AERMEC

# RTE

**ROOF-TOP cooling only and heat pump unit**
**Cooling capacities from 150 up to 254 kW standard version**
**Heating capacities from 151 up to 266 kW standard version**

# R410A

## Features

The rooftop units in the RTE range represent the ideal solution for air conditioning environments with average and large cubage for tertiary, commercial and industrial destination.
The units offer noteworthy advantages in terms of air quality and environmental comfort, easy installation and low noise level.
The use of ecological R410A fluid refrigerant allows to increase the unit efficiency.
The availability of many accessories, e.g. the cross flow recovery systems or the hot air generator with condensation, also confer a noteworthy versatility, making the RTE range perfectly suitable for the various system requirements.

**Structure:**
Self-supporting with external aluminium alloy and internal galvanised steel sandwich-type panelling with thickness of 50 mm and injected polyurethane insulation (density 42 kg/m$^3$) for the air handling section.

**Air handling section fan:**
Double intake centrifugal type with blades facing forwards for greater silence, coupled using belts and pulleys with variable pitch.
The direction of delivery air flow can be: **UPWARDS, SIDEWAYS AND DOWNWARDS.**

**Condensation section fans:**
Statically and dynamically balanced helical type, protected electrically by magnet circuit breakers and mechanically by grids.

**Double cooling circuit:**
which at the same time guarantees the respect for the environment and the increase of energy efficiency. The cooling circuit lines and the electric plant wiring are inserted into the base of the machine with the purpose of making maintenance and internal cleaning easier.
Scroll tandem compressors that guarantee low noise and high efficiency.
Internal and external coil with copper pipes and high efficiency aluminium louvers.

**Air filtering:**
Pleated synthetic filters with G4 efficiency or F7 rigid pocket filters (optional).
**Microprocessor adjustment**
complete with electric control board, probes and actuators for all components.

**Versions:**
**RTPA F cooling only version.**
**RTPA H heat pump.**
**High temperature functioning (A)**
**Silenced functioning (L)**
**SET-UPS:**

**SMP** mixing chamber 2 dampers with rear intake.
**SM2** mixing chamber 2 dampers with lateral/lower intake.
**SM3** mixing chamber 3 dampers with free-cooling.
**FT7** F7 (EN 779) efficiency rigid pocket filters.
**REC** cross flow heat recovery units with intake fan.
**Gxxx** condensation hot air generator.

## Accessories

- **DCPR - Pressure control device (as per standard for silenced functioning mode)** Extends the functioning range of the rooftop in the summer cycle (minimum temperature of the external air up to 10 °C) and in the winter cycle in heat pump mode (maximum temperature of the external air up to 25 °C). Moreover, it makes functioning silent with partial loads. A regulation circuit board varies the number of the motor condensing fan revs on the basis of the condensation pressure, read by the relevant transducers, thus guaranteeing correct power supply of the thermostatic valve.
- **GP - Protection grids** Protect the external coils from blows and hail.
- **T1 - Right lateral air intake** (only on SM2).
- **T2 - Left lateral air intake** (only on SM2).
- **T4 - Lower recirculation air intake. rear fresh air intake** (only on SM2).
- **T5 - Right lateral recirculation air intake. left fresh air intake** (only on SM2).
- **T6 - Left lateral recirculation air intake. right fresh air intake** (only on SM2).
- **AI - Lower intake** (only on SM3).
- **PA4 - Rear air intake** Return fan static pressure up to 300 Pa at nominal flow rate.
- **MA - Upper air delivery.**
- **MS - Left air delivery** nominal air flow rate.
- **MD - Right air delivery.**
- **PM4 - Delivery fan static pressure up to 400.** Pa Static pressure of the delivery fan up to 400 Pa at

nominal flow rate.

