



CLIMATIC
ENVIRONMENT
SOLUTIONS
AND EQUIPMENT



CHILLED WATER AND/OR HOT WATER PRODUCTION UNITS



R290



www.ett-hvac.com



High Quality
Thermodynamic equipment

ETT, specialist in energy transfer

Energie Transfert Thermique is a 100% French manufacturer, based on the Brittany coast, which has been designing and manufacturing high-performance thermal machines since 1979.

With its 380-strong team, the company has based its growth on constant innovation, the quality of its machines and customer service.

For many years, **ETT** has worked in partnership with major names in the industrial sector to design, develop and supply equipment that meets their exacting requirements.

Decarbonation, Durability, Recyclability

ETT has adopted an **eco-design** approach aimed at reducing the environmental impact of all its machines, from design to dismantling.

Our machine structures are made of **aluminium** (100% recyclable), without the use of paint or solvents.

The refrigerants used have no impact on the ozone layer and have a **very low** "Global Warming Potential".

The units are designed to last over time and to be as maintainable as possible.

Energy performance is consistently among the best on the Market.

In accordance with the French Environment Code, **ETT** has signed up to **EcoLogic** a collection and recycling scheme for its end-of-life units.

ETT is committed to the future of our planet

1979

Creation of **Energie Transfert Thermique**

1984

Recognised as a specialist in air treatment, **ETT** develops its first made-to-measure water production units

2004

Market launch of a new range of R407C heat pump for simultaneous heating & cooling with air rejection (**CATT**) ('Autonomous thermal transfer cell')

2007

Launch of a range of heat pumps specially designed for food processing and agricultural applications

2014

Development of our Heat pumps for simultaneous heating and cooling with air or water rejection with R410A - **ECO4 range**

2015

F-GAS to reduce the use of HFCs comes into force. **ETT** has decided to focus its new developments on the **use of propane (R290) as a natural fluid**

ETT honoured at COP21 for bringing propane heat pumps for simultaneous heating and cooling (**ECOPS**) to market

2019

Development of a wide range of propane-fuelled industrial liquid coolers (**EC2+**)

2023

New range of high-temperature propane heat pumps (**NEROMAX**)

2024

Expansion of the propane range in Chillers and Heat Pumps to meet requirements ranging from 50kW to 1.2MW as packaged units: (**SM RO FR/CH**)

100% aluminium,
recyclable.

Regulatory environment



The **Refrigerants** needed to operate thermodynamic machines can be of any type. Some of them, which have long been used for their thermal properties, unfortunately have a negative impact on global warming. The **F-GAS regulation** introduced at European level, aim to drastically reduce the use of **high greenhouse gases** over the coming years.



A GLOBAL CHALLENGE

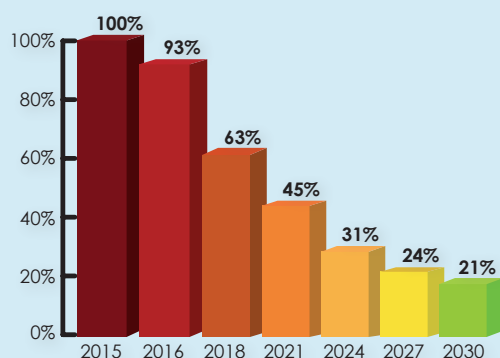
HydroFluoroCarbons (or **HFCs**) are non-natural refrigerants classified as substances with a high **Global Warming Potential (GWP)**. The **F-GAS** regulation sets a total phase-out by 2050.

HydroFluoro-Olefins (or **HFOs**) have been marketed for their reduced impact on the greenhouse effect. But these HFOs contain **PFAS**, chemical substances that are persistent in the environment (water, air and soil) and considered to be **forever chemicals** with a negative impact on health.

The toxicity of these Refrigerants, once released into the atmosphere, condemns them in the long term.



F-Gas II objectives:
CO₂ emissions cut by 5 over 15 years.



What can we learn from the latest version of F-GAS (III) published in February 2024?

The requirements of **F-GAS (II)** have borne fruit, with a reduction in fluorinated greenhouse gas emissions of 47% Teq CO₂ between 2015 and 2019.

