

RTX-N1-N8

Roof-Top for applications in medium crowd

Cooling capacity 12,70 ÷ 49,95 kW
Heating capacity 13,50 ÷ 50,79 kW

- For medium crowding applications
- Upgraded thermodynamic heat recovery
- Handling section with plug fan coupled with BRUSHLESS EC motors
- Free-cooling / enthalpic free-cooling / photocatalytic system option



DESCRIPTION

Independent Roof-Top air-cooled air conditioner to treat, filter and re-new air based on the selected configuration. Being fitted to function with 30% external and expelled air (MB4 versions), RTX units are designed for medium density applications like shopping malls, shops, offices and production areas.

Based on the version and accessories selected, the units allow you to manage free-cooling mode and, in the MB4 versions, there is thermodynamic recovery of the energy contained in the expelled air, allowing for higher performance and efficiency.

CONFIGURATIONS

MB1: Single ventilating cross-section for recovery air.

Recovery air only configuration where no fresh air is required.

The useful flow and recovery static pressure is provided by the flow ventilating cross-section.

MB2: Single ventilating cross-section for recovery and external air.

Recovery and external air configuration. The useful flow and recovery static pressure is provided by the flow ventilating cross-section.

The presence of the recirculation damper (optional) allows for total free-cooling (100% external air).

If there are no extraction systems, the room will be in overpressure.

MB4: double ventilating cross-section (flow and expulsion) for recovery air, external air and exhaust air, thermodynamic recovery.

Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the flow and recovery useful static pressure. The exhaust ventilating cross-section only controls the air flow rate to be expelled, with consequent reduction of the installed ventilation power. The double flow and exhaust ventilating cross-section allows for partial free-cooling and has the thermodynamic recovery function.

Advantages of thermodynamic recovery (MB4):

- Energy recovery from the exhaust air flow that would otherwise be lost

- No further components are introduced and, therefore, there are no additional pressure drops
- Cooling circuit functioning with heat sources at more advantageous temperatures
- Reduction of defrosting cycles
- Increase in thermal and cooling efficiency
- Efficiency increase (EER/COP)

FEATURES

- 2 cooling circuits with electronic thermostatic expansion valve;
- High efficiency scroll compressors with low power consumption;
- Finned pack direct expansion internal and external exchangers;
- Plug fan type (EC) flow and exhaust fans (if any). The impellers are facing so as to ensure that the air flows through all the internal components with minimum noise;
- Axial fan unit for extremely silent functioning positioned on the condensing section.
- Filter with 55% COARSE efficiency (according to EN ISO 16890) on the fresh air flow; Also available: compact filter with ePM1 50% efficiency (according to EN ISO 16890). Positioning upstream of the components to be protected to ensure low pressure drops, having a large surface. Air quality control systems are also available (VOC and CO_{2 probe});
- The structure consists of a galvanised sheet metal base, frame in galvanised sheet metal shaped profiles powder coated in RAL9003 (self-bearing structure), pre-painted sheet metal panels (external) insulated with 28kg/mc dense adhesive insulation and sandwich type panels insulated with 25 mm thick 45kg/mc polyurethane, eco-friendly "GWP 0" (Global Warming Potential);
- The casing, designed to allow the internal components to be accessed for routine and extraordinary maintenance.

CONTROL

Microprocessor control able to manage the different functioning modes, ensuring maximum energy savings in any conditions of use. Interfaces to connect to remote supervision and control systems available as options.

FUNCTIONALITY AND TECHNOLOGICAL ADVANTAGES

RTX units are designed with the aim of reducing the energy consumption that subsequently dictated the technological choices made on the unit we will now introduce in brief.

Very high ventilation efficiency

As ventilation is one of the major power consumption factors, we dedicated particular attention to designing and constructing the ventilation system.

State-of-the-art plug fans with EC brushless motors have been used both in flow and in recovery (if any), which enable high performance and reduced consumption. Furthermore, compared to conventional centrifugal fans, they have no belts or pulleys, thus facilitating flow rate adjustment and resulting in compactness, versatility and easy maintenance.

Special adaptive logic allows you to adjust the air flow rate to actual system demand with further resulting advantages in terms of consumption reduction.

Axial fans for the external section of the unit are helical. Electronic condensation control is available as an accessory, which regulates fan speed based on the load required, allowing for noise reduction. As an option, the motors can have electronic control (EC) to reduce consumption even in the condensing part.

Room air quality

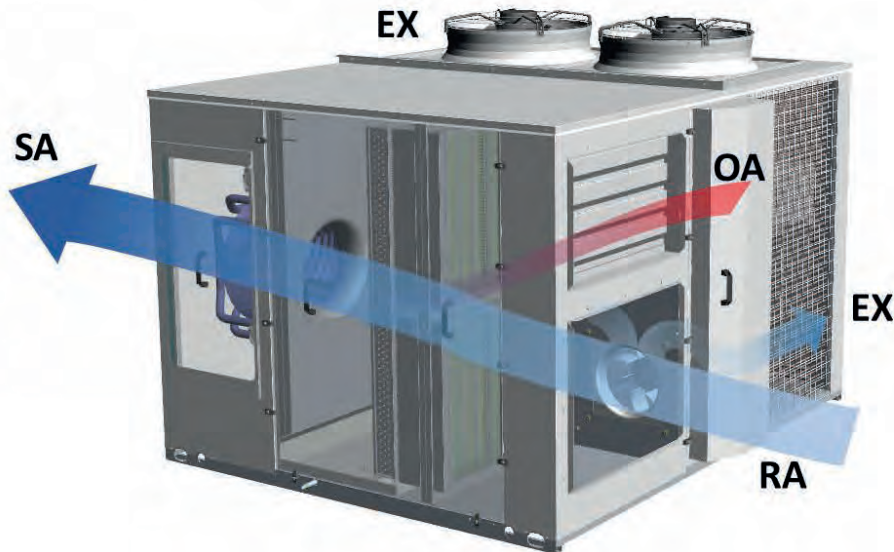
Special attention was paid to the quality of the room air, entrusted to the standard 55% COARSE efficiency filters. F7 filters are also available as optional.

Active thermodynamic recovery

In the MB4 configurations, the units have a thermodynamic recovery function to recover the energy contained in the exhaust air, causing the expelled air flow to hit the external finned pack exchanger, allowing for higher performance and efficiency.

All of these technological advantages are controlled by a thermoregulation that is able to manage the different functioning modes, ensuring maximum energy savings in all conditions of use via dedicated software.

MB4 CONFIGURATION WITH DOUBLE VENTILATING SECTION FOR RETURN AIR, EXTERNAL AIR AND EXPELLED AIR. STANDARD FREE-COOLING AND THERMODYNAMIC HEAT RECOVERY FUNCTION



SA Supply air
EX Exhaust air
OA Fresh air
RA Return air

ACCESSORIES

AXEC: Axial fans with EC motors with speed control function according to the pressure of condensation and evaporation.

AXECP: EC axial fans with available useful static pressure.

BAC: Interface card BACnet MS/TP pConet.

BE: Electric heating coil 2 stages.

BIP: Interface card Ethernet-pCOWeb (BACNET IP)

BPGC: After heating coil with hot gas.

BW: 2-rows-heating coil with hot water.

BWV2V: 2 -rows -heating coil with hot water, with 2-way modulating valve.

BWV3V: 2-rows heating coil with hot water, with 3-way modulating valve.

CA: Waterproof covers on external air intake.

DP: Dehumidification control (humidity probe in recovery) and of after-heating (if present).

FCT: Partial Temperature Free-Cooling for MB2, MB4 versions.

FT7: F7 efficiency pocket filters positioned on the supply air flow.

GP: External coil protection grid.

LW: Interface card LonWorks.

PRT1: Wall/recessed (up to 50 m) remote control panel.

PRT2: Wall/recessed (up to 200 m) remote control panel.

PSF4: Differential pressure switch signalling dirty recovery and renewal filters (if any).

PSTEP: Adjusting constant flow, step flow in function of the modulation of the cooling circuit.

RFC: Smoke detector and damper management.

RS: Serial card BMS RS485.

SCM: Modulating servo-controls (standard on MB3 model or if temperature or enthalpic free-cooling is present).

SCMRM: Modulating Servo-control with spring return.

SCO2: Probe CO2 (not available on MB1 fittings).

STA: Room temperature probe

SUA: Room humidity probe.

SVOC: Probe VOC (not available on MB1 fittings).

VT: Antivibration mounts.

