



CLIMA
PROCESSOR

a CMC Rail division.

PRECISION AIR CONDITIONING UNITS
FOR AIRPORT APPLICATIONS

JULY 2024

PROUDLY MADE IN ITALY, SINCE 1963.



INDEX:

1. Who We Are	pag. 2
2. What We Do	pag. 3
3. Airport Sector	pag. 8
4. Solutions for <i>inside</i> the airport:	pag. 12
4.1 Solutions for Internal Ambients	pag. 14
4.2 Solutions for Boarding Bridges	pag. 16
5. Airport Runway Operation:	pag. 22
5.1 Grounded PCA	pag. 26
5.2 Mobile PCA	pag. 30
6. Contacts	pag. 35

WHO WE ARE:

The CMC Group embarked on its journey in 1963 In Cologno Monzese, Italy, commencing operations with a focus on the production of steel structures. Evolving over the years, the Company delved into the railway market in the 1970s and became a specialist in manufacturing metal structures for locomotives, railway coaches, trams, and metro systems.

In the 80s, CMC expanded its services to include design, collaborating closely with customers to industrialize products using 3D-CAD support and FEM calculation.

Venturing into airport infrastructure in the 90s, CMC introduced air conditioning units and various products like telescopic air ducts and cable retrievers. Over the last decade, the company has excelled in developing structural components for diverse railway vehicles, demonstrating innovation in industrialization techniques derived from the aviation field.

- 2 Certified according to IRIS, EN ISO 9001, EN ISO 3834-2, and EN 15085-2, CMC has garnered numerous orders from leading international players in the railway market, establishing itself as a dynamic and quality-focused entity.





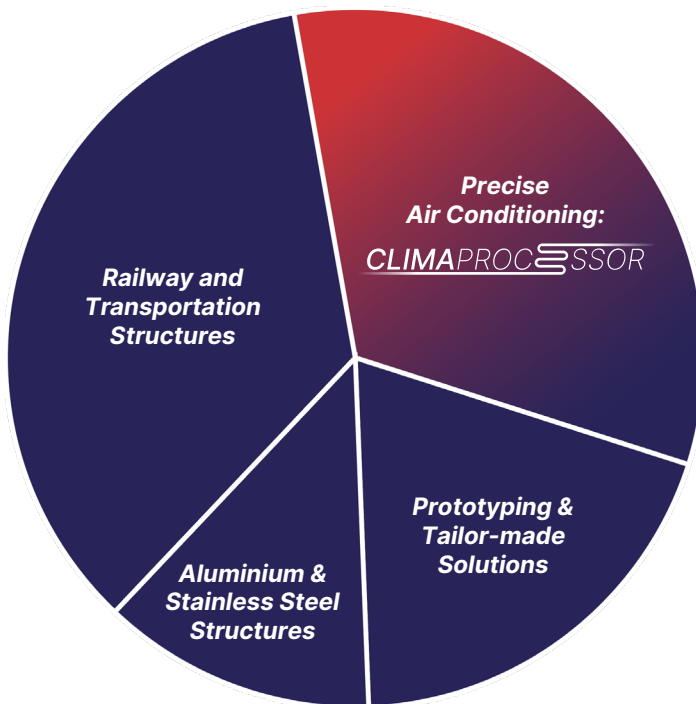
WHAT WE DO:

CMC is at the forefront of precision air conditioning systems, particularly in the realm of data centers and computer rooms. Branded as *"Clima Processor"*, the product range encompasses a variety of units, including those based on direct expansion or chilled water, available in both cabinet and rack configurations.

The Company's commitment to innovation is evident in its industrialization techniques, employing not only welding methodology but also assembly technology featuring rivets and structural adhesives. This approach has been instrumental in securing projects and orders from major international players in the railway market.

CMC stands out for its comprehensive services, offering design collaboration with customers, ensuring industrialization with modern technologies, and maintaining stringent quality standards. The company's diverse portfolio, spanning from steel structures for railways to cutting-edge air conditioning solutions, showcases its adaptability and commitment to excellence.

MAIN APPLICATION SECTORS:



50

employees.