"The emphasis is now clearly on the use of low **GWP** alternative solutions, in particular solutions using natural fluids such as propane." [Article 3](#)

"The **PFAS** contained in **HFOs** are chemicals that resist degradation and can have a negative impact on health and the environment. In line with the precautionary principle, companies should consider using alternative solutions that are less harmful to health, the environment and the climate." [Article 7](#)

Propane is a natural fluid, free of any PFAS, and is therefore considered to be a genuine refrigerant of the future.



Propane: AN eco-responsible choice

ETT chose propane (or R290) for its low global warming potential, excellent thermodynamic properties and wide range of uses. It offers a very good alternative for negative-temperature, positive-temperature and heating applications.

With 10 years' experience of solutions using R290, ETT is now sure to have made the right choice!

Refrigerant	R404A	R410A	R407C	R134a	R32	R513A	R290	CO ₂
GWP (T _{eq} CO ₂)	3922	2088	1774	1430	675	631	3	1

GWP= Global Warming Potential

the Global Warming Potential of a fluid compared with that of the same mass of CO₂.

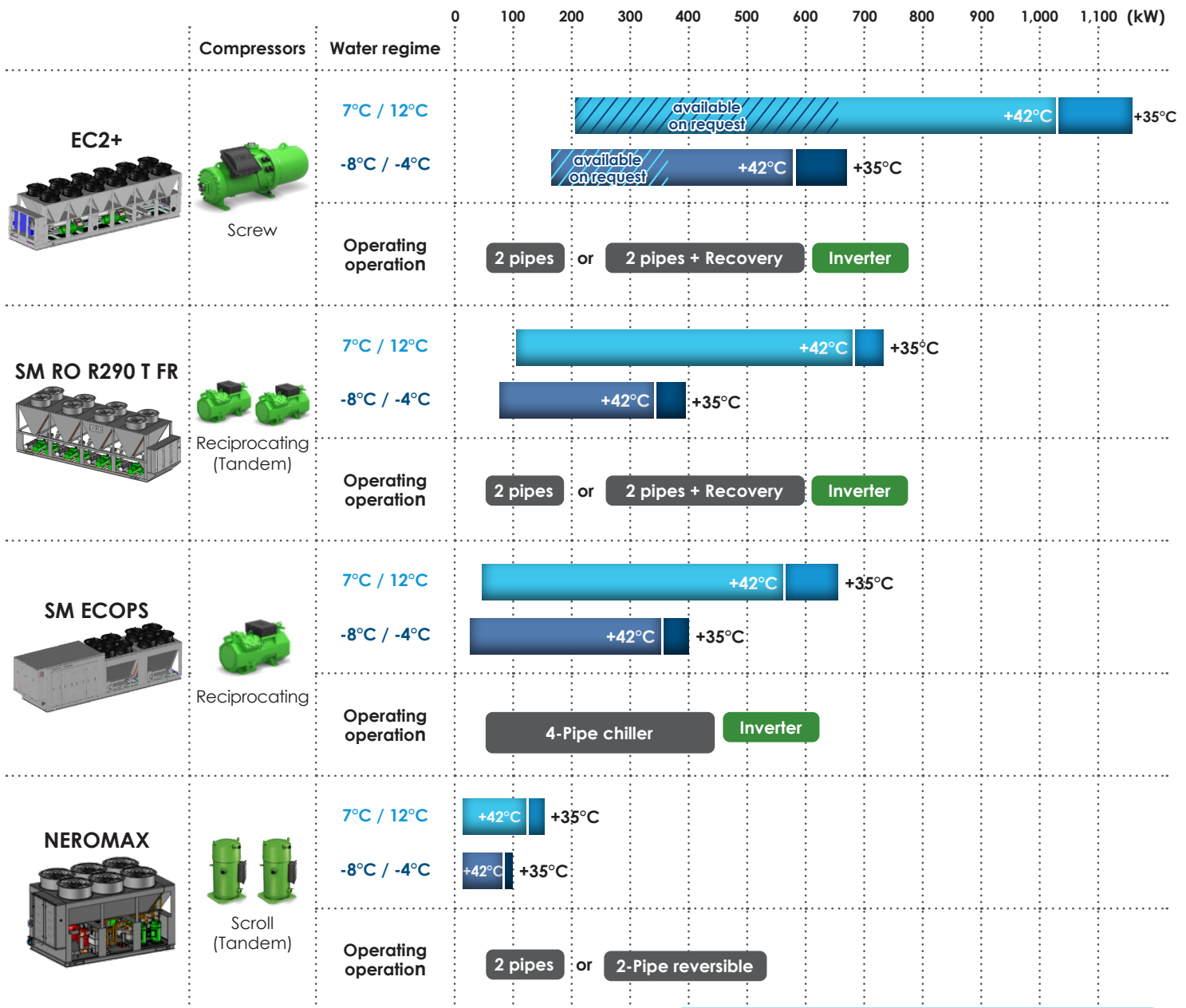


With an innovative R&D department that is always on the lookout for technological and regulatory developments, **ETT** works on a daily basis to develop its products into sustainable solutions.

unit range OF chilled water production

The **ETT** plant's manufacturing capacity enables it to offer a wide range of water-cooled heat pumps, from standard units to completely customised units, to meet a wide variety of customer needs.

IN COOLING MODE (kW) AT +35°C OUTSIDE



KEY:

Power range

Other outside T° C°

Max. power at another specified outdoor temperature

MACHINE MAIN COMPONENTS

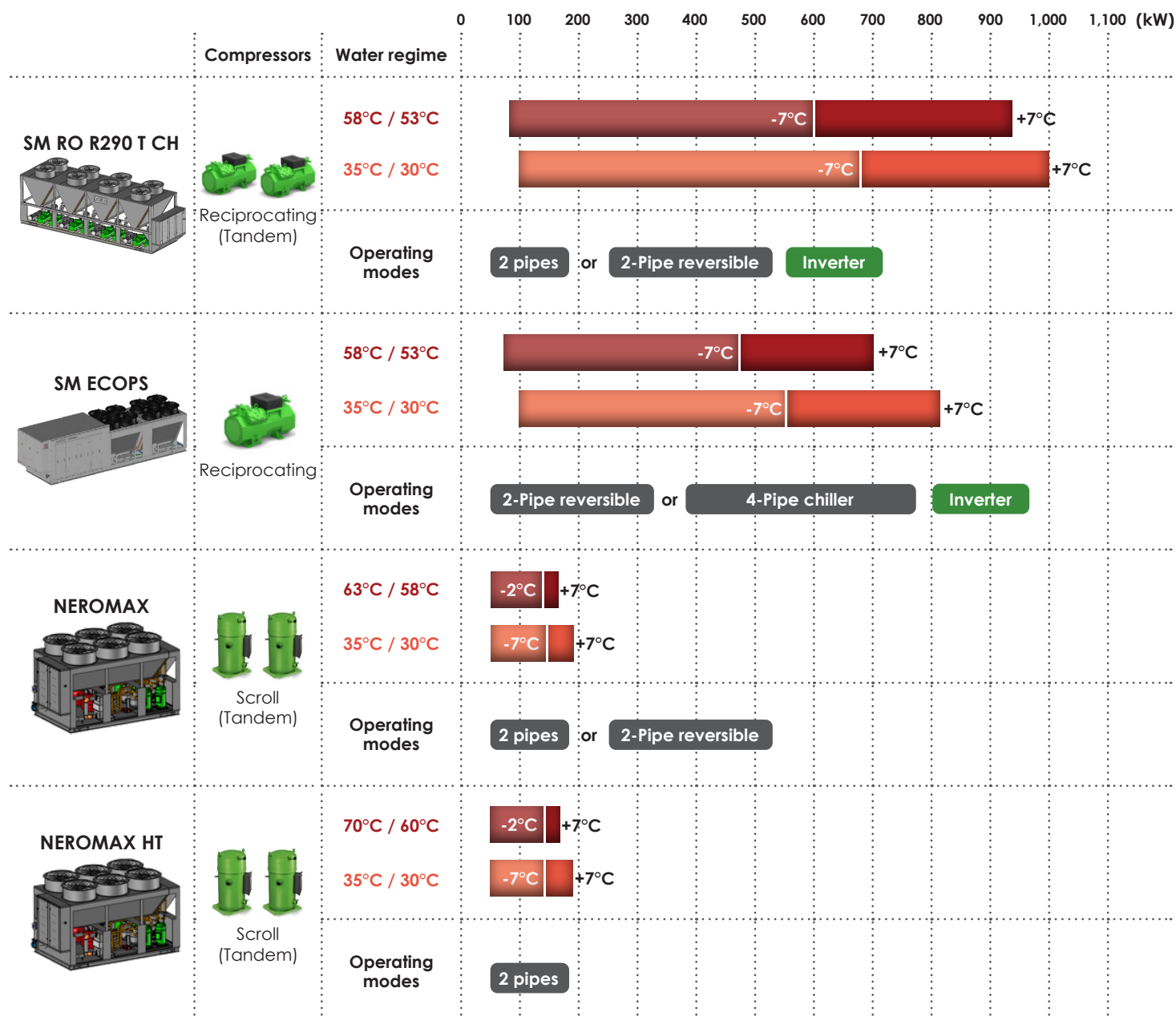
- Frame and casing assembly: AG3 aluminium, 20-year anti-corrosion warranty
- Propeller fans Ø910, communicating, variable speed, very low noise level
- Screw, reciprocating or scroll* compressors
- DUAL plate or tubular* heat exchangers
- New Generation PLC: c.pCO CAREL