PERFORMANCE SPECIFICATIONS

Size		N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1									
Cooling performances (1)									
Cooling capacity	kW	12,70	15,50	19,10	22,20	28,60	33,00	43,00	47,00
Sensible cooling capacity	kW	8,60	10,40	12,80	14,80	19,00	22,40	28,80	32,10
Compressors absorbed power	kW	3,30	4,20	5,00	6,00	7,20	8,70	11,40	12,50
EER compressors		3,87	3,71	3,82	3,69	3,98	3,79	3,75	3,75
Heating performances (2)									
Heating capacity	kW	13,50	16,10	19,90	23,00	29,60	34,00	44,70	48,50
Compressors absorbed power	kW	3,07	3,65	4,28	5,15	6,23	6,86	9,43	10,02
Compressor COP		4,40	4,41	4,64	4,47	4,75	4,96	4,74	4,84

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Size		N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB2									
Cooling performances (1)									
Cooling capacity	kW	13,42	16,34	20,16	23,35	30,21	34,79	45,26	49,44
Sensible cooling capacity	kW	8,92	10,86	13,40	15,40	19,70	23,40	30,00	33,50
Compressors absorbed power	kW	3,33	4,22	5,04	6,07	7,29	8,85	11,65	12,74
EER compressors		4,03	3,87	4,00	3,85	4,14	3,93	3,88	3,88
Heating performances (2)									
Heating capacity	kW	13,65	16,24	20,02	23,18	29,87	34,22	45,17	48,94
Compressors absorbed power	kW	2,77	3,31	3,86	4,65	5,62	6,15	8,58	9,22
Compressor COP		4,92	4,91	5,18	4,99	5,32	5,57	5,26	5,31

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

Size		N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB4									
Cooling performances (1)									
Cooling capacity	kW	13,49	16,49	20,33	23,58	30,45	35,16	45,65	49,95
Sensible cooling capacity	kW	8,93	10,91	13,40	15,50	19,80	23,50	30,20	33,60
Compressors absorbed power	kW	3,27	4,12	4,92	5,90	7,13	8,59	11,39	12,43
EER compressors		4,13	4,00	4,13	4,00	4,27	4,10	4,01	4,02
Heating performances (2)									
Heating capacity	kW	14,00	16,81	20,69	24,05	30,77	35,50	46,63	50,79
Compressors absorbed power	kW	2,81	3,36	3,92	4,73	5,71	6,27	8,74	9,38
Compressor COP		4,98	5,00	5,28	5,08	5,39	5,67	5,33	5,41

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

ENERGY INDEX

Size			N1	N2	N3	N4	N5	N6	N7	N8
Energy index										
SEER	H	W/W	3,73	3,60	3,76	3,70	3,86	3,86	3,80	3,77
η _{sc}	H	%	146.1%	141.2%	147.5%	144.8%	151.5%	151.5%	148.8%	147.8%
P _{designh}	H	kW	7	9	11	13	16	19	25	26
SCOP	H		3,47	3,34	3,46	3,36	3,29	3,50	3,47	3,44
η _{sh}	H	%	135.6%	130.5%	135.4%	131.2%	128.7%	137.1%	135.7%	134.4%

GENERAL TECHNICAL DATA

Size		N1	N2	N3	N4	N5	N6	N7	N8
Power supply									
Power supply		400V~3N 50Hz	400V~3N 50Hz	400V~3N 50Hz	400V~3N 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz
Compressor									
Type	type	Scroll							
Number	no.	2	2	2	2	2	2	2	2
Circuits	no.	2	2	2	2	2	2	2	2
Refrigerant	type	R410A							
Sound data									
Sound power level	dB(A)	73,3	73,7	76,4	76,3	81,2	79,7	82,8	82,9
Sound pressure (1)	dB(A)	65,3	65,8	68,5	68,3	73,2	71,7	74,8	74,9

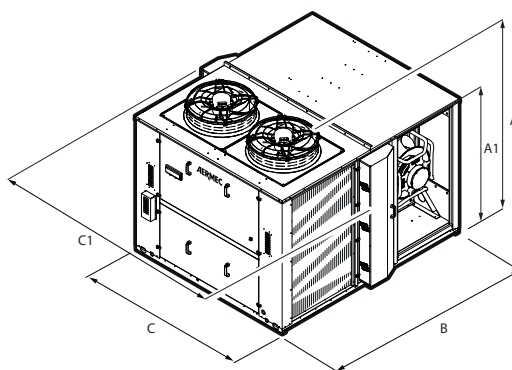
(1) MB1 configuration sound pressure measured in free field (Q=2), 1m away from the outer surface of the ducted unit, high static pressure 50 Pa (EN ISO 9614-2).. 3 dB(A) tolerance on sound power level (Eurovent 8/1).

FANS

Size			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1, MB2, MB4										
External fans										
Type	H	type	axials	axials	axials	axials	axials	axials	axials	axials
Number	H	no.	2	2	2	2	2	2	2	2
Size			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1, MB2, MB4										
Internal fans										
Nominal air flow rate	H	m³/h	2000	2800	3500	4000	5000	6500	8000	9500
Minimum air flow rate	H	m³/h	1800	1800	2700	2700	4000	4000	6500	6500
Maximum air flow rate	H	m³/h	2900	2900	4100	4100	6900	6900	10100	10100
Size			09	10	11	12	13	14	15	16
Configuration: MBT										
Exhaust										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	1	1	1	2	2	2	2	2
Size			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1, MB2										
Delivery										
Type	H	type	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC	Brushless EC
Number	H	no.	1	1	1	1	1	1	1	1
Maximum useful head (1)	H	Pa	755	575	460	555	435	460	575	765
High static pressure (EN14511) (1)	H	Pa	100	100	124	124	124	150	150	200
Configuration: MB4										
Delivery										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	1	1	1	1	1	1	1	1
Maximum useful head (1)	H	Pa	755	575	460	555	435	460	575	765
High static pressure (EN14511) (1)	H	Pa	100	100	124	124	124	150	150	200

(1) At the nominal/maximum flow rate with a new, clean air filter.

DIMENSIONS



Size			N1	N2	N3	N4	N5	N6	N7	N8
Configuration: MB1										
Dimensions and weights										
A	H	mm	1170	1170	1470	1470	1610	1610	1710	1710
A1	H	mm	910	910	1210	1210	1410	1410	1510	1510
B	H	mm	1460	1460	1460	1460	1860	1860	2310	2310
C	H	mm	1560	1560	1560	1560	1910	1910	1910	1910
C1	H	mm	-	-	-	-	-	-	-	-
Empty weight	H	kg	335	335	405	405	594	594	745	745
Configuration: MB2										
Dimensions and weights										
A	H	mm	1170	1170	1470	1470	1610	1610	1710	1710
A1	H	mm	910	910	1210	1210	1410	1410	1510	1510
B	H	mm	1460	1460	1460	1460	1860	1860	2310	2310
C	H	mm	1560	1560	1560	1560	1910	1910	1910	1910
C1	H	mm	-	-	-	-	-	-	-	-
Empty weight	H	kg	335	335	405	405	594	594	745	745
Configuration: MB4										
Dimensions and weights										
A	H	mm	1170	1170	1470	1470	1610	1610	1710	1710
A1	H	mm	910	910	1210	1210	1410	1410	1510	1510
B	H	mm	1460	1460	1460	1460	1860	1860	2310	2310
C	H	mm	-	-	-	-	-	-	-	-
C1	H	mm	1850	1850	1850	1850	2200	2200	2200	2200
Empty weight	H	kg	345	345	429	429	619	619	775	775

Aermec reserves the right to make any modifications deemed necessary.
All data is subject to change without notice. Aermec does not assume
responsibility or liability for errors or omissions.

Aermec S.p.A.
Via Roma, 996 - 37040 Bevilacqua (VR) - Italia
Tel. 0442633111 - Telefax 044293577
www.aermec.com

RTX 09-16

Roof-Top for applications in medium crowd

Cooling capacity 50 ÷ 135 kW
Heating capacity 49 ÷ 141 kW

- For medium crowding applications
- Upgraded thermodynamic heat recovery
- Handling section with plug fan coupled with BRUSHLESS EC motors
- Free-cooling / enthalpic free-cooling / photocatalytic system option



DESCRIPTION

Independent Roof-top type air cooled air conditioner, for treatment, filtration and renewal of the air, based on the chosen configuration. RTX 09-16 units are designed for medium crowding applications, like shopping malls, shops, offices, production areas being designed for operation with 30% external and expelled air (version MB3).

