RESPECT FOR THE ENVIRONMENT

CIAT DEVELOPS TECHNOLOGIES TO HELP YOU ACHIEVE A LOWER ENVIRONMENTAL IMPACT

R-454B

R-32

CIAT

CIAT IS COMMITTED TO HELPING YOU REDUCE YOUR ENVIRONMENTAL IMPACT

CIAT invests in a continuous product development effort to provide sustainable and efficient HVAC systems complying with current environmental directives and regulations while also anticipating future regulatory changes.

CIAT solutions reduce the environmental impact of each newly developed piece of equipment, from the design up to the final decommissioning, following the environmental policies, ISO 14001 and ISO 45001 certifications. This involves:

- Considering environmental concerns as early as possible in the product design process.
- Taking into account and providing the results of the life cycle analyses (LCA) for products (complete system for heating, ventilation and cooling).
- Providing environmental reports related to the equipment.

CIAT strives to use lower GWP (Global Warming Potential) refrigerants while increasing HVAC system efficiency. The industry challenge in Europe is to increase energy efficiency while reducing refrigerant emissions. Increasing efficiency generates higher indirect emissions than the direct refrigerant charge effect.

- Direct effect due to the refrigerant charge calculated by the Global Warming potential (GWP) of the refrigerant. This is equivalent to CO_2 emissions.
- Indirect emissions generated by energy use, with higher impact on total emissions.

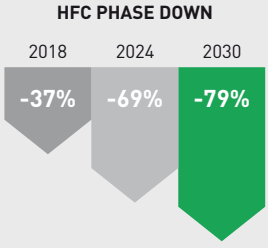
Lower GWP refrigerant

+

Increase energy efficiency

EUROPEAN REGULATIONS ARE BASED ON THREE MAIN OBJECTIVES

The European Directive 2009/125/CE ErP outlines the conditions and criteria relating to the eco-design of products that affect energy consumption throughout their life cycle, from manufacture to use and until disposal at the end of life. It encourages manufacturers to design products that improve energy efficiency while reducing their overall impact on the environment, particularly the resources consumed throughout their service life. CIAT's commitment to limit its impact on the environment is in line with the targets of the European climate and energy package for 2030.
The F-Gaz Regulation aims to reduce the Direct Greenhouse Gases emissions generated by F-Gaz (HFC) by 79% by 2030 in the European Union.



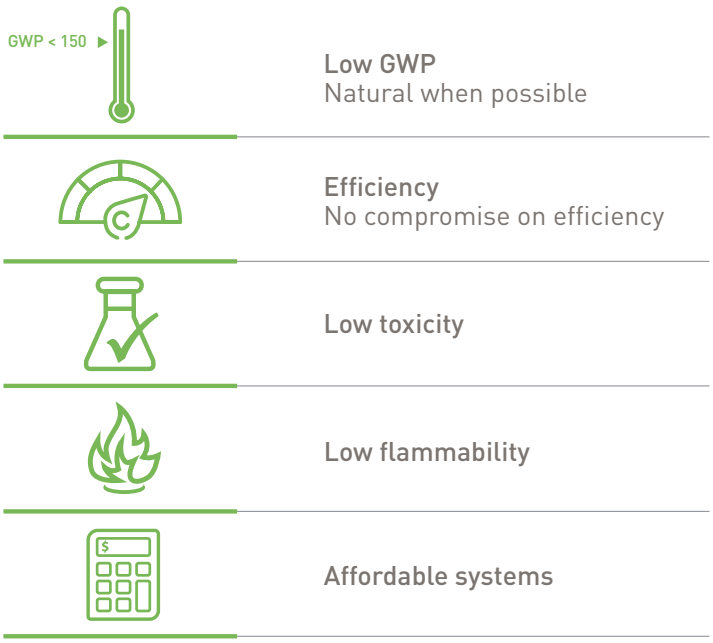
The regulation has been effective since the 1st January 2015 and is currently being assessed to revise the environmental impact reduction target.

There are also local regulations in Europe that can include taxes and local restrictions for Nordic, Spain, Poland and France.