20-year guarantee
against corrosion
frame - casing



unit range OF hot water production

IN HEATING MODE (kW) AT +7°C OUTSIDE



KEY:

Power range

Other outside T° C°

Max. power at another specified outdoor temperature

OPTIONS*

- Water-cooled condenser for total heat recovery
- Frequency inverters on compressors
- Hydraulic kit
- Reinforced protection for the seaside
- Customised design to meet dimensional and acoustic constraints
- Stainless steel hydraulic pipes
- Victaulic™ quick-release couplings
- Other water temperatures on request (from -25°C to +70°C)
- Remote supervision and transfer of technical data to a secure Cloud for optimum monitoring with myETTVision



(*) depending on machine model

Safety

ETT machines have an internal safety chain acknowledged by a notified body. The **ETT** approach is certified by an EU declaration of conformity.



On-site integration

As with all refrigerants, the use of propane on site requires a risk analysis by a Notified Body in order to acknowledge the integration of the machine into its environment. This document serves as a basis for drawing up the **Explosion Protection Document** required by the ATEX regulations, and describes the technical and organisational measures taken to achieve the objectives.

CSR challenge AND Decarbonation



Corporate **S**ocial **R**esponsibility is a major area of development in the industry.

Carbon footprint plays a crucial role in the development and implementation of any **CSR** strategy. It provides a detailed analysis of a company's greenhouse gas (GHG) emissions, giving an overview of its contribution to climate change.

The decarbonisation of industrial activities is a climate imperative, but also a competitive challenge for businesses.

The installation of **ETT** heat pumps provides an additional opportunity to contribute to the decarbonisation of industrial sites. These heat pumps can be used to back up or replace boilers, or even to do without them, depending on requirements.

SOME references

Industrial refrigeration

- **'UNICOQUE' in CANCON (47) FRANCE:** Packaging hazelnuts, positive cold maintenance of storage
- **ENDIVES PRODUCERS in DROUVIN LE MARAIS (62) FRANCE:** Endive forcing in a darkroom - Total heat recovery
- **LISI AEROSPACE in SAINT-OUEN L'AUMONE (95) FRANCE:** Manufacture of rivets for the aerospace industry - Chiller in relay of an adiabatic Drier for cooling machine tools



Manufacturers with heating systems

- **SAFRAN in CREUSOT (71) FRANCE:** Equipment manufacturer for the aeronautics industry, production of hot water for workshop heating as part of the decarbonisation process
- **CHABERT & GUILLOT in MONTELIMAR (26) FRANCE:** Manufacture of nougats, simultaneous production of hot and cold for the process
- **ARMEE DE L'AIR in ORANGE (84) FRANCE:** Heating and air conditioning for the workshops at air base