The unit based on the version and selected accessories allows the management of the free-cooling operation, and can be equipped with a recuperator to recover the energy contained in the exhaust air allowing higher performances and efficiencies.

VERSIONS

- F Cooling only
- H Heat pump.

FEATURES

Refrigerant circuit

functioning with R410A refrigerant, consisting of scroll compressors in "uneven" tandem configuration (except for sizes 09, 10 and 14) to ensure maximum energy savings at partial loads and better adaptability to system demands, providing only the energy actually needed. The compressors are equipped with electric resistances on the guards and thermal protection on the exhaust. The compressor compartment is isolated from the air flow.

Ventilation

The air treatment cross-section ventilation, which represents the highest expense in terms of machine operating costs, is entrusted to the plug fans with EC brushless motors which enable high performance, easy flow rate adjustment, compactness, low noise, versatility and easy maintenance. Furthermore, a special adaptive logic allows you to adjust the air flow rate to actual system demand with further advantages in terms of consumption reduction.

Axial fans

The axial fans, located in the condensing section of the unit, are the helical type, statically and dynamically balanced, protected electrically and mechanically by grids.

Electronic condensation control is optional in F versions and condensation and evaporation during winter functioning in H versions. The fans are also available with electronically controlled (EC) permanent magnet synchronous motor.

Exchangers

The internal and external heat exchangers are finned pack direct expansion, made with copper pipes arranged in staggered rows and mechanically expanded to better adhere to the collar of the louvers. The louvers are made of aluminium with a special corrugated surfaces, suitably spaced to ensure maximum heat exchange yield.

Air filtration

Entrusted to a filter with 55% Coarse efficiency (according to EN ISO 16890) on the fresh air flow.

Also available: compact filter with ePM1 50% efficiency or ePM1 80% efficiency (according to EN ISO 16890) and electronic filter on fresh air flow. Positioning upstream of the components to be protected to ensure low pressure drops, having a large surface. Air quality control systems are also available (VOC and CO2 probe).

Cleaning system with photocatalytic lamp

The Photocatalytic Oxidation technology generates natural oxidising ions capable of attracting and destroying the pollutants present in the air and on surfaces, by means of the combined action of UV rays with a catalyst structure composed of a four-metal alloy, mainly consisting of TiO₂ (titanium dioxide).

Thermoregulation

Electronic controller able to manage the different functioning modes, ensuring maximum energy savings in all conditions of use by means of special software. Interfaces to connect to remote supervision and control systems available as options. The electrical panel complete with all devices is easily accessible.

The free-cooling/heating and defrosting logics are particularly sophisticated. As soon as the external conditions allow it, the unit is able to automatically activate the free-cooling or free-heating mode, which cools or heats the served room, while keeping the compressors off and introducing suitably treated external air. This mode significantly reduces

es both energy consumption and wear of the compressors. These functions are also used when the external air energy content is not enough

CONFIGURATIONS

MB1: Single ventilating cross-section for recovery air.

Recovery air only configuration where no fresh air is required. The useful flow and recovery static pressure is provided by the flow ventilating cross-section.

MB2: Single ventilating cross-section for recovery and external air.

Recovery and external air configuration. The useful flow and recovery static pressure is provided by the flow ventilating cross-section. The presence of the recirculation damper (optional) allows for total free-cooling (100% external air). If there are no extraction systems, the room will be in overpressure.

MB3: double ventilating cross-section (flow and return) for recovery air, external air and exhaust air, thermodynamic recovery.

Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the useful flow static pressure while the recovery ventilating cross-section provides the useful recovery static pressure. The double flow and recovery ventilating cross-section allows for total freecooling (100% external air) without the need for a dedicated extraction system. The room overpressure or depression can be obtained by unbalancing the flow rates.

to cool or heat the room. In this case, the thermal cooling capacity is integrated by the compressors.

Thermodynamic recovery is performed by conveying expelled air on the external heat exchanger.

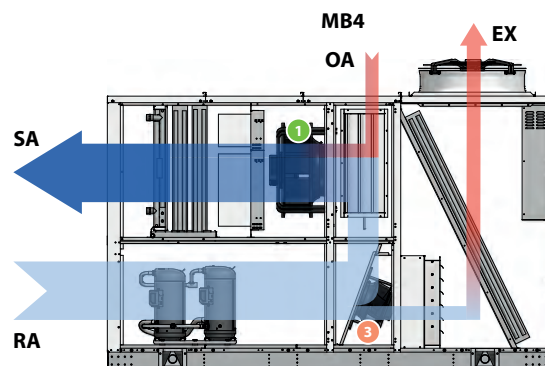
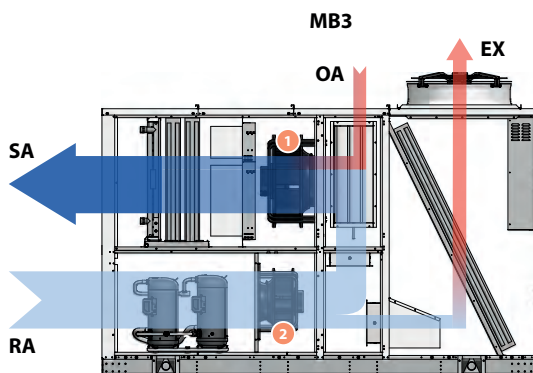
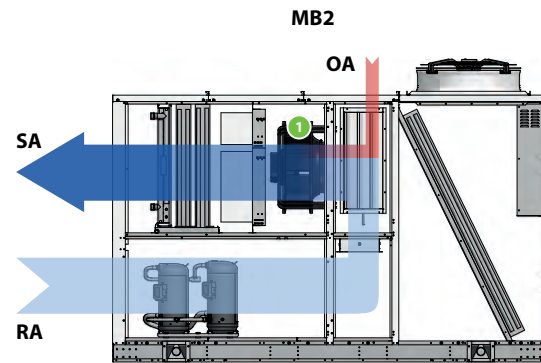
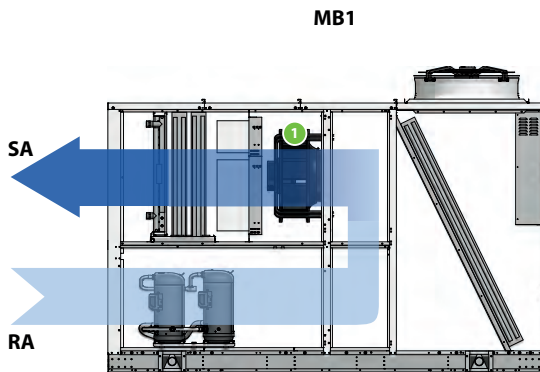
MB4: double ventilating cross-section (flow and expulsion) for recovery air, external air and exhaust air, thermodynamic recovery.

Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the flow and recovery useful static pressure. The exhaust ventilating cross-section only controls the air flow rate to be expelled, with consequent reduction of the installed ventilation power. The double flow and exhaust ventilating cross-section allows for partial free-cooling.

As for the MB3 version, it has the thermodynamic recovery function.

Advantages of thermodynamic recovery (MB3 - MB4 version):

- Energy recovery from the exhaust air flow that would otherwise be lost
- No further components are introduced and, therefore, there are no additional pressure drops
- Cooling circuit functioning with heat sources at more advantageous temperatures
- Reduction of defrosting cycles
- Increase in thermal and cooling efficiency
- Efficiency increase (EER/COP)



SA supply air
RA fresh air
OA fresh air
EX Exhaust air

1 Delivery fan
2 Return fan
3 Expulsion fan

MBT: DOUBLE VENTILATING CROSS-SECTION (FLOW AND EXPULSION) FOR RECOVERY AIR, EXTERNAL AIR AND EXHAUST AIR, UPGRADED THERMODYNAMIC RECOVERY.

Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the flow and recovery useful static pressure. The exhaust ventilating cross-section only controls the air flow rate to be expelled, with consequent reduction of the installed ventilation power.

The double flow and exhaust ventilating cross-section allows for partial free-cooling.

The MBT configuration allows for the upgraded thermodynamic recovery on the exhaust air by fully exploiting the energy content still present in it.

The exhaust flow rate, controlled by the dedicated exhaust fan, is conveyed to the innovative finned pack recovery coil, integrated in the cooling circuit of the unit.