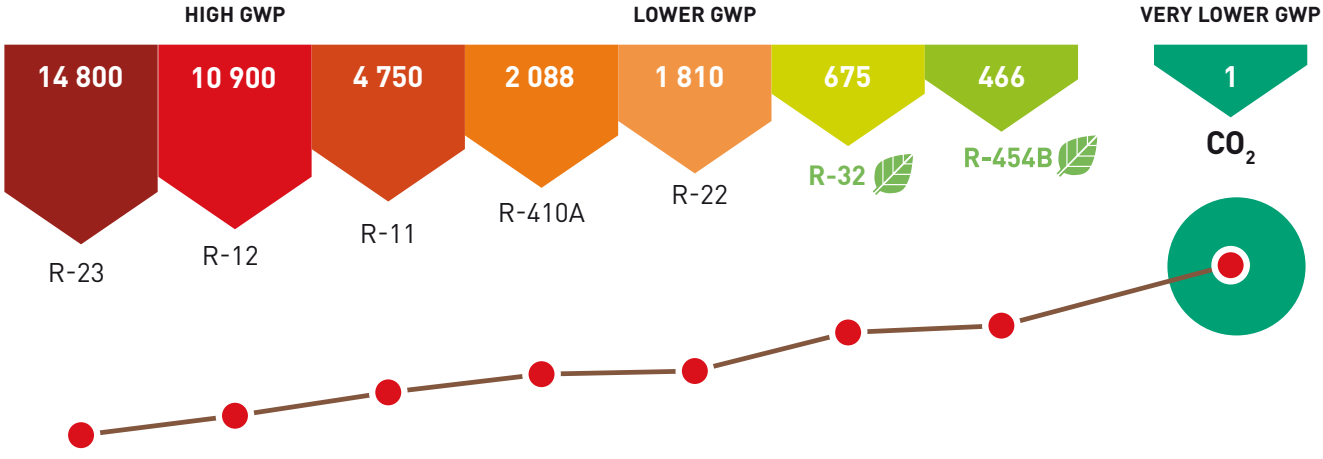
CIAT PROVIDES REFRIGERANT OPTIONS BEST ADAPTED TO SPECIFIC APPLICATIONS, CONDITIONS AND TECHNOLOGIES

CIAT chooses to develop solutions focusing on minimizing total environmental impact. This means also selecting the best refrigerant for each application without compromising on energy efficiency. This is primarily determined by the outdoor temperatures and conditions and therefore shows different optimization processes. For these applications, the technologies are constantly progressing.

Criteria to take into account when selecting the perfect refrigerant:



CIAT's commitment is to provide the closest option to carbon neutrality as possible. We use R-454B for Rooftops and R-32 for Air-Cooled Scroll Chillers and Air-to-Water Heat Pumps. With this decision, CIAT offers an ideal alternative in terms of cost reduction versus energy efficiency, minimizing the total environmental impact in the transition to lower GWP refrigerants. In both cases, CIAT ranges far exceed the Ecodesign 2021 requests.



R-454B

ROOFTOPS UNITS

R-32

AIR-COOLED SCROLL CHILLER
AND AIR-TO-WATER HEAT PUMP

DIRECT EFFECT AND TAXES

FROM THE PREVIOUS RANGE TO THE NEW RANGE

77% GWP reduction
10% reduction in refrigerant charge

80% LOWER FOOTPRINT AND TAXES ON REFILLING (*)

(*) also applicable for VECTIOS$^{POWER\ TM}$ R-410A thanks to retrofit kit.

DIRECT EFFECT AND TAXES

FROM THE PREVIOUS RANGE TO THE NEW RANGE

68% GWP reduction
30% refrigerant charge reduction

77% LOWER FOOTPRINT AND TAXES ON REFILLING (*)

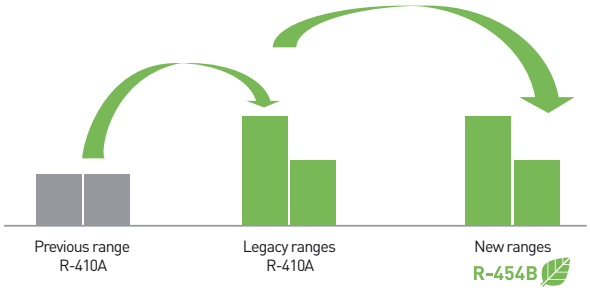
(*) The charge reduction is the combination of refrigerant migration and design optimization