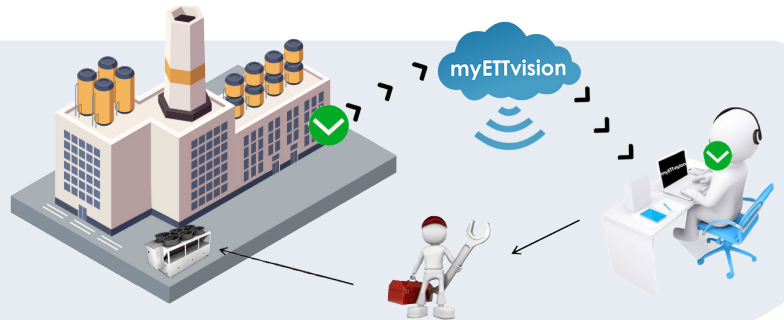
ETT strength

ALSO LIES IN the provision of services

myETTVision

► Remote supervision

- ✓ Real-time alarms
- ✓ Remote diagnosis
- ✓ Fault reset
- ✓ Controlling settings
- ✓ ETT Hotline assistance
- Responsiveness
- Equipment availability rate
- Durability of installations
- Reduced maintenance costs



3 dashboards
x

FLEET

• Fleet dashboard:

- ✓ Site geolocation
- ✓ Operating status display
- ✓ Diagnostic approach

SITE

• Site dashboard:

- ✓ Summary of site and equipment operating status
- ✓ Direct access to setpoints
- ✓ Comparison of the main settings between equipment

EQUIPMENT

• Equipment dashboard:

- ✓ Synthetic operating indicators
- ✓ Detailed status of each function
- ✓ Direct access to fault reset
- ✓ Diagnostic assistance

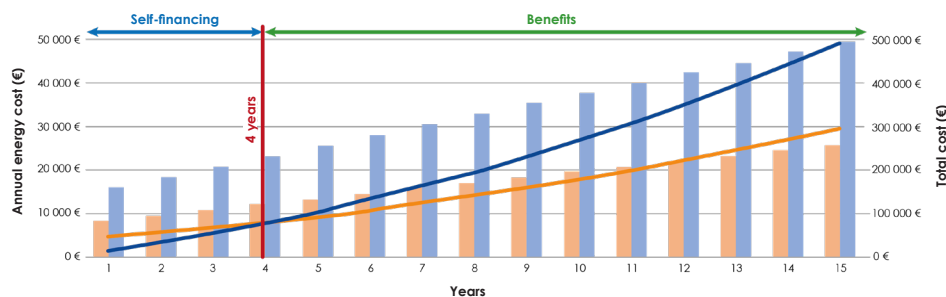
ETT Energy

To help our customers with their energy transition, **ETT** offers a customised study to separate machine investment (CAPEX) and operating expenses (OPEX).

► Overall cost optimisation

Purpose: Understand the overall investment in a facility over its lifetime

- ✓ Calculating energy consumption
- ✓ Calculation of ROI/TRI between different technical solutions



What is the overall cost of a unit?

Cost of purchase
of the unit



The cost of operating and
maintenance of the machine
throughout its lifetime

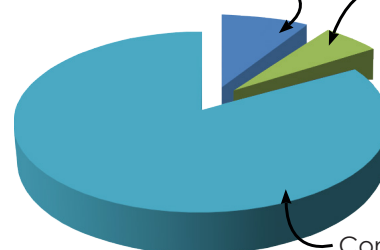
On average, the purchase price of a machine and its installation represent **12 % of the overall cost**.

Investing in equipment to save on **overall consumption** is a **cost-effective strategy**.

Over a 15-year lifespan:

Machine price 12 %

Maintenance 4%



ETT strength

ALSO LIES IN provision of services



Our ETT services, a team of specialists always at your side to ensure the success of your projects!

- **Audit:** Preliminary visit for feasibility and costing
- **Services Studies:** Specialist engineers
- **Follow-up:** By a local representative from start to finish
- **Hotline:** Expert technicians
- **On-site interventions:** Experienced technicians, trained in regulatory requirements and **ETT** technologies.

ETT also offers customers a choice of service contracts:

- Customised maintenance programme or maintenance contract
- Safety regulatory controls and tightness checks (**PED**)
- Emergency supply of spare parts
- Factory supervision
- Staff training



CONTACT US NOW!

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