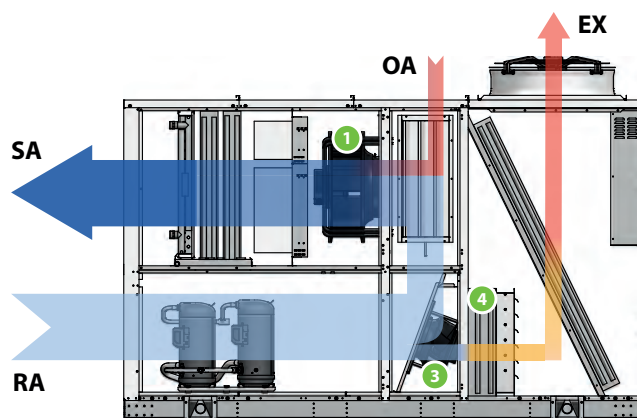
The coil, perfectly hit by the air flow, recovers the energy still present in the exhaust flow and transfer it to the cooling circuit, increasing the treatment coil performance without increasing the input power of the compressors.

In summer functioning, the coil makes it possible to increase the liquid subcooling, while in winter functioning, the coil takes on part of

the evaporation by operating the cooling circuit at more advantageous temperatures.

Advantages of upgraded thermodynamic recovery (MBT version):

- High heat exchange efficiency thanks to the dedicated recovery coil
- Further increase in unit cooling and heating capacity
- Further increase in unit efficiency (EER/COP)
- Reduced additional air side pressure drops (expelled air side only)
- The unit remains compact
- In heating functioning, the defrost cycles are further reduced due to the increase in evaporation temperature. The result is an increase in efficiency and greater room comfort.
- Compared to traditional passive recuperators, in heating functioning it allows for exhaust air recovery even with low temperature difference between external and indoor air (mild winters)
- Compared to traditional passive recuperators, in cooling functioning it allows for exhaust air recovery even with low temperature difference between external and indoor air (continental and temperate climate)
- The presence of the dedicated coil determines the recovery efficiency that can be used in the energy certification calculations.



SA supply air
RA fresh air
OA fresh air
EX Exhaust air

- 1 Delivery fan
- 2 Return fan
- 3 Expulsion fan
- 4 Dedicated thermodynamic recovery coil

ACCESSORIES

AXEC: Axial fans with EC motors with speed control function according to the pressure of condensation and evaporation.

AXECP: EC axial fans with available useful static pressure.

BAC: Interface card BACnet MS/TP pConet.

BE: Electric heating coil 2 stages.

BEM: Modulating electric heating coil.

BIP: Interface card Ethernet-pCOWeb (BACNET IP)

BPGC: After heating coil with hot gas.

BW: 2-rows-heating coil with hot water.

BWV2V: 2 -rows -heating coil with hot water, with 2-way modulating valve.

BWV3V: 2-rows heating coil with hot water, with 3-way modulating valve.

CA: Waterproof covers on external air intake.

CF: Flue, only on unit with gas burner module.

CUR: Humidification control (humidity probe in recovery, limit humidity probe in supply, contact ON/OFF and modulating analog output).

DCPR: AC fans with pressure switch device of speed control function of the pressure of condensation and evaporation.

DP: Dehumidification control (humidity probe in recovery) and of after-heating (if present).

FCT: Partial Temperature Free-Cooling for MB2, MB4 versions.

FT7: F7 efficiency pocket filters positioned on the supply air flow.

FT9: Pocket filters F9 efficiency placed on the flow of supply air.

FTE: Electronic filters placed on the flow of supply air.

FTH: Enthalpy free-cooling.

GP: External coil protection grid.

Gx: Heating module with gas burner.

LFX: Device with photocatalytic effect.

LW: Interface card LonWorks.

MAN: High and low pressure gauges.

MSSM: Flow silencer module, only for rear flow.

MSSR: Recovery silencer module, only for rear air recovery.

PRT1: Wall/recessed (up to 50 m) remote control panel.

PRT2: Wall/recessed (up to 200 m) remote control panel.

PSFT: Differential pressure switch signalling dirty filters.

PSSTEP: Adjusting constant flow, step flow in function of the modulation of the cooling circuit.

RF: Smoke detector.

RFC: Smoke detector and damper management.

RS: Serial card BMS RS485.

SCM: Modulating servo-controls (standard on MB3 model or if temperature or enthalpic free-cooling is present).

SCMRM: Modulating Servo-control with spring return.

SCO2: Probe CO2 (not available on MB1 fittings).

STA: Room temperature probe

SUA: Room humidity probe.

SVOC: Probe VOC (not available on MB1 fittings).

UP: Manufacturer of immersed electrodes supplied and steam ramp installed.

VT: Antivibration mounts.

PERFORMANCE SPECIFICATIONS

MB1

Size		09	10	11	12	13	14	15	16
Configuration: MB1									
Cooling performances (1)									
Cooling capacity	kW	50,00	60,10	68,60	81,00	93,40	103,50	114,00	125,30
Sensible cooling capacity	kW	40,10	46,10	52,70	63,20	70,90	81,80	89,30	97,10
Compressors absorbed power	kW	11,90	14,40	18,80	17,90	23,10	25,60	30,50	35,50
EER compressors		4,20	4,17	3,65	4,53	4,04	4,04	3,74	3,53
Heating performances (2)									
Heating capacity	kW	49,40	61,10	69,30	80,60	93,70	102,20	113,70	126,60
Compressors absorbed power	kW	9,80	12,20	15,50	15,70	20,60	21,00	24,40	28,40
Compressor COP		5,04	5,01	4,47	5,13	4,55	4,87	4,66	4,46

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

MB2

Size		09	10	11	12	13	14	15	16
Configuration: MB2									
Cooling performances (1)									
Cooling capacity	kW	52,90	63,30	72,30	85,30	98,40	108,80	120,10	131,60
Sensible cooling capacity	kW	42,70	48,80	55,90	67,10	75,00	86,70	94,80	102,80
Compressors absorbed power	kW	12,10	14,60	19,00	18,10	23,30	25,90	30,90	35,90
EER compressors		4,37	4,34	3,81	4,71	4,22	4,20	3,89	3,67
Heating performances (2)									
Heating capacity	kW	50,50	61,90	70,60	82,20	94,90	103,60	115,30	128,10
Compressors absorbed power	kW	9,00	11,20	14,10	14,30	18,90	19,20	22,50	26,00
Compressor COP		5,61	5,53	5,01	5,75	5,02	5,40	5,12	4,93

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

MB3

Size		09	10	11	12	13	14	15	16
Configuration: MB3									
Cooling performances (1)									
Cooling capacity	kW	53,40	63,70	73,10	86,10	99,30	110,00	121,30	133,30
Sensible cooling capacity	kW	43,00	48,90	56,20	67,40	75,30	87,00	95,10	103,20
Compressors absorbed power	kW	11,80	14,20	18,50	17,70	22,80	25,10	30,10	34,80
EER compressors		4,53	4,49	3,95	4,86	4,36	4,38	4,03	3,83
Heating performances (2)									
Heating capacity	kW	52,10	64,10	74,10	85,00	98,60	107,80	120,60	134,30
Compressors absorbed power	kW	9,20	11,40	14,40	14,60	19,10	19,40	22,90	26,70
Compressor COP		5,66	5,62	5,15	5,82	5,16	5,56	5,27	5,03

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

MB4

Size		09	10	11	12	13	14	15	16
Configuration: MB4									
Cooling performances (1)									
Cooling capacity	kW	53,40	63,70	73,10	86,10	99,30	110,00	121,30	133,30
Sensible cooling capacity	kW	43,00	48,90	56,20	67,40	75,30	87,00	95,10	103,20
Compressors absorbed power	kW	11,80	14,20	18,50	17,70	22,80	25,10	30,10	34,80
EER compressors		4,53	4,49	3,95	4,86	4,36	4,38	4,03	3,83
Heating performances (2)									
Heating capacity	kW	52,10	64,10	74,10	85,00	98,60	107,80	120,60	134,30
Compressors absorbed power	kW	9,20	11,40	14,40	14,60	19,10	19,40	22,90	26,70
Compressor COP		5,66	5,62	5,15	5,82	5,16	5,56	5,27	5,03

