	kW	118	132	151	179	204
Heat recovery cooling capacity	(1)	kW	15,2	16,9	18,8	21,8	24,7
Compressors power input	(1)	kW	40,1	41,0	51,5	61,4	72,3
Heating							
Total heating capacity	(2)	kW	173	192	218	258	293
Heat recovery heating capacity	(2)	kW	24,7	27,4	30,5	35,5	40,2
Compressors power input	(2)	kW	31,3	32,3	39,1	45,9	52,9

WSM-T/HR

			0484	0524	0604	0704	0804
Cooling							
Total cooling capacity	(1)	kW	178	198	226	262	292
Total sensible capacity	(1)	kW	118	132	151	178	202
Heat recovery cooling capacity	(1)	kW	15,2	16,9	18,8	21,8	24,7
Compressors power input	(1)	kW	39,4	40,3	50,5	60,5	71,6

Supply fans

			0484	0524	0604	0704	0804
Supply air flow rate		m³/h	24000	27000	30600	36500	42200
Available external static pressure	(3)	Pa	250	250	250	250	250
Total power input		kW	9,78	12,60	16,20	14,90	20,7

Return/expulsion fans

			0484	0524	0604	0704	0804
Supply air flow rate		m³/h	24000	27000	30600	36500	42200
Available external static pressure	(3)	Pa	200	200	200	200	200
Total power input		kW	4,86	6,28	8,44	10,67	15,5

Compressors

			0484	0524	0604	0704	0804
No. compressors / No. Circuits		N°	4/2	4/2	4/2	4/2	4/2

Noise level

			0484	0524	0604	0704	0804
Sound power	(4)	dB(A)					

Size

			0484	0524	0604	0704	0804
Length		mm	6500	6500	6800	8100	8100
Width		mm	2250	2250	2250	2250	2250
Height		mm	2380	2380	2380	2380	2380
Operating weight	(5)	kg	3685	3815	4065	4565	4685

1 Cooling: Outdoor 35°C 50% R.H. / Indoor 27°C 47% R.H. / Mix 50%.

2 Heating: Outdoor 7°C 87% R.H. / Indoor 20°C 50% R.H. / Mix 50%.

3 ESP for standard configuration (optional accessories not included/calculated).

4 Sound power on the basis of measurements made in compliance with ISO 3744.

5 Unit in standard configuration/execution, without optional accessories.

“By far the
best Proof
is Experience”

Sir Francis Bacon
British philosopher
(1561 - 1626)

DECATHLON

Centri commerciali

Decathlon Stores

2015 Several stores all over Italy



Project

Decathlon is world leader in the design, production and distribution of sports equipment. The first store was opened in 1976 in France following an idea of Michel Leclercq. Since the beginning, the company presented itself as a one-stop shop for sports enthusiasts, bringing under one roof all that is needed for all sports.

With over 50,000 employees, Decathlon has a total of 550 shops all over the world.

Challenge

The company is strongly committed to sustainability and respect of the environment, which translates in the development of new shops that blend with their surroundings, to bring harmony between nature and sport.

Solution

For the newest stores opening in many Italian cities (Bassano del Grappa, Thiene, Vicenza, Livorno, Salerno, Segrate, Ferrara, Parma, Chioggia) Decathlon has selected Climaveneta rooftop units with an advanced Refrigerant Booster heat recovery system, which in conjunction with the architectural and structural characteristics of the buildings brought energy savings reaching 40%. And indeed the Bassano del Grappa store obtained LEED approval on the basis of the high level of energy savings reached, as well as for its optimum management of waste. The air conditioning system of the store is based on 2 Climaveneta WSM HM rooftop units.