ENERGY-EFICIENCY

FROM THE PREVIOUS RANGE TO THE NEW RANGE

SEER* UP TO +49%
SCOP* UP TO +15%

SEER +3%
SCOP +3%



CIAT rooftop ranges in R-410A
have already outstanding efficiencies

ENERGY-EFICIENCY

FROM THE PREVIOUS RANGE TO THE NEW RANGE

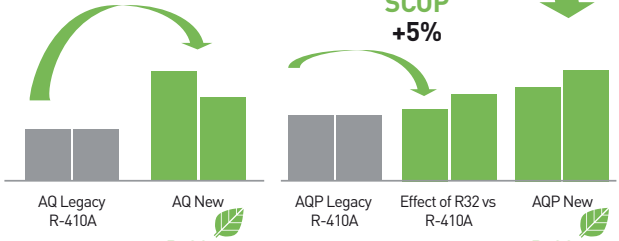
AQUACIAT™

SEER +9%
SCOP +5%

AQUACIAT$^{POWER\ TM}$

SEER +18%
SCOP +8%

SEER +8%
SCOP +5%



Not only the migration to the R-32 increase the efficiency but also the design optimization.

EFFICIENCY vs ECODESIGN 2021

Up to **+42%** In SEER

Legacy CIAT ranges in R-410A (and new R-454B) increase up to +38% (+42%) in SEER and up to +7% (+10%) in SCOP regarding ErP2021.

EFFICIENCY vs ECODESIGN 2021

Up to **+20%** In SEER

R32 range is up to 20% SEER regarding ErP2021 and up to 15% regarding SCOP.

* SEER : Seasonal Energy Efficiency Ratio SCOP : Seasonal Coefficent of Performance.

CIAT DEDICATED SOLUTIONS

ROOFTOP RANGES

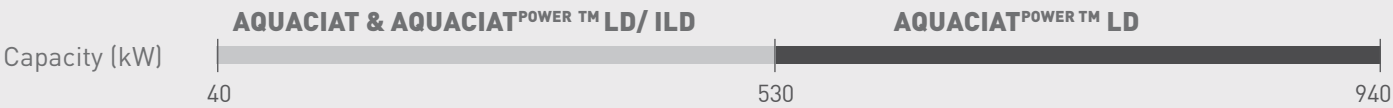
R-454B

The new CIAT rooftop ranges with R-454B is part of our effort to help you reduce your environmental impact. With its lower GWP, R-454B is a great altenative for rooftops.

The VECTIOS POWER range can also be retrofitted to use R-454B thanks to our retrofit kit.

AIR-COOLED SCROLL CHILLER AND AIR-TO-WATER HEAT PUMP OFFER

R-32



The AQUACIAT & AQUACIAT POWER range of air cooled scroll chillers and air-to-water heat pumps, are available with R-32 refrigerant for a lower ecological footprint, up to 77% less of a carbon footprint in comparison with the previous range, while improving energy performance by more than 10% and meeting the needs of a wide scope of applications.

WORLD-CLASS OPERATIONS TO BRING BEST-IN-CLASS SOLUTIONS

Our European Centers of Excellence and production sites are all world-class facilities. Each center focuses on a specific field of expertise to support our customers in meeting the challenges they face.

CULOZ CENTER OF EXCELLENCE FOR AIRSIDE TECHNOLOGIES

The research and design center and laboratory have seven innovation platforms, equipped with state-of-the-art testing and measurement tools, fully dedicated to airside applications.

MONTILLA CENTER OF EXCELLENCE FOR ROOFTOPS AND PACKAGED SOLUTIONS

Our teams in Montilla, southern Spain have in-depth expertise in rooftop, packaged, preconditioned air (PCA) for aircraft and dehumidifier units. The center houses the largest HVAC factory in Spain and offers specialized laboratories, as well as Europe's biggest aircraft preconditioner air units laboratory.

OUR BLUEDGE SERVICE PLATFORM TO MEET YOUR NEEDS

BLUEDGE

CIAT's objective is to develop partnerships with you and provide high quality service throughout the life-cycle of your HVAC system. BluEdge services take into account your changing needs and develops smart services and energy solutions that optimise performance and enable savings.

BluEdge services provide all the support you need to get the most out of your solution:

- Preventive and corrective service maintenance
- On-site inspection by experts close at hand
- Online parts shop
- Dedicated hotline for off-site technical support

BluEdge services offer you a comprehensive range of smart services including:

- Advice on improving energy performance
- Advanced monitoring and plant system management solutions
- Equipment and system modernisation

PRESENT IN MORE THAN 50 countries

More than 80 years OF EXPERIENCE

CIAT

www.ciat.com

A Carrier Company