10'000 m²

total indoor production area,
divided into 3 buildings.

400 km

welding done every year.

OUR NUMBERS:

1'300+

Clima Processor delivered.

2'000 t

of metals
(aluminium stainless steel and
carbon steel)
processed every year.

4

working lines:

LASER CUTTING,
CNC machining for extruded profile,
4 HYDRAULIC PRESS,
WELDING ROBOTS.

QUALITY CERTIFICATIONS:



CMC Rail has successfully obtained a multitude of certifications from renowned Certification Bodies. In the railway sector, as in all high-tech industries, the commitment to delivering quality products goes beyond mere production. Achieving and maintaining certifications from prestigious bodies exemplifies our dedication to excellence, adherence to industry standards, and assurance of product reliability. We understand that in the dynamic and exacting field of railway technology, where precision and safety are paramount, certifications serve as a testament to our unwavering commitment to delivering solutions of the highest caliber.



WELCOME TO

CLIMAPROCESSOR

start exploring our products!

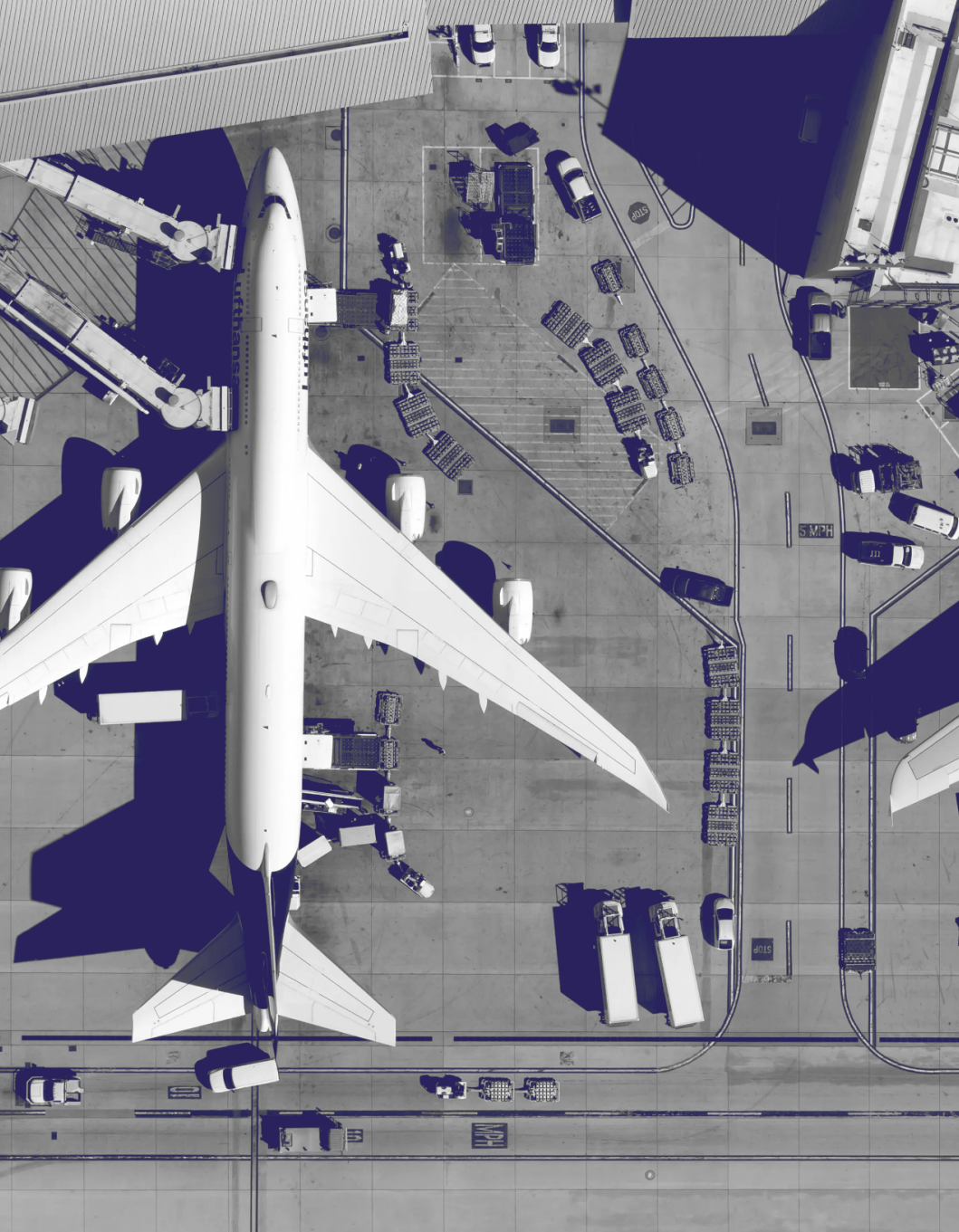
AIRPORT SECTOR:

8

Clima Processor is also specialized in the design and production of air conditioning and air treatment equipment specifically for airports and aircraft during ground operations. Leveraging our extensive experience in the heavy industry, including structural work through our parent company *CMC Rail*, Clima Processor is able to offer tailor-made solutions for a wide range of cooling systems, both for those dedicated to airport and those intended solely for airplanes.

We offer comprehensive solutions for airports, covering everything from outdoor environments and jet bridges to aircraft air conditioning during passenger loading and unloading phases.

Explore our wide selection of cooling units!



CUSTOM SOLUTIONS SPECIFIC FOR *AIRPORT* APPLICATION:

Cooling the way You want it.

INSIDE THE AIRPORT:

Airport Interior Environments:

(Close Control series)

Clima Processor offers a wide range of HVAC solutions suitable for conditioning airport environments such as halls, waiting rooms, gates, and common areas. These machines include direct expansion units or water-cooled units, with single-circuit or dual-circuit options.

Boarding Bridge Environments:

(RT series)

The RT series includes compact HVAC units, that does not require a remote condensing unit, suitable for outdoor applications. These units can be positioned above or below the jet bridges to condition them while waiting for passenger boarding.

OUTSIDE THE AIRPORT

(Runway Operations):

11

Conditioning of Parked Airplane:

(PCA unit, Fixed or Mobile solutions)

Air treatment systems designed for conditioning the aircraft cabin during its time on the ground. Clima Processor offers two different solutions: a fixed water-cooled system or a compact mobile direct expansion solution.



INSIDE THE
AIRPORT.

Close Control Units for Interior Environment.

Our Close Control HVAC units are designed to provide precise and reliable temperature and humidity control for various airport environments. These advanced units are essential for maintaining optimal conditions in critical areas such as terminal halls, duty-free shops, lounges and gates.

Our Close Control HVAC units, both single or double circuit, water chilled or direct expansion, feature high precision temperature control, utilizing advanced sensors and controllers to ensure the temperature is maintained within a narrow range, ideal for sensitive airport areas. They also incorporate integrated humidity regulation to prevent moisture-related issues and maintain comfort for passengers and staff.

Boarding Bridge Environment.

13

Jet bridges, or passenger boarding bridges, are crucial for smooth and comfortable boarding and deboarding processes at airports. To ensure a pleasant experience for passengers and optimal conditions for aircraft ground operations, high-performance air conditioning systems are essential for these structures.

For this purpose, we have developed an integrated solution that includes an internal condenser, eliminating the need for additional circuits. This unit, called **RT serie**, is designed to be positioned externally on the upper part (or, upon request, the lower part) of the jet bridge duct, specifically dedicated to the air treatment of the jet bridge.

The CLOSE CONTROL series.

For the conditioning of large spaces such as airports, railway stations, and metro stations, we offer a **wide range of HVAC units** in various configurations. These units are available with a broad range of cooling capacities, capable of cooling large areas.

If you are interested in this type of application, request our dedicated CLOSE CONTROL catalog.