Approvals: LEED Certified

System type: Sistemi aria-aria

Total cooling capacity: 5640 kW

Total heating capacity: 5160 kW

Installed units: WHISPER ENTHALPY, WSM HR, WISDOM R Unità Rooftop

More than 1000 projects all over the world



AUCHAN
2013 Bari
(Italy)

Cooling capacity: 3200 kW

Heating capacity: 2700 kW

Air flow: 330000 m³/h

Installed machines:
8x WHISPER ENTHALPY,
2X WHISPER HALL, 2X WISDOM-R,
1x i-FOCS, 1x i-FX-Q



**OCCASION
SHOPPING CENTRE**
2014 Istanbul
(Turkey)

Application:
Shopping centres

Cooling capacity: 209 kW

Heating capacity: 188 kW

Installed machines:
4x WSM CE 0604



VESTAS
2015 Taranto
(Italy)

Application:
Industrial process

Cooling capacity: 532000 M³/h

Installed machines:
4x WSM HR 1004,
4x WSM HR 0904,
2x WSM HR 1204



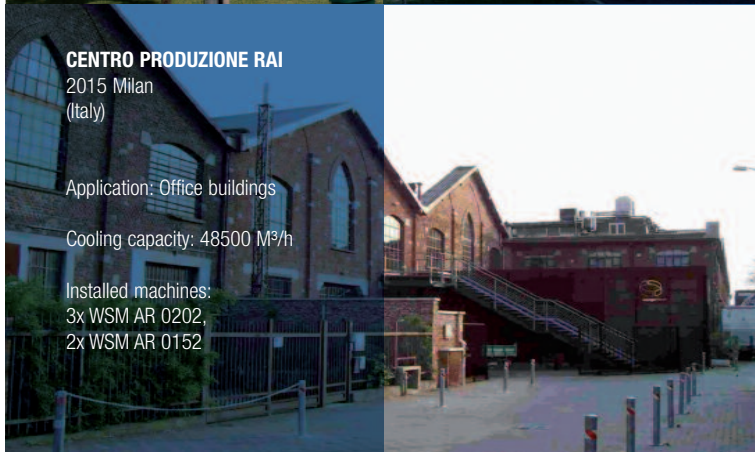
COROPLAST
2014 Hammamet
(Tunisia)

Application:
Industrial process

Cooling capacity: 1040 kW

Heating capacity: 1100 kW

Installed machines:
8x WSM 0402



GENTRO PRODUZIONE RAI
2015 Milan
(Italy)

Application: Office buildings

Cooling capacity: 48500 M³/h

Installed machines:
3x WSM AR 0202,
2x WSM AR 0152

Climaveneta rooftop units, with their unbeatable advantages in terms of efficiency, precision and high quality are already the preferred choice in the most challenging and prestigious projects, all around the world.

COOP

2015 Leghorn
(Italy)

Application:
Supermarkets

Plant type:
Air-to-air system

Installed machines:
10x WISDOM R, 3x WSM



LA CARTIERA

2012 Pompei
(Italy)

Cooling capacity:
3400 kW

Heating capacity:
3100 kW

Installed machines:
12x WHISPER, 8x WORK,
6x WISDOM-R



H&M STORE - ANCONA

2013 Ancona
(Italy)

Application: Shopping centres

Cooling capacity: 236 kW

Heating capacity: 208 kW

Air flow: 36000 M³/ah

Installed machines: 1x WSM/HR 0604



LEAR

2014 Tunisi
(Tunisia)

Application:
Industrial process

Cooling capacity: 300 kW

Heating capacity: 320 kW

Installed machines:
2x WSM 0484



ACCIAIERIE DANIELI

2015 (Egypt)

Application:
Industrial technology

Cooling capacity: 2102 kW
Heating capacity: 380 kW

Installed machines:
8x WSM-T/MF, 3 x WSM/CE,
1 x WSM/MF,
2x WET-RTF/MIX,
1x WISDOM-T/MIX/0122,
6x AW close control units





A Group Company of **mitsubishi electric**

Climaveneta S.p.A.

Via Sarson 57/c
36061 Bassano del Grappa (VI)
Italy
Tel +39 0424 509 500
Fax +39 0424 509 509
info@climaveneta.com
www.climaveneta.com

Subsidiaries

France

www.climaveneta.fr

Spain

www.climaveneta.es

Poland

www.climaveneta.pl

Germany

www.climaveneta.de

Great Britain

www.climaveneta.co.uk

Russia

ru.climaveneta.com

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www.climaveneta.in

Middle East

ae.climaveneta.com

Southeast Asia

www.climaveneta.com

Hong Kong

www.climaveneta.com



For more information:

www.climaveneta.com