

GOGREEN
solutions



rcgroup.it

1 9 6 3 2 0 1 3
fifty cool years

*Let's treat well the earth on which we live:
it was not donated by our fathers , but we borrowed it from our children ...*

(Masai Proverb)

the new **HFO**1234ze
ecorange chillers

rcgroupairconditioning

OUR PLANET

Today, environmental respect is the core value and guideline to develop new technologies. The environmental sustainability makes its appearance in every sector through research techniques for the renewal of the resources of our planet Earth.

Mankind has the duty to defend and preserve the delicate balance of the Earth.

Sustainability for RC Group is the commitment of the present generations to leave to future generations the same quantity and quality of resources especially.

Since 1997 (from the Kyoto Protocol) to today, the first aspect is the reduction of global warming, gradually limiting the use of HCFC refrigerants.

OUR MISSION

The high efficiency of the products together with the study and design of tailored solution, translate into energy savings, and consequently in cost reduction.

RC Group solutions arise from synergies between RC Group hardware and software, through analysis and energy management.

Calculating it in advance and carefully, drive us to system design compatible with requirements and environment.

At the same time, we can also determine which will be the return of the initial investment in terms of economies of exercise.

OUR SOLUTION

It is thanks to its experience that RC Group has been able to integrate and merge the design excellence, which distinguishes it for years, with the environment demands.

It was in fact created a number of solutions arising from the energy efficiency study.

GO GREEN SOLUTIONS

GO
Reliable
Ecologic
Evolved
Natural



The Artificial Intelligence of RC Group goes green with SPECTRUM, software able to turn a simple technical selection in a projection into the future, by allowing the choice of the most environmentally friendly and more economical solution. Thanks to RC Cloud Platform, the most modern form of remote control, the product reliability is always guaranteed.



Reliable



Evolved



Always in step with the continuous and rapid technological developments, RC Group uses the best components and cutting-edge techniques and tools, such as compressors driven by Inverter and software for the selection and management of the facilities.

As pioneer of Free-Cooling technology since the early eighties and still not for everyone, RC Group has always placed an emphasis on the development of this technique. Another system at the base of energy-saving is the Glycol-Free, which allows the use of pure water instead of antifreeze solutions.



Natural

Ecologic

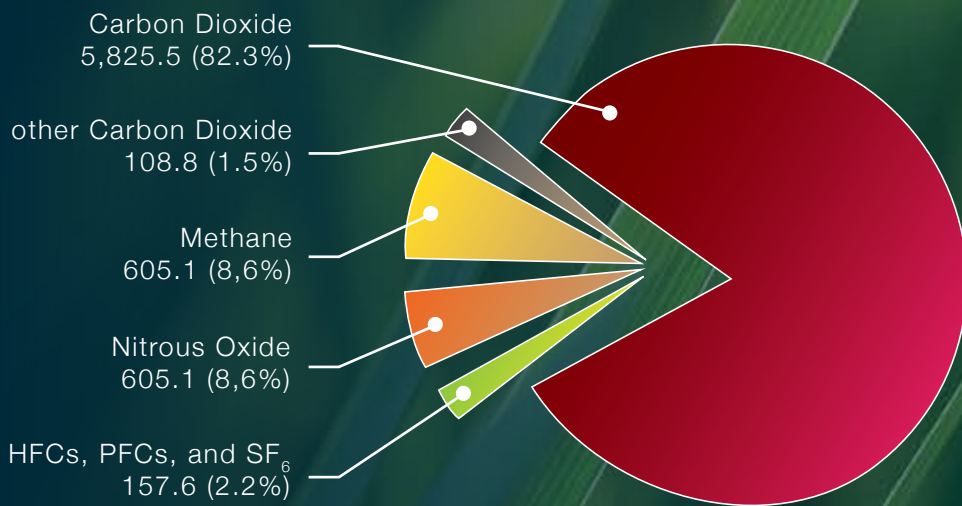


The focus on the latest regulations in the field of environmental sustainability and energy saving, led RC Group to adopt refrigerants with low environmental impact, making its products, as well as efficient, even friends of the environment.

