

# R 20-361

## Precision Air Conditioners

Cooling capacity 10 ÷ 37 kW

- “In row” installation between the server lines
- Horizontal air flow to offer an effective localised cooling
- Rear and front accessibility for simplified maintenance
- Front and side air flow



Last generation control panel



### DESCRIPTION

Precision air conditioners of the **R Series** have construction features and sizes so that they can be installed next to the servers of the Data Center.

### CONFIGURATIONS

**RXA:** air conditioners with delivery downwards and direct expansion with air or water condensation.

**RXU:** air conditioners with air delivery horizontal with cooled water. Both configurations are available in compact version with reduced depth.

### FEATURES

Precision air conditioners in the **R series** are designed and built to have the same dimensions as the racks, rear intake from the warm corridor and front delivery towards the cold corridor.

#### Two Sources

The Twin Sources system ensures cooling continuity in case of unavailability, for whatever reason, of the primary source: overhead, maintenance, night or seasonal stop or stop for any emergency. This system includes the assembly inside the air conditioner of a second cooling source, complete with its regulation and completely independent from the primary one.

They only share the aluminium finned pack, allowing both a high thermal exchange efficiency.

#### Free Cooling

This system employs external air, a renewable energy source, for cooling the Free Cooling water circuit by an external dry cooler. The Free Cooling circuit works in place of, or along, the mechanical cooling with direct expansion.

### STRUCTURE

The structure consists of a steel frame painted with dark grey epoxy powders (RAL7024) guaranteeing a durable finish. Acoustic insulation self-extinguishing panels covered with anti-friction film.

### FANS

Centrifugal fans with backward curved blades (plug fans) with EC motor directly coupled to the electronic control to minimize power consumption and noise emissions.

### FILTERS

Corrugated baffle filters, not regenerable, self-extinguishing, G4 efficiency class (according to EN 779).

Differential pressure switch (STANDARD) for dirty filter alarm.

The control of filter dirt conditions via Modbus is available as an option.

### ELECTRONIC CONTROLLER

The evolved electronic adjustment maximises energy saving and optimizes all operating modes of the units, both direct expansion and chilled water.

- The controller allows to supervise all main components of the unit, with more than 50 different variables that guarantee real time monitoring of all operating cycles.
- The units have a standard RS485 Modbus board, BACnet, LonWorks and SNMP are available as options, for a simple and quick interface with BMS (Building Management System) supervising systems.
- View of all operating parameters in 8 languages.

### CHILLED WATER COILS

#### Only for U configurations.

Large surface batteries, positioned in such a way as to optimise airflow and heat transfer, made of refrigerating quality copper tubes with aluminium louvers mechanically merged, fitted with motorised 3way valve (2way is also available in the selection process).

### COMPRESSORS

#### Only for A configurations

Single circuit configurations with DC brushless compressor with inverter, which allows to optimise the provided power guaranteeing a low electrical absorption.

These units work with R410A refrigerant, which does not damage the ozone layer.

**Electronic expansion valve standard on all sizes.**

## ACCESSORIES

### Direct expansion

- Electric power supply line for remote condenser
- Electric power supply line with speed adjustment for remote condenser
- Condenser adjustment with 0-10V signal for remote condenser with EC fans
- Water condenser
- Condensate adjustment pressure valve
- "LAC" (Low Ambient Control) valve has the function of bypassing the condenser, injecting warm gas in the liquid piping, to maintain the refrigerant pressure stable. Use is recommended in very cold climates, in case of inverter compressors and in case of oversized condensers with respect to the real necessities of the units.

### Chilled water

- Two ways modulating valves
- Inlet and outlet water temperature probes
- "Power Valve" kit: automatic adjustment and balancing valve of the water circuit, which allows to guarantee a constant water flow rate and monitor the efficiency of the unit in real time.

### Heating

- Single stage electric coils with low thermal inertia.

### Humidification

- Room humidity probe
- Flow humidity probe

- Submerged electrodes humidifier (also available with low conductivity cylinder)

### Water presence detection

- Available as punctual probe or fabric belt (length 5 m) Allows to have an alarm in case water presence, even partial, is detected.