- **BTR - Water heating coil** 2 row hot water coil with anti-freeze probe as per standard. They can be managed in post-heating mode only with DP accessories. They can be coupled with the Gxxx generator.
- **V3V - 3-way valve with servocontrol** modulating for the management of the water coil mounted inside the rooftop
- **BRE - Electric heating coil** Electric heating coil with two stages fitted with twin safety thermostat, one with automatic rearm and the other with manual rearm.
  **They can be managed in post-heating mode only with DP accessories. The BRE cannot be coupled with the Gxxx generator.**
- **PUC - Humidification control set-up.** ON/OFF contact (normally open) for humidification consent. In this case, the unit is complete with humidity probe positioned in the environment air return. A humidity probe is also supplied to be positioned downstream from the humidification section.
- **DP - Kit for management of dehumidification and post-heating** The control will force compressor functioning in order to dehumidify the air to the set humidity set. If the water or electric coil is present, post-heating can also be managed. It can be coupled with the PUC accessory (humidification contact).
- **SCSR - Recirculation damper** for SMP mixing chamber.
- **SRP** - Recirculation damper for the SMP mixing chamber and modulating servocontrol (joined dampers).
- **SCMP** - Recirculation damper for the SMP mixing chamber and modulating servocontrol with spring return.
- **SCS2** - Recirculation damper for SM2 mixing chamber.
- **SR2** - Recirculation damper for the SM2 mixing chamber and modulating servocontrol.
- **SCM2** - Recirculation damper for the SM2 mixing chamber and modulating servocontrol on return and modulating servocontrol with spring return on fresh air.
- **SCM3** - Modulating servocontrols with spring control for SM3 or REC set-ups.
- **FCH - Enthalpy Free-cooling** Only with 3-damper mixing chamber. Manages the flow of external and return air, making reference to their enthalpy values.
- **PR2 - Remote panel** Allows to perform rooftop control operations from a distance.
- **SSV - RS485 serial interface for supervision** Serial board necessary for the interface with supervision systems.
- **SQA - Air quality probe.** It analyses the quality of the air on the basis of a SnO2 sensor with VOC mixed gas, evaluating contamination by polluting gases. The presence of the probe coupled to the rooftop allows:

- to set a sensitivity threshold depending on the envisioned maximum contamination of the air.
- the ventilation of the rooms only when necessary, thus guaranteeing energy saving.

- **CAF** - For protection of the external air inlets in the mixing chambers with 2 dampers or recovery unit. As per standard with SM3.
- **CF** - Stainless steel flue, double isolated wall with inspection cap and measuring sump with flue gas temperature thermometer.
- **PF - Filters dirtying pressure switch**.
- **RUB - Cocks on the liquid and pressing line (cooling only version).**

**NOTE: for further information refer to the technical manual.**

| **Accessories coupling** | **Size 480-530-600-700-800** | | | | | |
|---|---|---|---|---|---|---|
| **Version** | **cooling only (F)** | | | **PDC (H)** | | |
| **Functioning** | **std** | **L** | **A (no 700 - 800)** | **std** | **L** | **A (no 700 - 800)** |
| **DCPR** | ✔ | **as per standard** | ✔ | ✔ | **as per standard** | ✔ |
| **TP** | ✔ | ✔ | ✔ | **as per standard** | **as per standard** | **as per standard** |
| **GP** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **T1** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **T2** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **T4** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **T5** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **T6** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **AI** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **PA4** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **MA** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **PM4** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **BTR** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **V3V** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **BRE (1)** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **PUC** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **DP** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SCSR** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SRP** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SCMP** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SCS2** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SR2** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SCM2** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SCM3** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **FCH** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **PR2** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SSV** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **SQA** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **CAF** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **CF (only with Gxxx)** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **PF** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| **RUB** | ✔ | ✔ | ✔ | - | - | - |
| **VT** | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |

(1) Not available with Gxxx set-ups.

## Technical data

| RTE F | | standard | | | | | ver. (A) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **480** | **530** | **600** | **700** | **800** | **480** | **530** | **600** |
| **COOLING CAPACITY** | | | | | | | | | |
| Cooling capacity | kW | 150.3 | 178.5 | 197.7 | 232.1 | 254.8 | 156.3 | 182.7 | 208.5 |
| Sensitive nominal cooling capacity | kW | 121.1 | 146.1 | 158.3 | 183.4 | 199.9 | 123.6 | 148.9 | 160.8 |
| Cooling input power | kW | 56.1 | 63.3 | 67.2 | 79.8 | 92.0 | 53.7 | 59.2 | 63.3 |
| E.E.R. | | 2.68 | 2.82 | 2.94 | 2.91 | 2.77 | 2.91 | 3.08 | 3.29 |
| **MOTOR CONDENSING SECTION** | | | | | | | | | |
| **Compressors** | | | | | | | | | |
| Type | | Scroll tandem | | | | | | | |
| Number/circuits | n°/n° | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 |
| Partialisation steps | % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **External fans** | | Axial | | | | | | | |
| Number x input power | n°. x kW | 4/2.5 | 4/2.5 | 4/2.5 | 4/2 | 4/2 | 4/2.5 | 4/2.5 | 4/2.5 |
| Air flow rate | m³/h | 74600 | 72400 | 69200 | 84400 | 80600 | 72400 | 69200 | 67400 |
| **HANDLING SECTION** | | | | | | | | | |
| **Evaporator** | | | | | | | | | |
| Number of rows | n° | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 4 |
| **internal fan** | | forward blade centrifugal type | | | | | | | |
| Nominal air flow rate | m³/h | 26500 | 29500 | 31500 | 35000 | 38500 | 26500 | 29500 | 31500 |
| Number | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Useful static pressure guaranteed | Pa | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| **Air filters** | | | | | | | | | |
| Thickness | mm | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Efficiency | | G4 | G4 | G4 | G4 | G4 | G4 | G4 | G4 |
| Sound pressure | dB(A) | 79 | 80 | 81 | 84 | 85 | 79 | 80 | 81 |
| **ELECTRIC POWER SUPPLY** | | | | | | | | | |
| Type | V/ph/Hz | 400V/3/50Hz | | | | | | | |