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

MBT

Size		09	10	11	12	13	14	15	16
Configuration: MBT									
Cooling performances (1)									
Cooling capacity	kW	57,10	67,80	78,00	90,50	103,70	116,90	128,80	140,60
Sensible cooling capacity	kW	46,60	53,00	61,20	71,90	79,70	94,00	102,60	110,60
Compressors absorbed power	kW	11,80	14,20	18,50	17,70	22,80	25,10	30,10	34,80
EER compressors		4,84	4,77	4,22	5,11	4,55	4,66	4,28	4,04
Heating performances (2)									
Heating capacity	kW	55,40	68,00	78,30	90,10	103,60	114,40	127,50	141,40
Compressors absorbed power	kW	9,20	11,40	14,40	14,60	19,10	19,40	22,90	26,70
Compressor COP		6,02	5,96	5,44	6,17	5,42	5,90	5,57	5,30
Recovery efficiency	%	84%	92%	87%	90%	85%	85%	82%	78%

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

ENERGY INDEX

Size			09	10	11	12	13	14	15	16
Energy index										
SEER	H	W/W	4,24	3,94	3,76	3,92	3,89	4,22	4,10	4,05
η _{sc}	H	%	166.6%	154.5%	147.2%	153.9%	152.7%	165.7%	161.1%	159.1%
P _{designh}	H	kW	29	34	38	46	52	57	62	71
SCOP	H		3,59	3,50	3,30	3,27	3,22	3,47	3,41	3,38
η _{sh}	H	%	140.5%	137.0%	128.8%	127.7%	126.0%	135.9%	133.5%	132.3%

GENERAL TECHNICAL DATA

Size			09	10	11	12	13	14	15	16
Power supply										
Power supply	H		400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz
Compressor										
Type	H	type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number	H	no.	2	2	2	2	2	2	2	2
Circuits	H	no.	1	1	1	1	1	1	1	1
Refrigerant	H	type	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Partialisation step	H	no.	2	2	3	3	3	2	3	3

FANS**External fans**

Size			09	10	11	12	13	14	15	16
Configuration: MB1, MB2, MB3, MB4, MBT										
External fans										
Type	H	type	Assiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali AC
Number	H	no.	2	2	2	2	2	2	2	2

Internal fans MB1-MB2-MB3-MB4-MBT

Size			09	10	11	12	13	14	15	16
Configuration: MB1, MB2, MB3, MB4, MBT										
Internal fans										
Nominal air flow rate	H	m³/h	9500	11000	13000	15000	17000	20000	22000	24000
Minimum air flow rate	H	m³/h	6650	7700	9100	10850	12600	14000	15400	16800
Maximum air flow rate	H	m³/h	9500	11000	13000	15500	18000	20000	22000	24000

Internal recovery fans

Size			09	10	11	12	13	14	15	16
Configuration: MB3										
Recovery										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	1	1	1	2	2	2	2	2

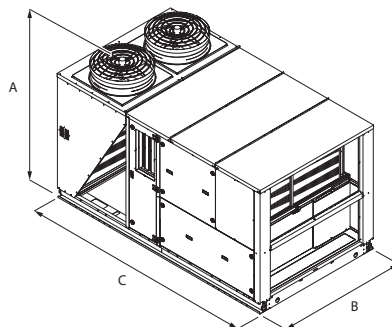
Expulsion fan MB4-MBT

Size			09	10	11	12	13	14	15	16
Configuration: MBT										
Exhaust										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	1	1	1	2	2	2	2	2

Internal flow fans

Size			09	10	11	12	13	14	15	16
Configuration: MB1, MB2, MB3, MB4, MBT										
Delivery										
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	1	1	1	2	2	2	2	2
Maximum useful head (1)	H	Pa	770	510	445	555	740	640	525	675
High static pressure (EN14511) (1)	H	Pa	200	200	200	200	250	250	250	300

(1) At the nominal/maximum flow rate with a new, clean air filter.

DIMENSIONS

Size			09	10	11	12	13	14	15	16
Dimensions and weights										
A	H	mm	2061	2061	2061	2373	2373	2440	2440	2440
B	H	mm	1900	1900	1900	2100	2100	2200	2200	2200
C	H	mm	3400	3400	3400	3400	3400	4000	4000	4000

Aermec reserves the right to make any modifications deemed necessary.
All data is subject to change without notice. Aermec does not assume
responsibility or liability for errors or omissions.

Aermec S.p.A.

Via Roma, 996 - 37040 Bevilacqua (VR) - Italia
Tel. 0442633111 - Telefax 044293577
www.aermec.com

RTX-17-23

Roof-Top for applications in medium crowd

Cooling capacity 151 ÷ 307 kW
Heating capacity 152 ÷ 310 kW

- For medium crowding applications
- Thermodynamic heat recovery
- Handling section with plug fan coupled with BRUSHLESS EC motors
- Free cooling / Enthalpy free cooling



DESCRIPTION

Independent Roof-top type air cooled air conditioner, for treatment, filtration and renewal of the air, based on the chosen configuration. The RTX 09-16 units are designed for installation in places with an average degree of crowding such as shopping centres, shops, offices and production sites, as operation uses 30% outside expelled air (versions MB3 and MB4).

CONFIGURATIONS

MB1: Single ventilating cross-section for recovery air.

Recovery air only configuration where no fresh air is required. The useful flow and recovery static pressure is provided by the flow ventilating cross-section.

MB2: Single ventilating cross-section for recovery and external air.

Recovery and external air configuration. The useful flow and recovery static pressure is provided by the flow ventilating cross-section. The presence of the recirculation damper (optional) allows for total free-cooling (100% external air). If there are no extraction systems, the room will be in overpressure.

MB3: double ventilating cross-section (flow and return) for recovery air, external air and exhaust air, thermodynamic recovery.

Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the useful flow static pressure while the recovery ventilating cross-section provides the useful recovery static pressure. The double flow and recovery ventilating cross-section allows for total freecooling (100% external air) without the need for a dedicated extraction system. The room overpressure or depression can be obtained by unbalancing the flow rates. Thermodynamic recovery is performed by conveying expelled air on the external heat exchanger.

MB4: double ventilating cross-section (flow and expulsion) for recovery air, external air and exhaust air, thermodynamic recovery.

Depending on the version and the accessories chosen, the unit can manage free cooling mode. Versions MB3 and MB4 feature the thermodynamic recovery of the energy contained in the exhaust air, leading to higher performance and efficiency levels.

VERSIONS

- F** Cooling only
- H** Heat pump.

Recovery, external and exhaust air configuration. The flow ventilating cross-section provides the flow and recovery useful static pressure. The exhaust ventilating cross-section only controls the air flow rate to be expelled, with consequent reduction of the installed ventilation power. The double flow and exhaust ventilating cross-section allows for partial free-cooling.

As for the MB3 version, it has the thermodynamic recovery function.

Advantages of thermodynamic recovery (MB3 - MB4 version):

- Energy recovery from the exhaust air flow that would otherwise be lost
- No further components are introduced and, therefore, there are no additional pressure drops
- Cooling circuit functioning with heat sources at more advantageous temperatures
- Reduction of defrosting cycles
- Increase in thermal and cooling efficiency
- Efficiency increase (EER/COP)

FEATURES

- 2 cooling circuits with electronic thermostatic expansion valve;
- Scroll compressors (UNEVEN tandem) with high capacity and low electrical power consumption;
- Finned pack direct expansion internal and external exchangers;
- Plug fan type (EC) flow and exhaust fans (if any). The impellers are facing so as to ensure that the air flows through all the internal components with minimum noise;

- Axial fan unit for extremely silent functioning positioned on the condensing section.
- Filter with 55% COARSE efficiency (according to EN ISO 16890) on the fresh air flow; Also available: compact filter with ePM1 50% efficiency (according to EN ISO 16890). Positioning upstream of the components to be protected to ensure low pressure drops, having a large surface. Air quality control systems are also available (VOC and CO₂ probe);
- The structure consists of a galvanised sheet metal base, frame in galvanised sheet metal shaped profiles powder coated in RAL9003 (self-bearing structure), pre-painted sheet metal panels (external) insulated with 28kg/mc dense adhesive insulation and sandwich type panels insulated with 25 mm thick 45kg/mc polyurethane, eco-friendly "GWP 0" (Global Warming Potential);
- The casing, designed to allow the internal components to be accessed for routine and extraordinary maintenance.

CONTROL

Microprocessor control able to manage the different functioning modes, ensuring maximum energy savings in any conditions of use. Interfaces to connect to remote supervision and control systems available as options.

FUNCTIONALITY AND TECHNOLOGICAL ADVANTAGES

RTX units are designed with the aim of reducing the energy consumption that subsequently dictated the technological choices made on the unit we will now introduce in brief.

Very high ventilation efficiency

As ventilation is one of the major power consumption factors, we dedicated particular attention to designing and constructing the ventilation system.