GREENHOUSE GASES AND GLOBAL WARMING

The main aspects introduced in the Kyoto Protocol (1997) concern the gradual reduction of global warming through the progressive reduction in the use of HFC refrigerants. This protocol was adopted by the European Council in 2006 under Regulation (842/2006). As the consequence of the negative results arisen from this Directive, the current laws relating to F – gases have been introduced.

ANTHROPOGENIC GREENHOUSE GAS EMISSION

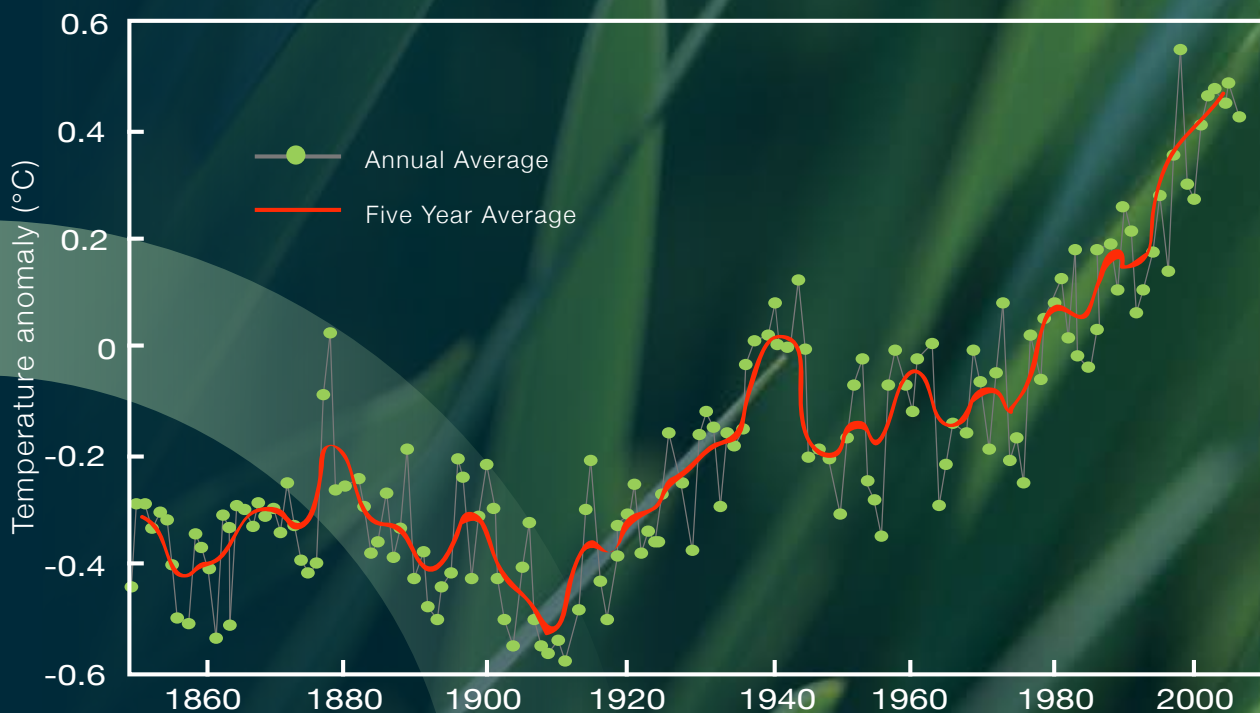


Source:
Energy Information Administration,
*Emissions of Greenhouse Gases in
the United States 2006* (Washington,
DC, November 2007)

GLOBAL TEMPERATURES

The IPCC (Intergovernmental Panel on Climate Change) has analyzed the average atmospheric temperature anomalies on the ground and the on the surface of the seas, in the last 150 years.