MAIN CHARACTERISTICS:

14

- Water chilled or Direct Expansion
- Single or Double circuit
- Full zincplated steel, powder coated
- Cooling Capacity from 5 up to 220 kW
- Heating systems: hot water or electric (1 or 3 stages)
- Humidity and dehumidity systems
- High prevalence EC fans
- Modbus Communications (RS485 card): Ethernet, LON, BACnet
- Freecooling and Air Delivery plenum
- Water leakage alarm
- Clogged filter alarm
- Smoke and/or fire alarm
- Not return dumper
- Adjustable baseframe
- Air filters F5, F7, F9
- Special coils design / Surface treatment
- Sandwich panels
- Low noise insulation
- Reinforced insulation (Certified EN13501-1 class A1/A0 s0 d0)

Other customized solutions are possible upon request.



RT serie

COMPACT ROOFTOP HVAC UNIT FOR JET BRIDGES.

Clima Processor "RT series" are a compact **outdoor rooftop** direct expansion air conditioning unit.

Designed to maintain precise temperature and humidity condition into airport fingers can adapt to a large variety of environment, supporting the most extreme weather working conditions (-35°C/+55°C).

The entire structure is made by aluminum in order to minimize the weight and to assure high resistance against corrosion and atmospheric agents. Available with air flow interfaces on the bottom or on the lateral side version, with a complete range of accessories for the installation on different type of surfaces. An air tightness system with special gasket guarantee the absence of air flow leaks.

The installation is made extremely simple thanks to the lifting elements, both at the top and the bottom of the structures. Furthermore, the clima processors are palletizable for extreme easy transportation.

The cooling capacity of this series goes from 3kW to over 25 kW.

Further customizations are always possible.





18

INSTALLATION:

MAIN CHARACTERISTICS:

All our solutions are custom-made for every clients. We can provide a large variety of customizations and extras to meet the exact clients specification. We can offer you all our experience and know-how in order to find the best solution for every application.

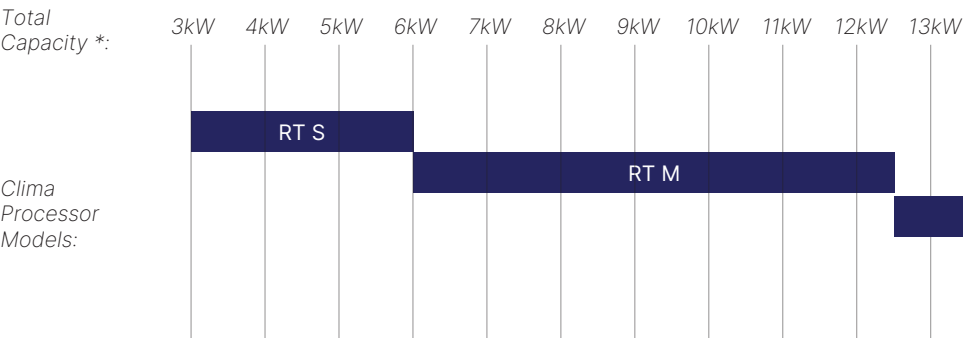
All our products are CE certified, but we can also provide US or Japanese standards as well.

We can also run, by request, test in our climatic chamber.

- Full aluminum body, powder coated
- Heating systems: hot water, electric, hot gas
- Humidity and dehumidity systems
- High Prevalence EC fans
- Modbus Communications (RS485 card): Ethernet, LON, BACnet
- Freecooling plenum and fresh air intake
- Environment protections (snow/sand)
- Different mounting interfaces (top/bottom duct)
- Air filters F5, F7, F9
- Special coils design / surface treatment
- Sandwich panels
- Low noise insulation
- Reinforced insulation (Certified EN13501-1 class A1/A0 s0 d0)
- R134a or R410A refrigerant

Other customized solutions are possible upon request.

