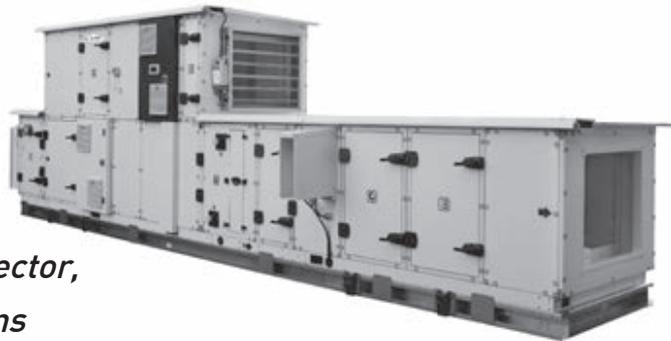




*AHU for all applications
Designed to meet the EN 13053
and EN 1886 standards
The effective solution for service sector,
industry and healthcare applications*



AIR HANDLING UNIT: CLIMACIAT

CLIMACIAT represents the modern air handling units that CIAT has been offering for more than 40 years. The first air handling units were produced more than 80 years ago.

The CLIMACIAT Airaccess/Airtech/Airclean is the latest generation of AHU to be developed, and is the fruit of this experience, integrating the EN 1886 and EN13053 standards, the ERP ECODESIGN 1253-2014 regulations and current innovations (filters, heat recovery units, fans, electric motors).

CIAT is ISO 9001, ISO14001 and ISO18001 certified. This means product development meets rigorous standards and stringent environmental requirements.

Ecodesign is a very important component of the studies for the CLIMACIAT Airaccess/Airtech/Airclean range. The resulting product has a low environmental impact, in terms of its constituent materials and their recyclability and provenance, and in terms of consumption during the equipment's life cycle.

All the relevant elements are listed on an environmental sheet which provides an overview of materials and consumption, and an impact study.

The CLIMACIAT ranges have had EUROVENT AHU programme certification since 1996.

This latest generation has been designed according to its criteria and adapted based on the applications.

The AIRTEC Centre, the renowned European Air Side research and test centre, validated the choices using its extensive digital resources, confirmed by tests in climatic test and acoustic chambers.

It also has a huge amount of test equipment at its disposal, meaning it can perform the tests requested as part of some orders.

The entire process is automated from reception of the order to manufacture, it is unique and specifically dedicated to production of this range.

New, comprehensive industrial resources are dedicated to this production, including paint processing, machining of panelling, frame, application of gaskets, welding, tests.

CIAT also manufactures air-to-water or refrigerant fluid heat exchangers using our own calculating and sizing tools, and our own fully-integrated production lines.

This gives us complete control of our performance levels and procurement cycles.

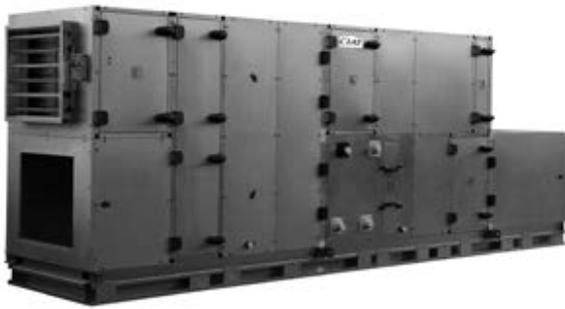
All of the above aspects combine to allow us to create a high quality product which gives you complete satisfaction in a diverse range of applications from office and service sector administration to industrial processes and controlled environments in industry and the healthcare sector.

USE

The CLIMACIAT range is designed for the service sector, industry and healthcare to meet different requirements in terms of air mixing, filtration, heating, refrigeration, dehumidification, humidification, ventilation, recovery and sound attenuation. It is available as a horizontally-mounted version for installation indoors or outdoors with a roof and accessories to protect it from the weather. The range is available in a single or dual-flow version.

Thanks to the broad spectrum of solutions on offer, and the product's excellent modularity, the specifications for this product will always comply with the EN 13053 and EN 1886 standards, whatever its configuration.

