

cosmotec

your cooling solutions

F-GAS 2027

cosmotec solutions for a safe and sustainable transition

The transition to refrigerants with a low environmental impact is transforming the industrial cooling and air conditioning sector. With the entry into force of the new **EU F-Gas Regulation 2024/573, the European Union has established a pathway for the gradual reduction of fluorinated gases with a high GWP (Global Warming Potential)**, introducing new requirements for manufacturers, equipment builders and users of refrigeration and air conditioning equipment.

Here you can discover how **cosmotec** is preparing for this evolution by developing new solutions with low-GWP refrigerants and updating its product range to ensure compliance with the most advanced environmental standards, without compromising safety, reliability or operational continuity in critical applications.

EU F-Gas Regulation 2024/573

The Regulation

Regulation (EU) 2024/573 aims to progressively reduce emissions of fluorinated greenhouse gases (F-Gases) into the atmosphere, as these have a significant impact on climate change, while promoting the adoption of alternative substances. Among the F-Gases regulated by the Regulation are the fluorinated refrigerants used in refrigeration, air conditioning and heat pump systems.

Restrictions

The F-Gas Regulation introduces restrictions on the placing on the market and export of refrigerants or products containing them. Placing on the market means the first making available of goods within the EU through sale or transfer by an EU manufacturer or through importation. Export means their movement out of the EU customs territory. It is important to note that the restrictions do not apply to subsequent sales or transfers after the first placing on the EU market.

Limits and deadlines

The first restrictions affecting cosmotec products for industrial cooling will come into force from 1 January 2027.

PLACING ON THE EU MARKET

- **Chillers and monobloc air conditioners with a rated capacity up to 12 kW:** permitted GWP below 150.
- **Chillers with a rated capacity above 12 kW:** permitted GWP below 750.

EXPORT

For monobloc air conditioners and chillers of any cooling capacity, the maximum permitted GWP is 1000.

The supply of products (for further distribution, incorporation into a final product, further processing or refinement) **for the purpose of exporting the final product outside the EU market** is not considered placing on the market. The applicable limit is therefore the one established for exports: **GWP < 1000**.

Derogations

Pursuant to Article 11(5), the European Commission may authorize temporary derogations for specific product categories where no alternative solutions are available, where such alternatives are not feasible for technical or safety reasons, or where their use would entail disproportionate costs. At present, no derogation request has been approved for industrial cooling products.

Exemptions

Annex IV of the Regulation provides an exemption for specific safety reasons related to the site where the cooling equipment operates or to the equipment into which it is integrated, such as an electrical enclosure or a machine tool. Air conditioners and chillers covered by an exemption may use refrigerants with a GWP below 750. Unlike a general derogation, this specific exemption does not require approval by the European Commission. The burden of proof lies with the operator (end user), who must be provided with a risk assessment demonstrating the safety reasons justifying the exemption.

LINK TO REGULATION (EU) 2024/573

Overview of technically viable alternative refrigerants

The traditional refrigerants used in industrial cooling products, **R134a, R407C and R410A, exceed the limits set by the Regulation**. Below is an overview of technically viable alternative refrigerants.

Natural refrigerants

Minimal environmental impact, but high application complexity

- **R290 (Propano)** GWP: 0,02 | Class A3 (highly flammable)
  It offers excellent energy performance and an almost negligible environmental impact. However, its high flammability limits its possible applications.
- **R744 (CO_2)** GWP: 1 | Class A1 (non-flammable)
  Traditional natural refrigerant historically used in industrial refrigeration. Operating pressures are very high and it offers limited efficiency in industrial air conditioning applications.

Despite their very low GWP, natural refrigerants present some application challenges: **R290 is highly flammable** and has significant limitations for safe use, while **R744 results in high energy consumption** when applied to industrial air conditioning, offsetting the environmental benefits of its low GWP. **The choice of refrigerant must consider not only GWP, but also safety, performance and overall long-term sustainability**.

Low-GWP fluorinated refrigerants

Maximum sustainability, but with flammability to manage

- **R1234yf** GWP: 0,5 | Class A2L (midly flammable)
  Guarantees performance comparable to that of traditional refrigerants while delivering an extremely low global warming potential.
- **R1234ze** GWP: 1,37 | Class A2L (midly flammable)
  Good energy efficiency solution, but requires larger-sized equipment.
- **R454C** GWP: 146 | Class A2L (midly flammable)
  Refrigerant that meets the Regulation's GWP requirements while maintaining high operational performance.

Although characterized by a low GWP, these refrigerants are classified as mildly flammable and **therefore require specific safety assessments based on the equipment to be cooled and the installation environment**.

Intermediate-GWP fluorinated refrigerants

R513A: the non-flammable alternative for safety-critical applications

- **R513A** GWP: 631 | Class A1 (non-flammable)
  It represents one of the leading solutions for applications requiring high safety standards. Its main advantage is its non-flammability, combined with proven performance and broad compatibility with industrial applications.
- **R545B** GWP: 466 | Class A2L (midly flammable)
  Refrigerant used in numerous next-generation HVAC applications.
- **R32** GWP: 675 | Classe A2L (midly flammable)
  Refrigerant widely used in the air conditioning sector thanks to its good balance between energy efficiency and reduced GWP.

