



Thermal comfort

/ Ground Support Equipment

Energize the air

Solutions

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Siroco

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Solutions

Supporting OEM & bodybuilders

- Baggage & Equipment Tractors
- Conventional Aircraft Tractors
- Towbarless Aircraft Tractors
- Lavatory and Water Trucks
- Loaders
- Etc.

Siroco supplies Original Equipment Manufacturers and bodybuilders of airport vehicles with standard thermal and electrical solutions. Each unit is designed to be compact and to ensure efficient air-conditioning, heating and defogging with maximum passenger safety.





ELECTRIFICATION

Siroco offers complete electrical solutions composed of low-consumption electrical units and high-efficiency compressors.

Reducing the amount of kW consumed is becoming as important a criterion as cooling or heating capacity.



DEFROSTING

Siroco tests all thermal solutions in real-world conditions to guarantee operators, for whom 360° vision is essential for their safety, rapid demisting and defrosting performance.



COMPACTY

All our thermal and electrical units are designed and developed to be compact with maximum efficiency according to the constraints of small cabins.



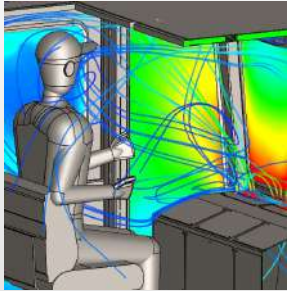
SECURITY

Our units are designed to withstand the environmental constraints of airport vehicles like filtration, sealing, shock resistance, secured connections, anti-frost thermostat, ease of installation & maintenance.

Tailor-made HVAC kit



Guaranteed comfort at all seasons



CFD SIMULATION

Taking defrosting as an example, CFD can be used to evaluate the warm-up time and defrost quality. CFD simulation enables us to build airflow models, identify and correct issues, and quantify unit performance.



PROTOTYPING

Choosing Siroco expertise means opting for a bespoke, innovative and sustainable air-conditioning solution designed to enhance thermal comfort and performance in airport vehicles.



TESTING

Tested vehicles can be cooled down to -25°C in order to reach the windscreen icing required. The efficiency of the defrosting of the window and the heating system in the passenger compartment are measured.

Electrification expertise

Siroco makes it easy to convert your heating and air-conditioning systems into electrical ones with a comprehensive range of standard electric HVAC, AC and HV units. Find the electric equivalent of your thermal unit to electrify your system in no time at all.

From thermal to electric

Mechanical
compressor



E-compressor

Boreal Performa
HVAC-AC-HV



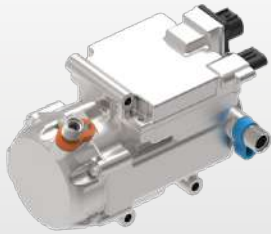
E-Boreal Performa
EHVAC - EHV

Condenser



Electroventilated
condenser

Reducing electrical consumption



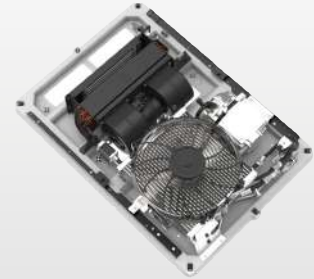
12-800V COMPRESSORS

Find the electric compressors you need, with cooling capacities from 2.45 kW to 7.37 kW and electrical power ranging from 880 W to 2810 W. Voltage ranges are between 12 V and 800 V, with cylinder capacities of 18 cc, 28 cc or 34 cc.



LOW POWER CONSUMPTION

Siroco units are specifically designed for the airport sector due to their low power consumption and the speed with which they heat the cabin, all of which have been verified by our systematic testing protocol in a climatic chamber.



HEAT PUMP SYSTEM

The heat pump provides the same level of comfort while using less energy, resulting in greater self-sufficiency, lower running costs and more sustainable operation.

Optimal defrosting & defogging



Our units rapidly deliver efficient heating performance, thanks to the even distribution of the airflow, which is specifically directed towards critical areas, to ensure rapid windscreen demisting.

In terms of filtration, the limited build-up of dirt on the evaporator helps to maintain performance even after several years of use.



Sensyo Roll Twin



Sensyo grid



Sensyo 84



Ventilation grid



Air filter cassette with grid



Defrosting grid

Compact & efficient units



Sanoa / E-Sanoa
590 m3/h



Stand Up II M
HVAC EHVAC
224m3/h



Tenere Performa HV
330 m3/h



E-Duo Top
Condenser compressor
4,3 kW



E-Sonora EHV
150 m3/h



TS400
blower

Defrosting times are measured and optimised through precise control of temperature and humidity.

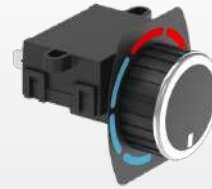
Precise temperature control



CP1



CP2S



With thermostat



Thermal sensor

Discover our full range of essential control accessories for adjusting the cabin air temperature: electronic control panels, with cable control / proportional valves / electronic thermostat, potentiometer, temperature sensors, switches and buttons.

- Compact & intuitive
- Automatic, manual and defogging modes
- Air recycling function
- Up to 4 blower speeds
- Backlit buttons



Intelligent thermal management



E-compressor



HVAC-HV unit
EHVAC - EHV unit



Condenser



Pressostat



Water valve



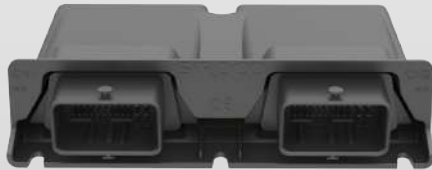
Ventilator



PTC



Motorized air flap



Universal CAN/LIN ECU module

1 hardware platform

Unlimited applications

Easy to integrate into CAN/LIN networks

Supports standalone operation

Advanced diagnostics

Protection features & secure bootloader

Fully customizable software

- **Thermal Management systems:** battery & e-cooling components, complete vehicle thermal management
- **Sensor Acquisition & System Monitoring**
- **CAN to CAN/LIN gateway functions**
- Custom embedded control applications tailored to customer specifications - based on technical specifications, configurable I/O and software.