Airaccess: service sector applications



Casing resistance: class D2
 Casing airtightness: class L1
 Thermal transmission: class T3
 Thermal bridging factor: class TB3

Airtech and Airclean: all applications



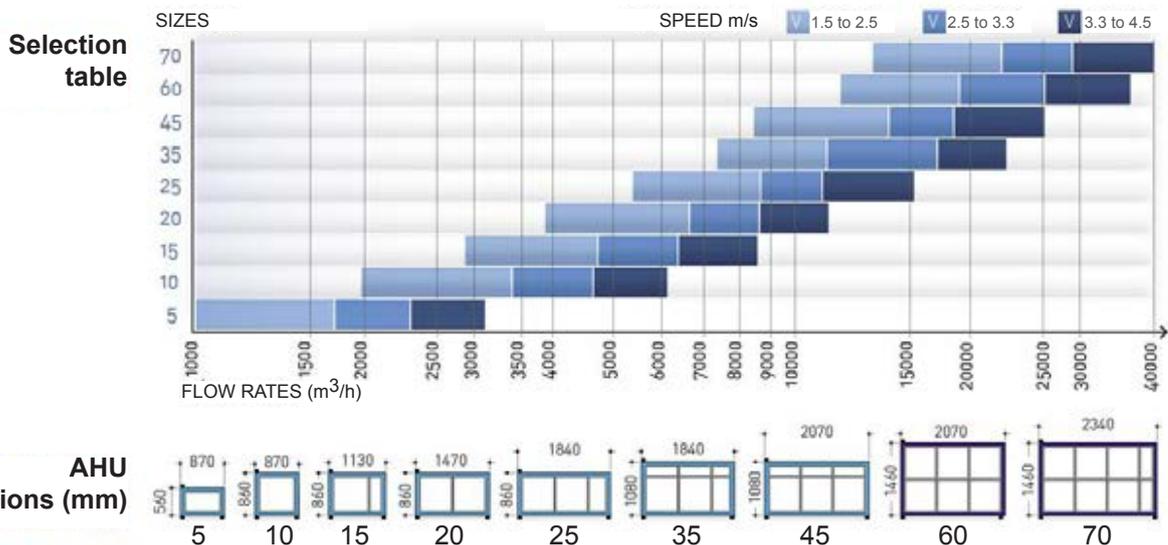
Casing resistance: class D1
 Casing airtightness: class L1
 Thermal transmission: class T2
 Thermal bridging factor: class TB1

RANGE

The CLIMACIAT segment 1 range includes 9 different sizes to handle air flows from 1000 to 30,000 m³/h.

The diagram below is used to pre-select the required size according to:

- The through speed in the front active section of the heat exchange coils
- The air flow rate to be handled



GENERAL DESCRIPTION OF THE CLIMACIAT RANGES

■ Casing

- Self-supporting panel construction up to size 70
- Double-skin panels, with 50 mm thick, long-fibre mineral wool insulation, reinforced with a non-woven fibreglass fabric, welded on for greater vertical strength.
- Moulded high strength bi-component polyurethane gaskets for the casing and door, guaranteeing a perfect seal.
- Inside of the AHU is perfectly smooth and even, with no protruding screws, as per the specifications in European standard EN 13053 (no internal handles).
- Doors hung on high quality frames, guaranteeing durability, performance and easy access for maintenance with adjustable hinges, external twist-lock handles and decompression system.
- AHUs delivered in several units are equipped with specific factory-fitted connective pieces, which ensure perfect alignment to simplify assembly.
- Each component unit of the AHU is equipped with an 80 mm ground insulation frame and multifunction ergonomic supports (handling, assembly).
- Each component is fitted with its own service panels. This allows independent removal for each function.

CLIMACIAT Airtech

- Highly-insulated panels, with thermal bridge break profiles
- External walls made from sheet metal with RAL9001 lacquer coating
- Internal wall in Z275 galvanised steel

CLIMACIAT Airclean

- Highly-insulated panels, with thermal bridge break profiles
- External wall made from galvanised steel with RAL 9010 lacquer coating
- Internal wall made from galvanised steel with RAL 9010 lacquer coating

CLIMACIAT Airaccess

- Conventional double-wall panels
- External wall in Z275 galvanised sheet steel
- Internal wall in Z275 galvanised steel