### Mechanicals and structural

- Condensate discharge pump
- M5 (EU5) efficiency air filter on air supply
- Closed front panel for side flow
- Closed side panels for front flow
- Wheels for movement

### Electrical

- The unit has a standard power supply 400V ~ 3N 50Hz. The following voltages are available as an alternative: 400V ~ 3N 60Hz, 230V ~ 3 60Hz, 380V ~ 3N 60Hz
- Electric power supply line without neutral
- "Basic" version automatic transfer switch (ATS)
- "Advanced" version automatic transfer switch (ATS)

### Regulation

- Constant flow rate ventilation adjustment
- Constant pressure ventilation adjustment
- Local area network configuration and cable
- User terminal for remote installation

☒ *For further details refer to the technical documentation or to the selection program.*

## SMARTNET

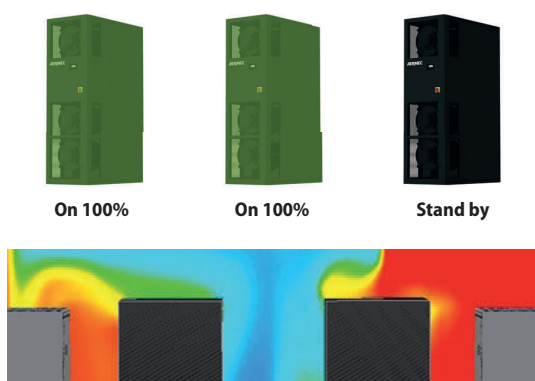
The innovative **SMARTNET** system revolutionises the local area network concept.

This system, using the modulation capabilities of its components, allows dividing the workload across all units in the local area network. Compared to the Duty Stand-by (n+1 o n+n) redundancy system, where the backup units were stopped waiting for a problem to arise,

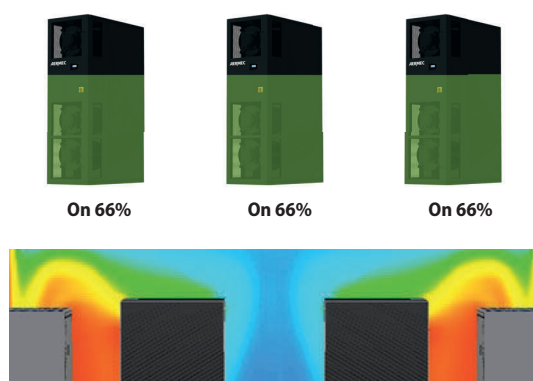
**the SMARTNET system allows to maintain the units connected on the network always active** with various advantages:

- greater efficiency of the units with partial loads;
- optimal air distribution, eliminating the risk of environment hot-spots;
- internal system redundancy,

### DUTY / STAND-BY



### SMARTNET



## TECHNICAL DATA

### RXA: horizontal air delivery - direct expansion with air or water condensation

|                                 |       | RXA 121              | RXA 201 | RXA 231 | RXA 361 |
|---------------------------------|-------|----------------------|---------|---------|---------|
| <b>Cooling performances (1)</b> |       |                      |         |         |         |
| Total cooling capacity          | kW    | 9,6                  | 19,3    | 20,8    | 32,5    |
| Sensible cooling capacity       | kW    | 9,6                  | 15,1    | 17,2    | 26,3    |
| EER (2)                         | W/W   | 3,14                 | 3,09    | 3,36    | 3,43    |
| <b>Fans</b>                     |       |                      |         |         |         |
| Type                            | type  | Plug-fan EC inverter |         |         |         |
| Air flow rate                   | m³/h  | 3200                 | 3600    | 6000    | 6600    |
| <b>Refrigerant circuit</b>      |       |                      |         |         |         |
| Number                          | no.   | 1                    | 1       | 1       | 1       |
| <b>Sound data</b>               |       |                      |         |         |         |
| Sound pressure (3)              | dB(A) | 51                   | 54      | 54      | 57      |
| <b>Possible configurations</b>  |       |                      |         |         |         |
| Free Cooling                    |       | -                    | -       | Yes     | -       |
| Two Sources                     |       | -                    | -       | Yes     | -       |
| <b>Electric data</b>            |       |                      |         |         |         |
| Power supply                    |       | 400V ~ 3N 50Hz       |         |         |         |

(1) Condensation temperature 45 °C; incoming air 24 °C / 45 % u.r.; external static pressure: 30Pa. Stated performances do not take into account the heat generated by the fans which must be added to the heat load of the system.

(2) EER: Energy Efficiency Ratio; total cooling capacity / input power to the compressors + the power of fans (excluding air condensers).