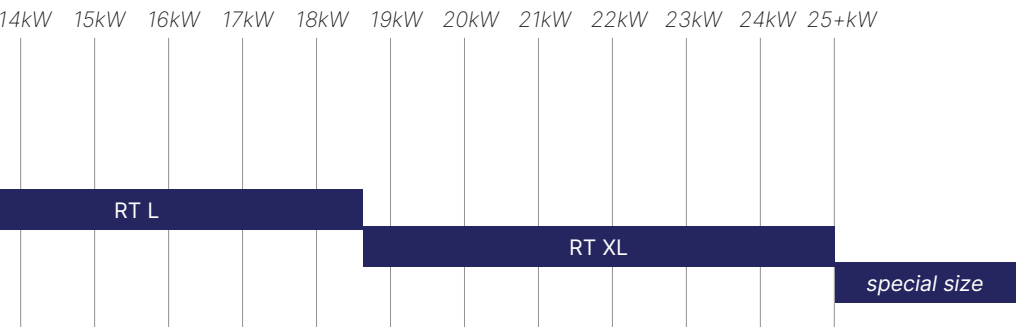
TECHNICAL INFORMATIONS:



**The Total Cooling Capacity depends on the external temperature/humidity conditions, as well as the internal conditions. The depicted ranges indicate the minimum and maximum values achievable with the configuration of that specific machine.*

20

	RT S	RT M
Treated airflow	from 800 to 1'200 m³/h	from 1'200 to 2'400 m³/h
Heating Mode (extra)	Yes, Electrical	Yes, Electrical
Freecooling (fc)	On request	On request
Airflow configurable	Yes	Yes
Refrigerant type	R513a (or R410a)	R513a (or R410a)
COP	2,5 - 3,5	2,5 - 3,5
BLDC Compressor	On request	On request
Dimensions (LxWxH)	1825mmx1430mmx925mm	1825mmx1430mmx925mm
Weight (indicative)	200 kg	230 kg



RT L	RT XL	RT special size**
from 2'400 to 3'200 m³/h	from 3'200 to 6'000 m³/h	-
Yes, Electrical	Yes, Electrical	Yes, Electrical
On request	On request	On request
Yes	Yes	Yes
R513a (or R410a)	R513a (or R410a)	R513a (or R410a)
2,5 - 3,5	2,5 - 3,5	-
On request	On request	On request
1825mmx1430mmx925mm	1825mmx1430mmx925mm	-
260 kg	290 kg	-

** Alternative configurations are always possible. For any specific requirements, please feel free to contact us, we will be happy to provide you with the necessary details.

AIRPORT RUNWAY OPERATIONS.



Parked Airplane Conditioning (PCA unit).

To maintain the correct temperature inside the aircraft during passenger boarding and deboarding phases, we have developed two different solutions that effectively cool the cabin, helping to maintain a comfortable environment inside the airplane.

FIXED SOLUTION:

The fixed solution for PCA, which is usually installed on the tarmac, consists of a water-cooled unit that connects to a remote chiller. Through an extendable duct, the treated air is conveyed to the intake point, usually located at the end of the jet bridge. From there, a flexible hose directs the air into the aircraft through the fuselage interfaces.

MOBILE SOLUTION:

The mobile solution, on the other hand, consists of a compact unit with an integrated condenser that is brought to the base of the aircraft when it is parked. From this unit, a flexible duct extends to interface with the fuselage to cool the internal environment.

THE BENEFITS OF PCA UNITS OVER APUs FOR PARKED AIRCRAFT AIR CONDITIONING

When it comes to maintaining comfortable cabin conditions for aircraft during ground operations, two primary options are available: Pre-Conditioned Air (PCA) units and the aircraft's Auxiliary Power Unit (APU). While both serve the purpose of air conditioning, PCA units offer several advantages over using the APU. Here's a detailed comparison highlighting why PCA units are the better choice:

■ **Energy Efficiency and Cost Savings:**

PCA units are specifically designed for efficient ground-based air conditioning. They draw power from the airport's electrical grid, which is typically more cost-effective and energy-efficient than using jet fuel. The use of PCA units significantly reduces the operational costs associated with fuel consumption.

The APU relies on jet fuel to generate power and air conditioning. Operating the APU for extended periods while on the ground can lead to high fuel consumption, resulting in increased operational costs for airlines. Additionally, the cost of jet fuel is generally higher than electricity.

24

■ **Environmental Impact:**

By using electricity, PCA units produce fewer emissions compared to APUs, which burn jet fuel. This reduction in greenhouse gas emissions and other pollutants contributes to a cleaner airport environment and supports sustainability initiatives.