OPTIONS AVAILABLE PER RANGE	Airaccess	Airtech	Airclean
Textured RAL 9001 paintwork on external panels	X	Standard	NA
Textured RAL 9001 paintwork on internal panels	NA	X	NA
Smooth RAL 9010 paintwork on external panels	NA	X	Standard
Smooth RAL 9010 paintwork on internal panels	NA	X	Standard
Internal and/or external panels in 304 L or Z3CN 18.10 stainless steel	NA	X	X
Internal and/or external panels in 316 L or Z3CND 17.11.02 stainless steel	NA	X	X
Stainless steel base	NA	X	X
Sloped stainless steel base with evacuation	NA	X	X
Galvanised ground insulation frame (h = 80mm)	Standard	Standard	Standard
Painted frame	NA	X	X
Stainless steel frame	NA	X	X
Factory-assembled AHU on single unit frame: max size 45 or maximum length 6 m	X	X	X
Container kit	X	X	X
Adjustable support feet with 60 mm extension	X	X	X
Fixed extension feet up to 400 mm	X	X	X
Sloped roof to match external casing finish	X	X	X
Louvres with grilles to match external casing finish	X	X	X
Protective cover for external components to match external casing finish	X	X	X
Factory-fitted cable raceway	X	X	X
Lateral technical unit	NA	X	X

X: Option

NA: Not applicable

■ Mixing and air intakes

The air intakes and mixing section may be installed at the intake, inserted between the functions or installed at the device outlet.

These functions are equipped with dampers formed of counter-rotating profiled blades, with lateral gaskets, and driven by conrods.

These dampers are installed outside of or inside the casing, depending on the solution chosen.

Independent control of the louvres: manual, motorised or ready to be motorised

The functions provided depend on the selection:

- Isolation damper
- Frost protection damper
- Safety damper (CH38)
- 2-way mixing with air intake
- 2-way flow distributions: top, front or lateral
- 3-way mixing: aligned, stacked or juxtaposed

Depending on the finishes:

- CLIMACIAT Airaccess
 - Class 1 galvanised steel blades and frame as per EN1751
- CLIMACIAT Airtech / Airclean
 - Class 3 galvanised steel blades and frame as per EN1751

OPTIONS AVAILABLE PER RANGE	Airaccess	Airtech	Airclean
Servomotor	Kit	Kit	Kit
Manual control	X	X	X
Electrical heaters for warming the mechanisms <-25°C	X	X	X
Class 4 airtightness as per EN 1751	NA	X	X
Paintwork on damper	NA	X	X
Stainless steel damper	NA	X	X
ATEX damper	NA	X	X
Safety container with stainless steel panel and drain	X	X	X
Hinged access door	NA	X*	X*
Removable access door	NA	X*	X*
Porthole on door	NA	X	X
Lighting	NA	X	X
Door contact	NA	X	X

* Availability depends on the configuration

X: Option

NA: Not applicable

■ **Filters**

To meet the requirements of all the applications, a very wide range of filter efficiencies, technologies and dimensions is available.

Across the entire range, and for each type of filter, cells with international dimensions of 24" x 24" and 12" x 24" are available.

On sizes 05 to 45, compact filters which are 50mm thick are available in full section (FS) to optimise energy consumption.

Different types of filter assembly are available, depending on the efficiency level, technology and location within the AHU.

There are 6 specific assembly systems:

Assembly A available for filters with international dimensions and **Assembly A FS** for filters with a full section

- Traditional tracks designed for efficiency levels G1 to M6: For Compact cells, 50 mm thick, side door

Assembly B available for filters with international dimensions and **Assembly B FS** for filters with a full section

- Compressible tracks designed for efficiency levels G4 to F9 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with side door.

Assembly C for filters with international dimensions:

- Universal frames designed for efficiency levels G4 to F9, E10 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with access section and side door

Assembly D for Absolute filters with international dimensions

- Absolute large-media frames for EPA and HEPA Absolute cubic cells

Assembly ED for Absolute filters with international dimensions

- Absolute plate for EPA and HEPA Absolute cubic cells for industrial applications (e.g. pharmaceuticals).

Assembly F for Cubic carbon filters with international dimensions

- Large-media frames for Activated Carbon cubic cells.