(3) Sound pressure: stated data 2m away, in free field according to UNI EN ISO 3744:2010

### RXU: horizontal air delivery - cooled water

|                                 |       | RXU 20               | RXU 40 |
|---------------------------------|-------|----------------------|--------|
| <b>Cooling performances (1)</b> |       |                      |        |
| Total cooling capacity          | kW    | 24,9                 | 37,8   |
| Sensible cooling capacity       | kW    | 22,2                 | 33,9   |
| EER (2)                         | W/W   | 22,81                | 27,78  |
| <b>Fans</b>                     |       |                      |        |
| Type                            | type  | Plug-fan EC inverter |        |
| Air flow rate                   | m³/h  | 5600                 | 9000   |
| <b>Refrigerant circuit</b>      |       |                      |        |
| Number                          | no.   | 1                    | 1      |
| <b>Sound data</b>               |       |                      |        |
| Sound pressure (3)              | dB(A) | 54                   | 62     |
| <b>Possible configurations</b>  |       |                      |        |
| Free Cooling                    |       | -                    | -      |
| Two Sources                     |       | -                    | Yes    |
| <b>Electric data</b>            |       |                      |        |
| Power supply                    |       | 400V ~ 3N 50Hz       |        |

(1) Incoming air 24 °C / 45 % r.h.; water 7 °C / 12 °C; external static pressure: 30 Pa. Stated performances do not take into account the heat generated by the fans which must be added to the heat load of the system.

(2) EER: Energy Efficiency Ratio; total cooling capacity / input power to the compressors + the power of fans (excluding air condensers).

(3) Sound pressure: stated data 2m away, in free field according to UNI EN ISO 3744:2010

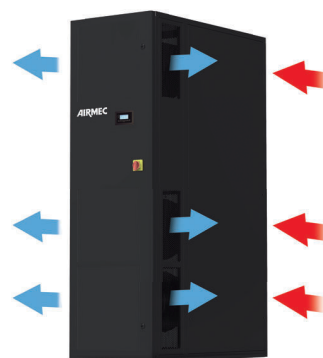
## HORIZONTAL FLOW CONFIGURATIONS



**Standard execution**  
for "In-row" installation  
with front and side air delivery  
(RXA 121-201, RXU 20).



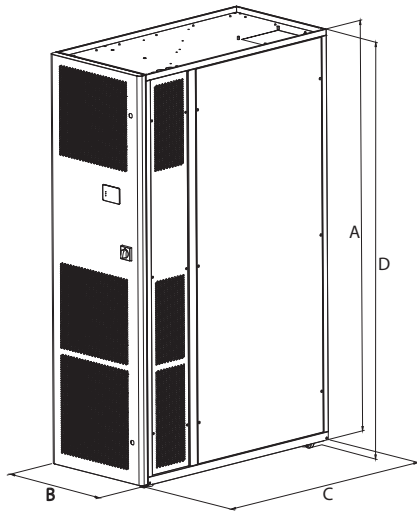
Execution for "In-row" installation  
with only front air delivery  
(RXA 231-361, RXU 40).



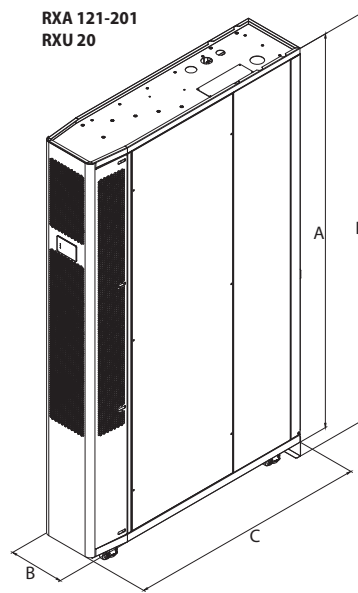
Execution for "In-row" installation  
with only side air delivery  
(RXA 231-361, RXU 40).

## DIMENSIONS

**RXA 231-361  
RXU 40**



**RXA 121-201  
RXU 20**



|                               |    | RXA 121 | RXA 201 | RXA 231 | RXA 361 |
|-------------------------------|----|---------|---------|---------|---------|
| <b>Dimensions and weights</b> |    |         |         |         |         |
| A                             | mm | 1975    | 1975    | 1985    | 1985    |
| B                             | mm | 300     | 300     | 600     | 600     |
| C                             | mm | 1200    | 1200    | 1222    | 1222    |
| D                             | mm | 2045    | 2045    | 2015    | 2015    |
| Empty weight                  | kg | 200     | 215     | 215     | 215     |

|                               |    | RXU 20 | RXU 40 |
|-------------------------------|----|--------|--------|
| <b>Dimensions and weights</b> |    |        |        |
| A                             | mm | 1975   | 1985   |
| B                             | mm | 300    | 600    |
| C                             | mm | 1200   | 1222   |
| D                             | mm | 2045   | 2015   |
| Empty weight                  | kg | 120    | 190    |

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