State-of-the-art plug fans with EC brushless motors have been used both in flow and in recovery (if any), which enable high performance

and reduced consumption. Furthermore, compared to conventional centrifugal fans, they have no belts or pulleys, thus facilitating flow rate adjustment and resulting in compactness, versatility and easy maintenance.

Special adaptive logic allows you to adjust the air flow rate to actual system demand with further resulting advantages in terms of consumption reduction.

Axial fans for the external section of the unit are helical. Electronic condensation control is available as an accessory, which regulates fan speed based on the load required, allowing for noise reduction.

As an option, the motors can have electronic control (EC) to reduce consumption even in the condensing part.

Maximum seasonal efficiency

To improve the efficiency of the cooling circuit, tandem scroll compressors of different power levels are used (UNEVEN compressors on all sizes). This distinctive trait, combined with the use of next generation fans, means reduced consumption and enhanced adaptability to system requests (particularly in partial load operation), guaranteeing boosted seasonal efficiency levels.

Room air quality

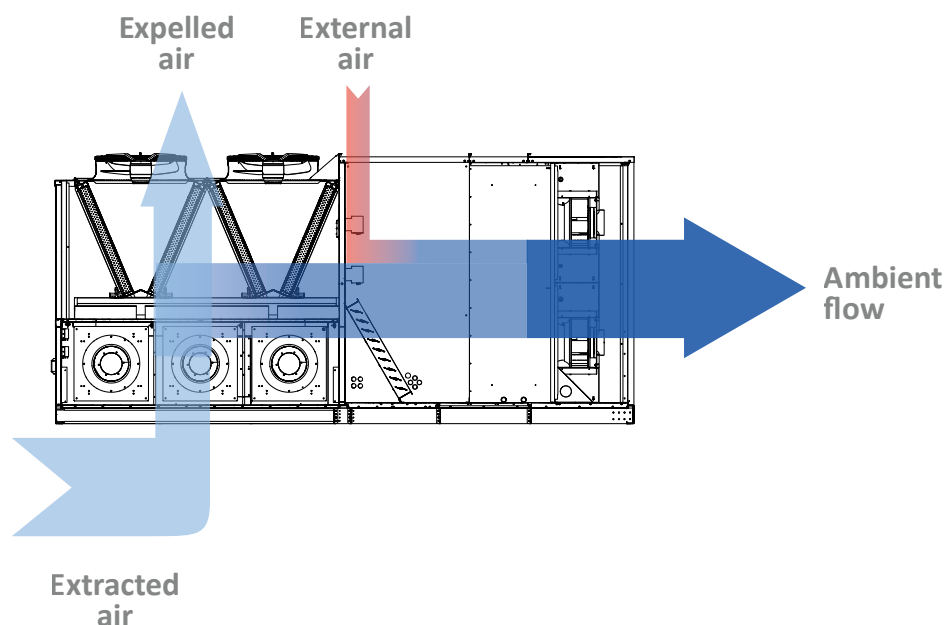
Special attention has been paid to the quality of the air in the room, entrusted to filters that ensure 55% COARSE efficiency as standard. There is also the option of F7, F9 or electronic filters on the fresh air flow.

Active thermodynamic recovery

In the MB3-MB4 configuration, the unit with thermodynamic recovery function also takes advantage of the energy contained in the exhaust air, which would otherwise be lost; this ensures better performance and efficiency.

All of these technological advantages are controlled by a thermoregulation that is able to manage the different functioning modes, ensuring maximum energy savings in all conditions of use via dedicated software.

MB3 CONFIGURATION WITH TWIN FAN SECTION FOR RECIRCULATION AIR, OUTSIDE AIR AND EXHAUST AIR. TOTAL FREE COOLING FUNCTION (WITH 100% OUTSIDE AIR) AND THERMODYNAMIC RECOVERY FUNCTION AS STANDARD.



ACCESSORIES

AXEC: Axial fans with EC motors with speed control function according to the pressure of condensation and evaporation.

AXECP: EC axial fans with available useful static pressure.

BAC: Interface card BACnet MS/TP pConet.

BE: Electric heating coil 2 stages.

BEM: Modulating electric heating coil.

BIP: Interface card Ethernet-pCOWeb (BACNET IP)

BPGC: After heating coil with hot gas.

BW: 2-rows-heating coil with hot water.

BWV2V: 2 -rows -heating coil with hot water, with 2-way modulating valve.

BWV3V: 2-rows heating coil with hot water, with 3-way modulating valve.

CA: Waterproof covers on external air intake.

CF: Flue, only on unit with gas burner module.

CUR: Humidification control (humidity probe in recovery, limit humidity probe in supply, contact ON/OFF and modulating analog output).

DCPR: AC fans with pressure switch device of speed control function of the pressure of condensation and evaporation.

DP: Dehumidification control (humidity probe in recovery) and of after-heating (if present).

FCT: Partial Temperature Free-Cooling for MB2, MB4 versions.

FT7: F7 efficiency pocket filters positioned on the supply air flow.

FT9: Pocket filters F9 efficiency placed on the flow of supply air.

FTE: Electronic filters placed on the flow of supply air.

FTH: Enthalpy free-cooling.

GP: External coil protection grid.

Gx: Heating module with gas burner.

LFX: Device with photocatalytic effect.

LW: Interface card LonWorks.

MAN: High and low pressure gauges.

MSSM: Flow silencer module, only for rear flow.

MSSR: Recovery silencer module, only for rear air recovery.

PRT1: Wall/recessed (up to 50 m) remote control panel.

PRT2: Wall/recessed (up to 200 m) remote control panel.

PSFT: Differential pressure switch signalling dirty filters.

PSTEP: Adjusting constant flow, step flow in function of the modulation of the cooling circuit.

RF: Smoke detector.

RFC: Smoke detector and damper management.

RS: Serial card BMS RS485.

SCM: Modulating servo-controls (standard on MB3 model or if temperature or enthalpic free-cooling is present).

SCMRM: Modulating Servo-control with spring return.

SCO2: Probe CO2 (not available on MB1 fittings).

STA: Room temperature probe

SUA: Room humidity probe.

SVOC: Probe VOC (not available on MB1 fittings).

UP: Manufacturer of immersed electrodes supplied and steam ramp installed.

VT: Antivibration mounts.

PERFORMANCE SPECIFICATIONS

MB1

Size		17	18	19	20	21	22	23
Configuration: MB1								
Cooling performances (1)								
Cooling capacity	kW	151,90	170,10	191,70	213,30	231,70	246,10	289,10
Sensible cooling capacity	kW	114,30	125,40	136,10	151,60	164,70	178,50	202,30
Compressors absorbed power	kW	32,70	39,20	45,30	54,00	60,70	69,00	68,90
EER compressors		4,65	4,34	4,23	3,95	3,82	3,57	4,20
Heating performances (2)								
Heating capacity	kW	152,70	170,80	192,80	216,20	230,80	245,50	296,30
Compressors absorbed power	kW	28,20	33,90	39,20	43,90	46,30	51,20	58,60
Compressor COP		5,41	5,04	4,92	4,92	4,98	4,79	5,06

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

MB2

Size		17	18	19	20	21	22	23
Configuration: MB2								
Cooling performances (1)								
Cooling capacity	kW	160,20	179,40	201,80	224,60	243,90	258,90	304,50
Sensible cooling capacity	kW	120,90	132,60	143,20	159,70	173,50	188,30	212,90
Compressors absorbed power	kW	33,10	39,50	45,60	54,60	61,60	69,80	69,70
EER compressors		4,84	4,54	4,43	4,11	3,96	3,71	4,37
Heating performances (2)								
Heating capacity	kW	155,10	174,20	195,50	219,50	234,00	248,60	300,70
Compressors absorbed power	kW	25,80	31,10	35,70	40,40	42,50	47,00	54,10
Compressor COP		6,01	5,60	5,48	5,43	5,51	5,29	5,56

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

MB3

Size		17	18	19	20	21	22	23
Configuration: MB3								
Cooling performances (1)								
Cooling capacity	kW	161,30	181,10	203,70	226,90	246,70	262,10	307,20
Sensible cooling capacity	kW	121,30	133,30	143,80	160,50	174,50	189,20	213,90
Compressors absorbed power	kW	32,50	38,80	44,50	53,20	59,90	67,70	68,30
EER compressors		4,96	4,67	4,58	4,27	4,12	3,87	4,50
Heating performances (2)								
Heating capacity	kW	159,10	179,00	202,30	227,70	243,60	259,90	310,90
Compressors absorbed power	kW	26,20	31,40	36,30	41,00	43,30	47,90	55,00
Compressor COP		6,07	5,70	5,57	5,55	5,63	5,43	5,65

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

MB4

Size		17	18	19	20	21	22	23
Configuration: MB4								
Cooling performances (1)								
Cooling capacity	kW	161,30	181,10	203,70	226,90	246,70	262,10	307,20
Sensible cooling capacity	kW	121,30	133,30	143,80	160,50	174,50	189,20	213,90
Compressors absorbed power	kW	32,50	38,80	44,50	53,20	59,90	67,70	68,30
EER compressors		4,96	4,67	4,58	4,27	4,12	3,87	4,50
Heating performances (2)								
Heating capacity	kW	159,10	179,00	202,30	227,70	243,60	259,90	310,90
Compressors absorbed power	kW	26,20	31,40	36,30	41,00	43,30	47,90	55,00
Compressor COP		6,07	5,70	5,57	5,55	5,63	5,43	5,65

(1) Ambient air 27°C d.b./19°C w.b.; External air 35°C/24°C w.b.; Functioning with 30% of external and expelled air.