Description	Construction Code	Assembly	Efficiency	Cell descriptive code
50mm flat metal filter	C	A or C	G1	Galvanised steel metal medium and frame
50mm flat filter	C	A, B or C	G4	Galvanised steel metal frame and synthetic medium
			M5	
			M6	
			F7	
50mm flat filter (full section) up to size 45	C FS	A FS or B FS	G4	Galvanised steel metal frame and synthetic medium
			M5	
			M6	
			F7	
292mm rigid bag filter	RB	B or C	M6	Polypropylene frame and fibreglass medium
			F7	
			F8	
			F9	
			E10	
380mm short flexible bag filter	SB	B or C	G4	Galvanised steel metal frame and synthetic medium
			M5	
			M6	
			F7	
600mm long flexible bag filter	LB	B or C	M6	Galvanised steel metal frame and synthetic medium
			F7	
			F9	
292mm Absolute filter	CUBIC 610x610	D	E10	Polypropylene frame and fibreglass medium
			H13	
			H14	
292 mm rigid bag carbon filter + fine filter, std universal frame	RB	B or C	Carbon+F7	Polypropylene frame, synthetic + carbon medium
Flexible carbon bag filter + 600mm long bag fine filter	RB	B or C	Carbon + F7	ABS frame, synthetic + carbon medium
292mm rigid bag carbon filter	RB	B or C	Carbon	Carbon polypropylene frame
Cubic carbon filter	CUBIC 595x595	F	Carbon	Metal frame + carbon panel

C: 50 mm compact filter
 C FS: 50 mm compact filter, full section
 RB: 290mm rigid bag filter

SB: 380mm short flexible bag filter
 LB: 600 mm long flexible bag filter
 CUBIC: 292 mm cubic

OPTIONS AVAILABLE PER RANGE	Airaccess	Airtech	Airclean
Removable door	Standard	Standard	Standard
Pressure tapping per filter stage	Standard	Standard	Standard
Spare cell	X	X	X
Galvanised safety container	X	X	X
Stainless steel safety container	X	X	X
Liquid-filled pressure gauge in Kit form	X	X	X
Contact pressure gauge	X	X	X
Magnehelic pressure gauge in Kit form	X	X	X
Magnehelic pressure gauge fitted	X	X	X
Double glass porthole	X	X	X
Lighting not connected	X	X	X
Lighting connected on switch	X	X	X
Door contact	X	X	X
Paint on tracks	NA	X	Standard
Paint on frame	NA	X	Standard
304 L or 316 L stainless steel tracks	NA	X	X
Stainless steel universal frame (fine filters •F")	NA	X	X
Painted large-media frame (EPA/HEPA filters)	NA	X	Standard
Stainless steel large-media frame (HEPA filters •H")	NA	X	X
Orifice for DOP injection / Hatch for DOP measurement	NA	X	X
Range of ATEX filter cells	NA	X	X

X: Option

NA: Not applicable

■ Plate heat exchanger

- 3 efficiency levels available: from 60% to 85%
- The plate heat exchangers are always equipped with a total bypass on fresh air and access hatch to the servomotor
- Condensate drain pan on exhaust air side, made from galvanised steel with condensate drain piping as standard
- Available in a stacked configuration for all sizes
- Available in a juxtaposed configuration for size 60 and 70
- Access door to condensate drain pan(s)

In the standard construction, the heat exchanger has aluminium plates, and can be used routinely up to an air temperature of 90°C (if the plate heat exchanger is a component of an AHU, the standard limit temperature is 80°C). The leakage flow rate is 0.1%, the nominal flow rate for a pressure difference of 400 Pa between the 2 air streams.

OPTIONS AVAILABLE PER RANGE	Airaccess	Airtech	Airclean
Pre-painted aluminium plates	X	X	X
Condensate drain pan (exhaust air side) made from stainless steel panels	NA	X	X
Condensate drain pan (fresh air side) made from galvanised panels	X	X	X
Condensate drain pan (fresh air side) made from stainless steel panels	NA	X	X
Paint on baffle, partition and support	NA	X	X
Baffle, partition and support made from 304 L or 316 L stainless steel	NA	X	X
Paintwork on bypass damper	NA	X	X
Frame and bypass dampers in stainless steel	NA	X	X
Damper control, manual, motorised or ready to be motorised	X	X	X
Fresh air & exhaust air pressure tapping	Standard	Standard	Standard
Additional access door	X	X	X
Door porthole	x	x	x

X: Option

NA: Not applicable

■ Fans

- Forward-curved dual-inlet fan.
- Backward-curved dual-inlet fan.
Steel scroll and impeller.
Belt and pulley transmission on the dual-inlet fans.
Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Plug fan with metal impeller and AC motor
Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Standard motor: asynchronous three-phase, 230 / 400 V 50 Hz up to 3 kW - 400 V - 50 Hz from 4 kW, IP 55 protection, class F with PTC
- Steel plug fan with EC motor with integrated fan
Assembly on partition.
- Inspection hatch with bolts in compliance with the "MECHANICAL SAFETY" specification in the EN 1886 standard and the machinery directive.