| RTE H | | standard | | | | | ver. (A) | | |
|---|---|---|---|---|---|---|---|---|---|
| **COOLING CAPACITY** | | **480** | **530** | **600** | **700** | **800** | **480** | **530** | **600** |
| Cooling capacity | kW | 146.9 | 176.1 | 194.6 | 230.4 | 254.4 | 152.9 | 181.2 | 205.2 |
| Sensitive nominal cooling capacity | kW | 119.7 | 145.1 | 156.9 | 182.7 | 199.7 | 122.3 | 146.5 | 156.8 |
| Cooling input power | kW | 58.1 | 62.0 | 69.1 | 81.0 | 93.1 | 54.3 | 60.6 | 63.3 |
| E.E.R. | | 2.53 | 2.84 | 2.82 | 2.84 | 2.73 | 2.82 | 2.99 | 3.24 |
| **HEATING CAPACITY** | | | | | | | | | |
| HEATING capacity | kW | 151.3 | 178.5 | 202.9 | 231.5 | 266.1 | 159.1 | 183.8 | 208.3 |
| Heating input power | kW | 48.1 | 52.5 | 60.4 | 75.6 | 87.1 | 48.7 | 52.8 | 61.5 |
| C.O.P. | | 3.15 | 3.40 | 3.36 | 3.06 | 3.06 | 3.27 | 3.48 | 3.39 |
| **MOTOR CONDENSING SECTION** | | | | | | | | | |
| **Compressors** | | | | | | | | | |
| Type | | Scroll tandem | | | | | | | |
| Number/circuits | n°/n° | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 |
| Partialisation steps | % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **External fans** | | Axial | | | | | | | |
| Number x input power | n°. x kW | 4/2.5 | 4/2.5 | 4/2.5 | 4/2 | 4/2 | 4/2.5 | 4/2.5 | 4/2.5 |
| Air flow rate | m³/h | 74600 | 72400 | 69200 | 84400 | 80600 | 72400 | 69200 | 67400 |
| **HANDLING SECTION** | | | | | | | | | |
| **Evaporator** | | | | | | | | | |
| Number of rows | n° | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 4 |
| **internal fan** | | forward blade centrifugal type | | | | | | | |
| Nominal air flow rate | m³/h | 26500 | 29500 | 31500 | 35000 | 38500 | 26500 | 29500 | 31500 |
| Number | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Useful static pressure guaranteed | Pa | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| **Air filters** | | | | | | | | | |
| Thickness | mm | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Efficiency | | G4 | G4 | G4 | G4 | G4 | G4 | G4 | G4 |
| Sound pressure | dB(A) | 79 | 80 | 81 | 84 | 85 | 79 | 80 | 81 |
| **ELECTRIC POWER SUPPLY** | | | | | | | | | |
| Type | V/ph/Hz | 400V/3/50Hz | | | | | | | |

* Environment air 20°C d.b., water 80/70°C

The performance refers to the following conditions:

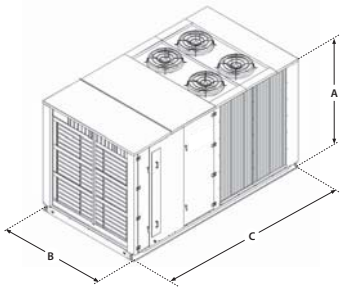
Cooling:
- Cooling capacity Tin 27°C RH 50% (Twb 19°C), Text 35°C RH 50%;

Heating:
- Heating capacity Tin 20°C RH 50%, Text 7°C RH 70%.