These refrigerants have a GWP between 150 and 750. The F-Gas Regulation allows their use in equipment below 12 kW operating in the EU only under **exemption provisions**, when safety requirements or technical constraints make the use of lower-GWP alternatives impractical. In this context, **R513A** stands out as the only **non-flammable** refrigerant in this category, offering a significant advantage for the most critical industrial applications.

cosmotec strategy

The approach we adopt is based on a simple principle:



To provide you with the most sustainable and safest refrigerant for your application

Technical analyses show that, for many installations on electrical enclosures and industrial machinery, the use of flammable refrigerants may introduce unacceptable risks. For these applications, **cosmotec offers solutions using R513A, a non-flammable refrigerant (A1 classification) with a GWP of 631, which can be used under the exemptions provided for by the Regulation**.

Download the executive summary on the use of refrigerants in industrial air conditioners for electrical enclosures and in chillers:

Click here to download the document

Air conditioners and chillers with a cooling capacity below 12 kW using R513A refrigerant will be provided with the label shown here. This label indicates that their use in the EU is permitted only when safety considerations prevent the use of flammable refrigerants. The operator (end user) of the cooling device or of the system into which the device is integrated must be provided with a risk assessment demonstrating the safety reasons that justify the exemption.



Where the risk assessment allows the use of mildly flammable refrigerants, **cosmotec expands its offering with new product ranges based on R1234yf**, a more environmentally friendly refrigerant, characterized by a GWP of 0.5.

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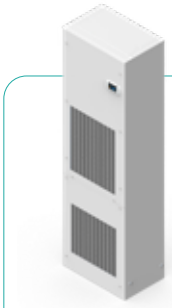
New **air conditioners** with R513A and R1234yf

The entire **cosmotec** range of air conditioners has already been converted to the **R513A** refrigerant, a non-flammable solution that ensures safety, reliability and application continuity in the most demanding industrial installations. **From January 2027, Protherm, SlimIn and Top units in the CE version using R1234yf refrigerant, characterized by a GWP of 0.5, well below regulatory limits, will be available for delivery**. This evolution maintains the same performance, dimensions and mounting cut-out of the current R513A range, offering customers more environmentally friendly solutions with the same advantages in terms of ease of installation and integration into their equipment, ensuring full application continuity.

with R513A

Capacity: < 12 kW
GWP Limit: UE in esenzione: 750 / Export: 1000
GWP: 631
Availability: Si
Certificazions: UL LISTED / CE



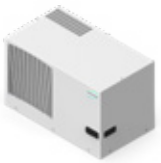




Protherm
CVE/CVO



Compact
CNE/CNO



TOP
ETE



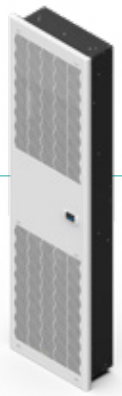
Smart
ERE03H

SlimIn
CDE

Module
EVE

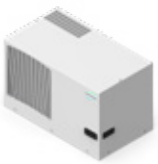
with R1234yf

Capacity: < 12 kW
GWP Limit: UE in esenzione: 150
GWP: 0,5
Availability: da gennaio 2027
Certificazions: CE





Protherm
CVY/CVH



TOP
ETY

SlimIn
CDY



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New **chillers** with R32, R513A and R1234yf

For **WLA Compact** and **WRA chillers below 12 kW**, even when installed on machinery, safety analyses have identified only limited critical issues related to the use of mildly flammable refrigerants. For this reason, we have developed the new range using **R1234yf** refrigerant. For the most critical applications operating under exemption provisions, **versions with R513A refrigerant are available on request**.

With this development, the entire chiller range covering cooling capacities from **1 to 12 kW** is available with **R1234yf**, in compliance with the requirements of the F-Gas Regulation.

The **WRA** range **above 12 kW** has been fully converted to the **R513A** refrigerant.

WLA Precision chillers, on the other hand, are available with **R32** refrigerant, the most widely used refrigerant for units in this cooling capacity range. Since these chillers are installed as standalone units rather than integrated into machinery, the use of an A2L refrigerant such as R32 is only rarely a critical safety concern.



PRODUCT	CAPACITY	GWP LIMIT IN THE EU	REFRIGERANT	GWP	GO TO THE PRODUCT PAGE
WLA Compact	< 12 kW	150	R1234yf	0,5	Web Page
WRA ErP 13-20-25-30-35	< 12 kW	150	R1234yf	0,5	PDF Datasheet
WRA ErP 50-55-65-80-90-0A-5A-8A-0B	> 12 kW	750	R513A	631	Web Page
WLA Precision	> 12 kW	750	R32	675	Web Page

WLA Compact and WRA units below 12 kW with R513A refrigerant are available on request.

Download the complete guide to the transition to the new WRA and WLA Compact units

Discover all the updates related to the adoption of **R513A** and **R1234yf** refrigerants. Inside the document, you will find the correspondence between current models and next-generation units, the main technical and dimensional differences, as well as ordering and delivery schedules.

Click here to download the document

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A look to the future

The current limited availability of certified components and system architectures for the use of flammable refrigerants in certain industrial applications makes a gradual and prudent transition necessary.

cosmotec will continue to monitor technological and regulatory developments in the market, updating its strategy whenever new solutions make it possible to combine environmental sustainability, industrial safety and economic competitiveness even more effectively.

The objective remains unchanged: to support customers and machine builders in achieving the goals of the F-Gas Regulation, while ensuring operational reliability, continuity of supply and full regulatory compliance.

For a technical discussion on the F-Gas Regulation and the safest and most compliant industrial cooling solutions, do not hesitate to contact us!

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