By your side for a successful project



CFD SIMULATION

Simulation is used to optimise your HVAC solutions during the development phase and to reduce the number of prototypes, the overall project cost and the development time.



ELECTRONIC

Design, development, integrated industrialisation of micromechanical and / or microelectronic modules and microsystems.



PLASTIC INJECTION

Thermoplastic injection moulding, dual-material moulding, overmoulding of metal and composite inserts.



SUPPLY CHAIN

Siroco keeps all kit components available to ensure short lead times for customers and maintain fast delivery times.



Siroco assists you with the validation of your thermal system, according to the ISO 10263 standard.

Siroco,
your thermal expert



Siroco France



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subsidiaries:
Germany, Morocco, India

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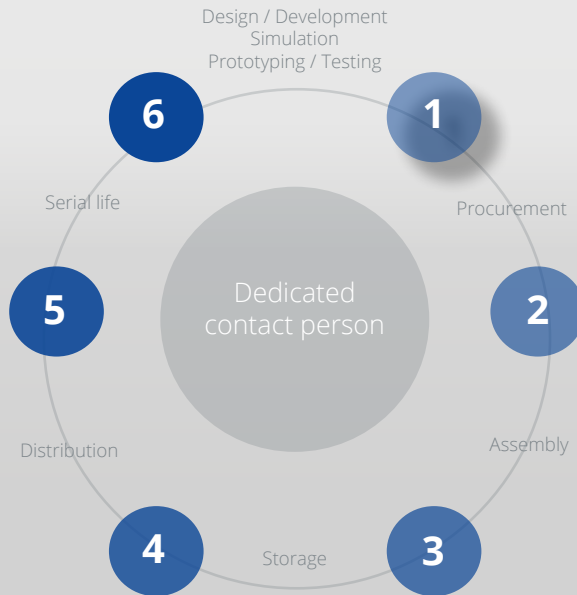
production sites: France,
Morocco, India

9001 & 14001

ISO certified

Housed in 5,000 m² of fully refurbished premises, Siroco brings together all its development, testing, production and storage departments under one roof, thereby improving working conditions for its staff and enhancing its ability to meet customer needs.

Siroco, an international supplier of thermal and electrical solutions for industrial vehicles, develops, designs and manages cabin comfort for the world's leading manufacturers through turnkey HVAC solutions.



Your Partner

-  High-performance, reliable solutions tested in a climatic chamber
-  A wide range of thermal and electrical products from 12 to 850V
-  Quality and responsive, professional customer service
-  Meeting delivery deadlines: just-in-time production
-  Personalised support throughout the project management process

Our expertises

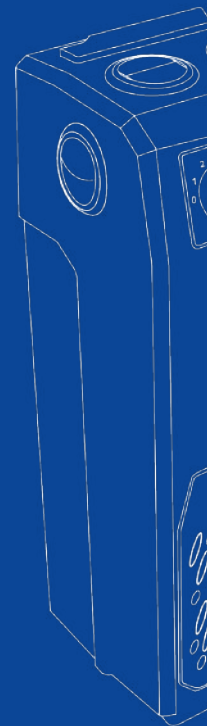
Siroco provides you with all the necessary resources and expertise:

- **Technical Expertise:** design, development, optimal solutions
- **Simulation Expertise:** CFD simulation, 3D metrology
- **Testing Expertise:** prototyping, climate chamber, measurement and endurance testing benches, reliability testing
- **Project Expertise:** custom project management from specifications to series production
- **R&D Expertise:** e-mobility and related technologies, electric conversion

Specific

Most of our customer projects involve bespoke developments.

We ensure that our solutions meet budget, schedule, quality and performance requirements, thanks in particular to our technological and human resources.



Standard



HVAC-AC-EHVAC

- / Vertical or horizontal unit
- / Roof-mounted unit
- / Modular unit
- / Heat pump
- / Condenser
- / Compressor
- / Accessories
- / 12–400 V

HV-EHV

- / Electric heating
- / Wall-mounted or built-in
- / PTC heater
- / 24–120 V

CONTROL

- / Control panels
- / Electronics
- / Mechanics
- / CAN Bus 2.0
- / Software package
- / Diagnostic tools

VENTILATION

- / Aerator
- / Blower
- / Obturator
- / Accessories

AIR DISTRIBUTION

- / Round, rectangular
- / Sleeve
- / Grid
- / Filters
- / Front panels
- / Ceiling air distributor
- / Accessories

R&D

- / Heat pump
- / Thermal management

Resources



CLIMATE CHAMBER

- Measurement of power
- Efficiency of defrosting and defogging
- Temperature changes in the cabin
- Air distribution & temperature stability in the cabin

TEST BENCHES

- Airflow test bench
- Thermal performance test bench
- Reliability testing

SIMULATION

- 3D metrology
- CFD simulation



THE CLIMATIC CHAMBER IN DETAIL

Designed to perform tests on vehicles in operation, the climatic chamber performs tests on single cabs or individual components.

VEHICLE DIMENSIONS

Length max: 6,00 m

Width max: 2,80 m

Height max: 2,90 m

Weight max: 7,00 t

TESTING CONDITIONS

Temp. range - 25°C / + 45°C

Temp. change speed 0,5°C/min

SOLAR RADIATION

IR lamps

Power >1000W/m²

ISO 10263-6

HYGROMETRY

Hygrometry range 10% / 90% HR

Temperature 10°C to 45°C

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