## Technical data

| RTE F | | ver. (L) | | | | |
|---|---|---|---|---|---|---|
| | | **480** | **530** | **600** | **700** | **800** |
| **COOLING CAPACITY** | | | | | | |
| Cooling capacity | kW | 148.4 | 178.6 | 201.1 | 230.9 | 251.1 |
| Sensitive nominal cooling capacity | kW | 123.6 | 146.2 | 159.7 | 182.5 | 199.9 |
| Cooling input power | kW | 57.2 | 61.1 | 65.5 | 80.6 | 95.2 |
| E.E.R. | | 2.59 | 2.92 | 3.07 | 2.86 | 2.63 |
| **MOTOR CONDENSING SECTION** | | | | | | |
| **Compressors** | | | | | | |
| Type | | Scroll tandem | | | | |
| Number/circuits | n°/n° | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 |
| Partialisation steps | % | 4 | 4 | 4 | 4 | 4 |
| **External fans** | | Axial | | | | |
| Number x input power | n°. x kW | 4/2.5 | 4/2.5 | 4/2.5 | 4/2 | 4/2 |
| Air flow rate | m³/h | 57800 | 55400 | 51800 | 63200 | 59800 |
| **HANDLING SECTION** | | | | | | |
| **Evaporator** | | | | | | |
| Number of rows | n° | 3 | 4 | 4 | 4 | 4 |
| **internal fan** | | forward blade centrifugal type | | | | |
| Nominal air flow rate | m³/h | 26500 | 29500 | 31500 | 35000 | 38500 |
| Number | n° | 1 | 1 | 1 | 1 | 1 |
| Useful static pressure guaranteed | Pa | 200 | 200 | 200 | 200 | 200 |
| **Air filters** | | | | | | |
| Thickness | mm | 50 | 50 | 50 | 50 | 50 |
| Efficiency | | G4 | G4 | G4 | G4 | G4 |
| Sound pressure | dB(A) | 76 | 77 | 78 | 81 | 82 |
| **ELECTRIC POWER SUPPLY** | | | | | | |
| Type | V/ph/Hz | 400V/3/50Hz | | | | |

| RTE H | | ver. (L) | | | | |
|---|---|---|---|---|---|---|
| **COOLING CAPACITY** | | **480** | **530** | **600** | **700** | **800** |
| Cooling capacity | kW | 145.2 | 176.3 | 198.3 | 228.6 | 250.4 |
| Sensitive nominal cooling capacity | kW | 118.9 | 145.1 | 158.6 | 181.9 | 198.0 |
| Cooling input power | kW | 59.1 | 62.0 | 66.7 | 82.2 | 96.2 |
| E.E.R. | | 2.45 | 2.84 | 2.97 | 2.78 | 2.60 |
| **HEATING CAPACITY** | | | | | | |
| HEATING capacity | kW | 150.1 | 179.6 | 195.0 | 227.7 | 250.1 |
| Heating input power | kW | 47.9 | 52.6 | 59.9 | 75.0 | 85.1 |
| C.O.P. | | 3.13 | 3.41 | 3.25 | 3.03 | 2.94 |
| **MOTOR CONDENSING SECTION** | | | | | | |
| **Compressors** | | | | | | |
| Type | | Scroll tandem | | | | |
| Number/circuits | n°/n° | 4/2 | 4/2 | 4/2 | 4/2 | 4/2 |
| Partialisation steps | % | 4 | 4 | 4 | 4 | 4 |
| **External fans** | | Axial | | | | |
| Number x input power | n°. x kW | 4/2.5 | 4/2.5 | 4/2.5 | 4/2 | 4/2 |
| Air flow rate | m³/h | 57800 | 55400 | 51800 | 63200 | 59800 |
| **HANDLING SECTION** | | | | | | |
| **Evaporator** | | | | | | |
| Number of rows | n° | 4 | 4 | 4 | 4 | 4 |
| **internal fan** | | forward blade centrifugal type | | | | |
| Nominal air flow rate | m³/h | 26500 | 29500 | 31500 | 35000 | 38500 |
| Number | n° | 1 | 1 | 1 | 1 | 1 |
| Useful static pressure guaranteed | Pa | 200 | 200 | 200 | 200 | 200 |
| **Air filters** | | | | | | |
| Thickness | mm | 50 | 50 | 50 | 50 | 50 |
| Efficiency | | G4 | G4 | G4 | G4 | G4 |
| Sound pressure | dB(A) | 76 | 77 | 78 | 81 | 82 |
| **ELECTRIC POWER SUPPLY** | | | | | | |
| Type | V/ph/Hz | 400V/3/50Hz | | | | |




## Dimensional data (mm)

| | | **480** | **530** | **600** | **700** | **800** |
|---|---|---|---|---|---|---|
| Height | A | 2450 | 2450 | 2450 | 2450 | 2450 |
| Width | B | 2350 | 2350 | 2350 | 2350 | 2350 |
| Depth | C | 4200 | 4200 | 4200 | 5500 | 5500 |
| Weight (kg) | RTA | 2100 | 2200 | 2300 | 2700 | 2800 |
| | RTA H | 2200 | 2300 | 2400 | 2800 | 2900 |

Dimensions and weights of the basic set-up unit.



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