APUs emit a significant amount of CO₂ and other pollutants due to the combustion of jet fuel. Frequent use of APUs increases the airport's overall carbon footprint, negatively impacting environmental goals.

■ Noise Reduction:

PCA units are designed to operate quietly, reducing noise pollution in the airport environment. This creates a more pleasant atmosphere for passengers and airport staff.

APUs generate considerable noise, which can contribute to a less comfortable environment for passengers boarding or disembarking, as well as for ground staff working nearby.

■ Maintenance and Wear:

Using PCA units for air conditioning reduces the wear and tear on the aircraft's APU, potentially extending its lifespan and reducing maintenance costs. Ground-based PCA units are easier and less costly to maintain than APUs.

Frequent use of the APU increases its wear and tear, leading to higher maintenance costs and more frequent repairs or replacements. This can result in increased downtime for the aircraft and higher overall maintenance expenses.

■ Operational Efficiency:

PCA units offer flexibility and convenience. They can be easily moved and positioned to service multiple aircraft, streamlining ground operations and improving turnaround times. Their setup and operation are straightforward, allowing for efficient use during various stages of ground handling.

While APUs are integral to the aircraft, their use for extended periods during ground operations is not ideal. The need to frequently operate the APU for air conditioning purposes can complicate ground handling processes and increase the turnaround time due to the additional fuel requirements and associated logistics.

Grounded PCA unit

WATER CHILLED UNIT FOR PRE-CONDITIONED AIR.

Our water chilled Pre-Conditioned Air (PCA) System is a sophisticated ground support solution designed to provide high-efficiency temperature control for aircraft cabins during ground operations. This system uses a remote liquid chiller to cool the air, which is then delivered to the aircraft through an extendable ducting system. Ideal for various airport environments, this PCA unit ensures optimal comfort for passengers and crew while minimizing aircraft fuel consumption and emissions.

By request, we can also deal with the design and production of the telescopic ducting system.



PARKED AIRPLANE CONDITIONING



28



INSTALLATION:

MAIN CHARACTERISTICS:

All fixed solutions for parked airplane conditioning are designed according to customer specifications. It is for this reason that shape and dimensions can vary depending on specific installation needs.

The image is one of the possible versions.

All our solutions are custom-made for every clients. We can provide a large variety of customizations and extras to meet the exact clients specification. We can offer you all our experience and know-how in order to find the best solution for every application.

All our products are CE certified, but we can also provide US or Japanese standards as well.

We can also run, by request, test in our climatic chamber.

- Water chilled unit
- Full aluminum or zincplated steel body, powder coated
- Heating systems: hot water or electric (1 or 3 stages)
- Humidity and dehumidity systems
- High prevalence EC fans
- Modbus Communications (RS485 card): Ethernet, LON, BACnet
- Air delivery interfaces for aircraft ducting
- Pressure actuated water valve
- Water leakage alarm
- Clogged filter alarm
- Smoke and/or fire alarm
- Not return dumper
- Air filters F5, F7, F9
- Special coils design / Surface treatment
- Sandwich panels for low noise insulation
- Extendable duct (optional)

Other customized solutions are possible upon request.

Mobile PCA unit

DIRECT EXPANSION UNIT FOR PRE-CONDITIONED AIR.

Our direct expansion Pre-Conditioned Air (PCA) System is a sophisticated mobile ground support solution designed to provide high-efficiency temperature control for aircraft cabins during ground operations. This integrated system, which features an integrated condenser, is used to cool the air which is then delivered to the aircraft through an extendable ducting system. Ideal for various airport environments, this PCA unit ensures optimal comfort for passengers and crew while minimizing aircraft fuel consumption and emissions. Its mobility also allows it to be easily moved directly under the aircraft, enabling a single unit to be used across multiple service areas.

All units illustrated in the previous pages are designed according to customer specifications. Shape, dimensions, cooling capacity, materials and many other characteristics can vary depending on specific installation needs, and they are not limited to the solutions listed in this catalog.

If you are interested in railway cooling technologies, please feel free to contact us. We would be pleased to learn more about your project!

CONTACTS:

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