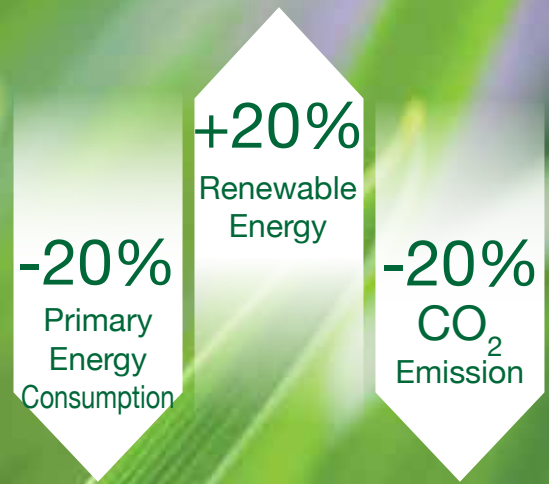
It is necessary to keep the global warming below 2°C of the pre-industrial average temperature to avoid the worst effects of climate and environmental changes that can be potentially catastrophic.



UE GOALS

Prevent potentially harmful climate change is the top priority for the European Union. Europe is engaged in a project to drastically cut greenhouse gas emissions while encouraging other nations to take the same action. The European Union has set important and ambitious targets for energy sustainability:

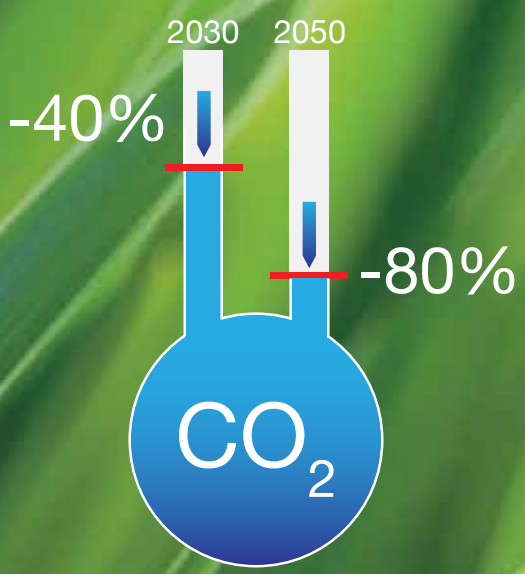
- Reduce by 20 % the greenhouse gas emissions compared to 1990 levels
- Bring to 20 % share of renewables in total energy consumption
- Reduce by 20 % the consumption of primary energy by increasing efficiency



In order to turn Europe into a highly energy efficient economy and with low CO₂ emissions, the EU aims to achieve more ambitious long-term goals.

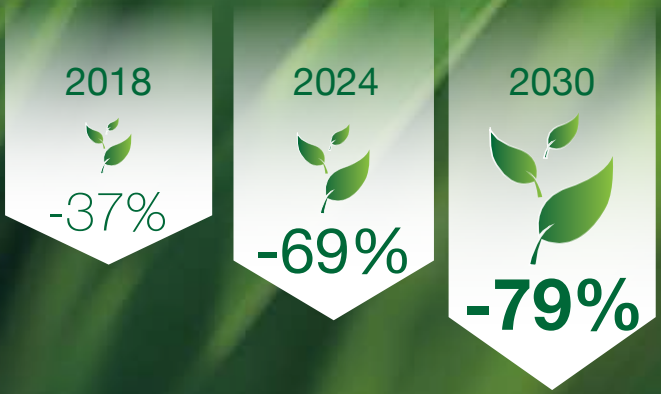
Reduce by 40 % CO₂ emissions by 2030

Reduce by 80 % CO₂ emissions by 2050



GO GREEN

REDUCING THE F - GAS BY 2030



On the subject of fluorinated greenhouse gases (F-gases), the European Parliament had decreed that, from 2022 to 2025, their use would be prohibited in the new products on the market, in order to gradually reduce it up to 79 % by 2030.