(2) Ambient air 20°C D.B./15°C W.B.; Outside air 7°C D.B./6°C W.B. (EN14511); Operation with 30% outside and expelled air.

ENERGY INDEX

Size			17	18	19	20	21	22	23
Energy index									
SEER	H	W/W	4,01	3,94	4,18	3,92	4,15	3,94	3,85
η_{sc}	H	%	157.6%	154.6%	164.3%	153.8%	162.9%	154.5%	150.9%
Pdesignh	H	kW	89	98	109	123	130	141	168
SCOP	H		3,47	3,31	3,45	3,36	3,49	3,43	3,26
η_{sh}	H	%	135.7%	129.4%	134.8%	131.5%	136.4%	134.2%	127.3%

GENERAL TECHNICAL DATA

Size			17	18	19	20	21	22	23
Power supply									
Power supply	H		400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz	400V~3 50Hz
Compressor									
Type	H	type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number	H	no.	4	4	4	4	4	4	4
Circuits	H	no.	2	2	2	2	2	2	2
Refrigerant	H	type	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Partialisation step	H	no.	6	6	6	6	6	6	6

FANS**External fans**

Size			17	18	19	20	21	22	23
Configuration: MB1, MB2, MB3, MB4									
External fans									
Type	H	type	Assiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali AC	Assiali AC
Number	H	no.	4	4	4	4	4	4	4

Internal fans

Size			17	18	19	20	21	22	23
Configuration: MB1, MB2, MB3, MB4									
Internal fans									
Nominal air flow rate	H	m³/h	26000	29000	33000	37000	40000	44000	48000
Minimum air flow rate	H	m³/h	18200	20300	23100	25900	28000	30800	33600
Maximum air flow rate	H	m³/h	36000	36000	44000	44000	53000	53000	53000

Internal recovery fans

Size			17	18	19	20	21	22	23
Configuration: MB3									
Recovery									
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	3	3	3	3	3	3	3

Expulsion fan

Size			17	18	19	20	21	22	23
Configuration: MB4									
Exhaust									
Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	2	2	2	2	2	2	2

Internal flow fans

Size	17	18	19	20	21	22	23
------	----	----	----	----	----	----	----

Configuration: MB1

Delivery

Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	2	2	3	3	3	4	4
Maximum useful head (1)	H	Pa	700	475	520	580	520	690	550
High static pressure (EN14511) (1)	H	Pa	350	350	350	350	350	350	350

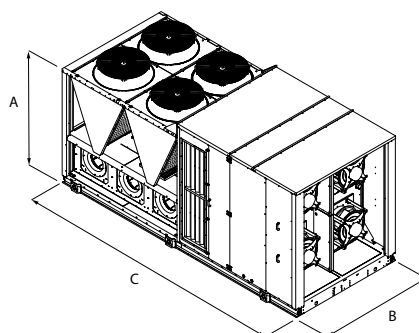
Configuration: MB2, MB3, MB4

Delivery

Type	H	type	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC	RAD EC
Number	H	no.	2	2	3	3	3	4	4
Maximum useful head (1)	H	Pa	519	341	330	470	460	636	467
High static pressure (EN14511) (1)	H	Pa	350	350	350	350	350	350	350

(1) At the nominal/maximum flow rate with a new, clean air filter.

DIMENSIONS



Size	17	18	19	20	21	22	23
------	----	----	----	----	----	----	----

Dimensions and weights

A	H	mm	2430	2430	2430	2430	2430	2430
B	H	mm	2200	2200	2200	2200	2200	2200
C	H	mm	5210	5210	5210	5210	7750	7750

Aermec reserves the right to make any modifications deemed necessary.
All data is subject to change without notice. Aermec does not assume responsibility or liability for errors or omissions.

Aermec S.p.A.

Via Roma, 996 - 37040 Bevilacqua (VR) - Italia
Tel. 0442633111 - Telefax 044293577
www.aermec.com

RTY 01-10

Rooftop

Cooling capacity 30,2 ÷ 133,6 kW
Heating capacity 29,3 ÷ 137,9 kW



- Handling section with plug fans coupled with brushless EC motors
- Thermodynamic heat recovery
- Free-cooling operation
- For high crowding applications



Independent Roof-top type air conditioner for treatment, filtration and renewal of the air, based on the chosen configuration. RTY units are designed for high crowding applications, such as cinemas, conference rooms, restaurants, nightclubs being intended for operation with 80% external and expelled air.

The standard unit allows to manage the cooling operation and the recovery of the energy contained in the exhaust air allowing higher performances and efficiencies.

VERSIONS

RTY_H heat pumps

CONFIGURATIONS

MB3 with mixing chamber with three dampers, return fan and heat recovery from expelled air.

The configuration can be further customized with a wide choice of accessories

- 1 refrigerant circuit
- High efficiency scroll compressors (tandem UNEVEN) and low power consumption
- Finned exchangers of the refrigerant circuit direct expansion.
- Supply and return fans, of plug fan type (EC). The impellers are so oriented to ensure that the air flow passes through all the internal components, with the minimum noise.
- Group of axial fans for extremely silent operation placed on the condensing section.
- Electronic control of condensation and evaporation are standard to extend further the operating limits of the unit.
- G4 air filter on the flow of outside air and on the recovery; they are installed upstream of the components, to ensure low pressure drops.

CONTROL

Microprocessor control can handle the different modes of operation ensuring maximum energy savings in any conditions C
Interfaces for connections to remote control supervision system, available as optional.

ACCESSORIES AND FITTINGS

SSV: Supervision system

RS: Serial card BMS RS485

LW: Interface card LonWorks

BIP: Interface card Ethernet-pCOWeb (BACNET IP)

BAC: interface card BACnet MS/TP pConet

FTH: Enthalpic free-cooling

PSTEP: Adjusting constant flow, step flow in function of the modulation of the cooling circuit

FT7: pocket filters F7 efficiency placed on the flow of supply air.

FT9: Pocket filters F9 efficiency placed on the flow of supply air

H10: Electronic filters placed on the flow of supply air.

PSF2: Differential pressure switch signaling fouled filters of recovery, renewal and discharge

Gx: Heating module with gas burner

BW: 2-rows heating coil with hot water

BWV2V: 2-rows heating coil with hot water, with 2-way modulating valve.

BWV3V: 2-rows heating coil with hot water, with 3-way modulating valve.

BE: Electric heating coil 2 stages (**not available with hot air generator**)

BEM: Modulating electric heating coil (**not available with hot air generator**)

BPGC: After heating coil with hot gas .

AXEC: Axial fans with EC motors with speed control function according to the pressure of condensation and evaporation.

MAN: High and low pressure gauges

U: installed steam ramp

UP: Immersed electrode producer standard supplied and installed steam ramp

CUR: Humidification control (Humidity probe in recovery , limit humidity probe in supply, contact ON/OFF and modulating analog output)

DP: Dehumidification control (humidity probe in recovery) and of after-heating (if present)

SCO2: Probe CO2

SVOC: Probe VOC

STA: Room temperature probe

SUA: Room humidity probe

RF: Smoke detector
RFC: Smoke detector and recirculation damper closure management and external air intake
PR1: Remote control panel
SCMRM: Modulating servo-controls with spring return
CA: Waterproof headphones on external air intake
CF: Flue pipe (only on version with gas burner module)

GP: Protection grille for external coils
VT: antivibration mounts
MSSM: Delivery silencers forms (only for rear air delivery)
MSSR: Recovery silencers forms (only for rear air delivery)

NOTE: for more details on accessories and equipment, please refer to the technical handbook.