OPTIONS AVAILABLE PER RANGE	Airaccess	Airtech	Airclean
Fan with forward-curved blades and transmission	X	X	X
Fan with backward-curved blades and transmission	X	X	X
Plug fan	X	X	X
EC plug fan	X	X	X
ATEX fan	NA	X	X
Removable door	X	X	X
Hinged door	Standard	Standard	Standard
Pressure tappings	X	X	X
Door contact	X	X	X
Double glass porthole	X	X	X
Smoke detector (NF S61961)	X	X	X
Lighting not connected	X	X	X
Lighting connected on switch	X	X	X
Paint protection on fan assembly (scroll and AC motor plug fan)	NA	X	X
Frame, stainless steel smoke detector (scroll and AC motor plug fan)	NA	X	X
Epoxy painted scroll and impeller	NA	X	X
Screens on inlets	X	X	X
Access protected by screen	X	X	X
Belt housing	X	X	X
2 motors fitted on request	X	X	X
Hoist	X	X	X
Variable drive in kit form	X	X	X
Variable drive assembled	X	X	X
Proximity switch connected	X	X	X
Proximity switch in kit form	X	X	X
Discharge damper on scroll	NA	X	X

X: Option

NA: Not applicable

■ Sound attenuator

- Different lengths of baffle depending on the required attenuation.
- Mineral wool of different densities, the faces are covered with an anti-erosion shield.
- Galvanised panelling.

OPTIONS AVAILABLE PER RANGE	Airaccess	Airtech	Airclean
Baffle lengths (in mm)	600 - 900 - 1200 - 1500		
Coating with fray-resistant fabric	NA	X	X
Protective paint on tracks	NA	X	X
Painted baffle panelling	NA	X	X
304 L or 316 L stainless steel tracks	NA	X	X
Earth strip on baffle (ATEX)	NA	X	X

X: Option

NA: Not applicable

■ **Standalone production steam humidifier**

With steam production (standalone with electrodes)

The supply includes:

- Aluminium steam distributor.
- Steamer with electrical cabinet and controller (IP 33).
- Proportional or On/Off control.

- Duct/cylinder connection.
- Condensate return tubes and connections.
- 230 V single-phase or 400 V three-phase supply voltage - 415 V according to capacity
- Min and max supply water conductivity limits 125 - 1250 microsiemens /cm (8000 - 800 ohm).
- Hardness of supply water 15 - 30 degrees (French).

OPTIONS AVAILABLE PER RANGE	Airaccess	Airtech	Airclean
Stainless steel safety container	X	X	X
Fully galvanised droplet separator	X	X	X
Fully stainless steel droplet separator	X	X	X
Double glass porthole	X	X	X
Lighting connected on switch	X	X	X
Removable door	X	X	X
Door contact	X	X	X

X: Option

NA: Not applicable

With steam production (standalone with heaters) on consultation

■ **Control**

The electrics box is integrated into the unit and the electrical cables are protected by an enclosed cable raceway, factory-fitted.

The unit can be supplied as a single unit, equipped with a control which is fully assembled and tested in the factory if it is formed of one block, or a multi-block assembled on the optional multi-block frame.

Plug & Play solution: the electrics box is powered by a 400 V + earth power supply

The control software for the CLIMACIAT range enables the following:

- Temperature regulation*: sensor on supply air/return air/room air
- Humidification and dehumidification regulation*: sensor on return or room air
- Fan management: constant flow/constant pressure
- Filter fouling management (4-stage filtration as maximum)
- Single-zone air quality management (CO2) sensor on return air or room air
- Water coil: cooling/heating/mixed/direct expansion (3 maximum)
- 2-way valve
- 3-way valve

- Electric heater (4-stage heaters as maximum)
- Proportional and On/Off control
- TRIAC type proportional 1 stage mandatory
- Independent power supply, control by the AHU PLC.
- Steam humidifier with electrode:
- Independent power supply, control by the AHU PLC.
- Management of cooling modes: Free cooling / Night cooling
- Management of frost protection faults
- Fire protection
- Communication board available:
- Modbus RTU RS485 / Modbus TCP IP / KNX / LON / BACNET IP

The control does not enable the following elements to be managed:

- Steam coil/Superheated water coil/Glycol/water mix coils / Condensation coil
- Make-up/GGS
- Adiabatic humidifier

*availability depends on options; see specific control document