FEATURES AND TECHNOLOGICAL ADVANTAGES

RTY units have been designed with the aim of reducing energy consumption that dictated the result of technological choices present on the unit that we briefly present.

HIGH EFFICIENCY VENTILATION

Ventilation is one of the major factors of power consumption, for this reason particular attention has been given to the study and the construction of the ventilation system.

Fans type plug-fans with brushless EC motors have been used in both supply and recovery; they enables high performances and low power consumption; also comparing them to conventional centrifugal fans, they have no belts or pulleys allowing easy flow regulation, compactness, versatility and ease of maintenance.

A particular adaptive logic allows to adjust the air flow to the actual demand of the system with more consequent advantages in terms of reduction of consumption.

Axial fans for the external section of the unit are of helical type; the electronic control of condensation is standard and it regulates the fan speed according to the load required, allowing a noise reduction.

As an option, the motors can be electronically controlled (EC) for the reduction in consumption of the condenser section.

MAXIMUM SEASONAL EFFICIENCIES

To improve the efficiency of the refrigerant circuit, we have used scroll tandem compressors with different power between them (compressors UN-EVEN except for size 08. This feature allows a reduction of consumptions and a better adaptability to the demands of the system, especially in the operation at partial loads, ensuring higher seasonal efficiency.

AIR QUALITY IN THE ROOM

Particular attention has been given naturally also to the quality of air in the room, **entrusted to the standard filters with G4 efficiency on the flow of outside air, also available on the recovery (optional) for process applications.**

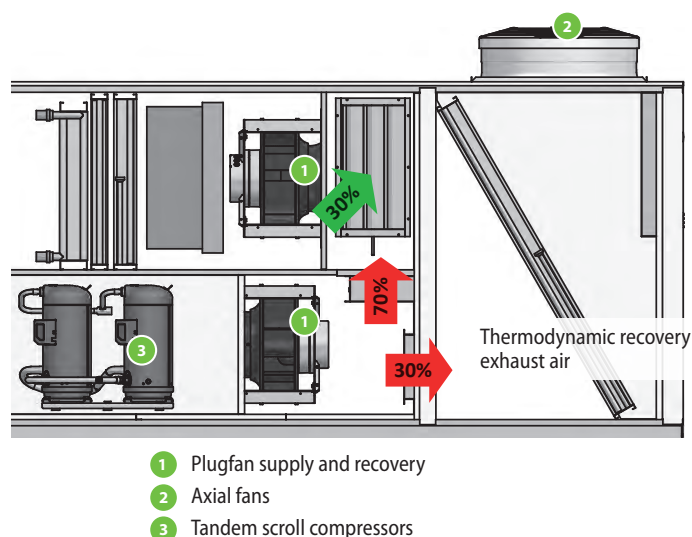
They are also available as an (optional) compact filters F7 and F9 or electronic H10 on the flow of fresh air.

ACTIVE THERMODYNAMIC RECOVERY

It is also available a thermodynamic recovery for the recovery of the energy contained in the exhaust air in such a way that the flow of exhaust air invests the external finned heat exchanger, allowing higher performances and efficiencies.

Of course all these technological advantages are controlled by a temperature control of the latest generation, able to handle the different modes of operation; ensuring maximum energy savings in all operating conditions by means of a special software.

CONFIGURATION WITH THERMODYNAMIC RECOVERY "MB3"



PERFORMANCE SPECIFICATIONS

Mod. RTY Heat pump

Size			01	02	03	04	05	06	07	08	09	10
Cooling capacity	(1)	kW	30,2	39,6	48,7	65,4	75,3	84,3	90,9	107,6	121,4	133,6
Sensitive cooling capacity		kW	21,2	27,1	32,6	43,1	48,9	55,2	61,1	70,5	80,6	87,4
Sensitive / total cooling power		kW	0,70	0,68	0,67	0,66	0,65	0,66	0,67	0,66	0,66	0,65
Compressor input power		kW	5,3	8,4	9,7	13,1	15,2	17,5	18,5	23,3	27,6	32,6
EER		W/W	5,70	4,71	5,00	5,00	4,96	4,82	4,92	4,61	4,39	4,09
EER global		W/W	4,63	4,02	3,86	3,54	3,54	3,44	3,41	3,33	3,20	3,01
Heating capacity	(2)	kW	29,3	39,7	48,5	66,5	76,6	85,8	91,4	110,4	123,4	137,9
Compressor input power		kW	4,4	7,0	8,4	12,4	14,2	15,7	15,5	19,2	21,8	25,5
COP		W/W	6,67	5,68	5,77	5,38	5,39	5,47	5,89	5,73	5,66	5,41
COP global		W/W	5,21	4,70	4,30	3,75	3,78	3,77	3,85	3,91	3,84	3,70

(1) Internal temperature 27°C d.b., 19°C w.b.; External temperature 35°C d.b., 24°C w.b.; U.R. 40%;

(2) Internal temperature 20°C d.b., 15°C w.b.; External temperature 7°C d.b. 6°C w.b.;

GENERAL TECHNICAL DATA

Size			01	02	03	04	05	06	07	08	09	10
Compressors												
Compressors		type	Scroll									
		n°	2	2	2	2	2	2	2	2	2	2
Circuits		n°	1	1	1	1	1	1	1	1	1	1
Capacity steps	(1)	%	3	3	3	3	3	3	3	2	3	3
Refrigerant gas		type	R410A									
Fans												
External fans		type	Axials AC									
		n°	1	1	2	2	2	2	2	2	2	2
Internal fans of flow		type	RAD EC									
		n°	1	1	1	1	1	1	1	1	1	2
		Ø mm	400	450	450	450	450	450	500	560	630	450
Internal fans of recovery		type	RAD EC									
		n°	1	1	1	1	1	1	1	2	2	2
		Ø mm	400	450	450	450	450	500	500	450	450	450
Air flow of inside fan	nom/max	m³/h	3500	4500	5500	7000	8000	9500	11500	14000	15000	16500
	min	m³/h	2450	3150	3850	4900	5600	6650	8050	9800	10500	11550
Available static pressure of supply	(2)	max	Pa	150	150	200	200	250	250	250	300	300
Available static pressure of recovery	(2)	max	Pa	171	184	248	235	245	311	336	372	439
Power supply		V/ph/Hz	400V/3/50Hz									

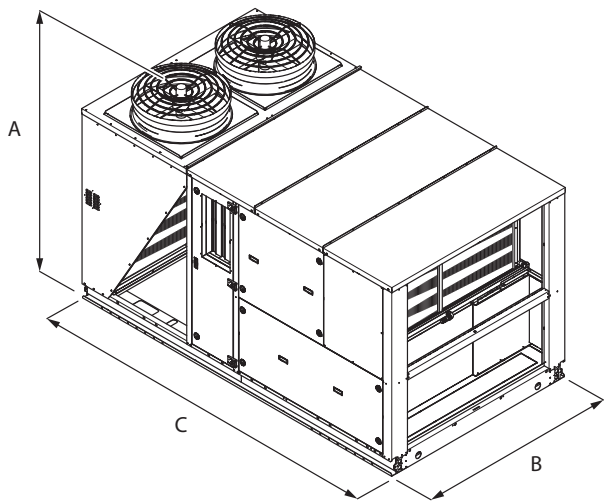
(1) Sizes 08 don't have UNEVEN compressors

(2) At the nominal/maximum flow rate, G4 medium fouling filter

Sound pressure: Sound pressure measured in free field, (1m, Q=2) away from the external surface of the ducted unit, available static pressure 300Pa at a nominal flow (in accordance with the UNI EN ISO 3744).

Note: For more informations please refer to the technical documentation available on the website www.aermec.com

DIMENSIONS



Size		Vers.	01	02	03	04	05	06	07	08	09	10
Dimensions												
A	mm	All	2061	2061	2061	2373	2373	2373	2373	2373	2373	2373
B	mm	All	1900	1900	1900	2100	2100	2100	2100	2100	2100	2100
C	mm	All	3400	3400	3400	3400	3400	3400	3400	3400	3400	3400

Aermec reserves the right to make any modifications deemed necessary.
All data is subject to change without notice. Aermec does not assume
responsibility or liability for errors or omissions.

Aermec S.p.A.
Via Roma, 996 - 37040 Bevilacqua (VR) - Italia
Tel. 0442633111 - Telefax 044293577
www.aermec.com