Progressive reduction of the HFC (hydrofluorocarbons) percentage, refrigerants that are not entirely eco-friendly, because their release into the atmosphere contributes to the effect of global warming.

| YEAR | ALLOWED % OF HFC REFRIGERANTS |
|---------|-------------------------------|
| 2015 | 100% |
| 2016-17 | 93% |
| 2018-20 | 63% |
| 2021-23 | 45% |
| 2024-26 | 31% |
| 2027-29 | 24% |
| 2030 | 21% |

LIGHT WEIGHT SOLUTIONS FOR ENVIRONMENT

Environmentally
Energy Saving
Ecosustainability

HFO1234ze

RC Hi-Tech

RC Group makes use of refrigerants innocuous to the atmosphere, first of all the **HFO1234ze** that, thanks to its high environmental compatibility joined to a high energy efficiency, results to be an excellent SOLUTION for replacement of R134a. Another point in its favor is the much higher critical temperature which allows to operate at much higher condensation temperatures retaining a good thermodynamic efficiency.

GO GREEN



The GWP (Global Warming Potential) expresses the contribution to the greenhouse effect of a gas relatively to the effect of CO₂, whose reference potential is equal to 1. Each GWP value is calculated for a specific time interval.



The ODP (Ozone Depletion Potential) index refers to a chemical compound and it is the relative value of degradation of the ozone layer that this compound may cause.



The TEWI (Total Equivalent Warming Impact) index allows to quantify the impact that the equipment have on global warming considering both the emission of greenhouse gases during operation and disposal of the fluids operating at the end of the life cycle.

| | R134a | HFO 1234 ze |
|---------------------------|---------|-------------|
| GWP (100 years) | 1430 | 6 |
| ODP | 0 | 0 |
| NON-Toxicity level | A Class | A Class |
| Flammability | NO | Y(*) |
| Efficiency | + | ++ |
| Critical Temperature (°C) | 101 | 110 |

LIFETIME IN ATMOSPHERE

HFO 1234 ze

18 DAYS

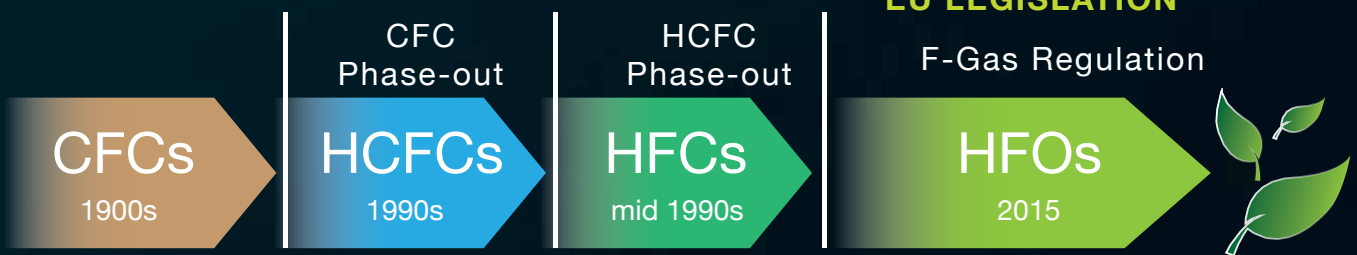
R134a

13 YEARS

(*) ASHRAE Std.34 Safety Classification: A2L
Flammability Limits - ASHRAE34 @100°C: 7/12% (by volume)

MONTREAL PROTOCOL

KYOTO PROTOCOL EU LEGISLATION



Ozone depleting
Very high GWP

No-Ozone depleting
High GWP

No-Ozone depleting
Very low GWP

OUR **ECO**-RANGE SELECTION

3 new High Efficiency series
34 models for a wide selection opportunity
Design excellence by RC Group
Green refrigerant **HFO1234ze**
Microchannel condensing coils
High EER and ESEER
Wide range of accessories



UNICO TURBO FL**G**

Air cooled liquid chillers in A class energy efficiency equipped with oil-free centrifugal compressors with magnetic levitation bearings, flooded evaporator and microchannel condensing coils.



UNICO TURBO FL**G** FREE

Air cooled liquid chillers with Free-Cooling system in A class energy efficiency equipped with oil-free centrifugal compressors with magnetic levitation bearings, flooded evaporator and microchannel condensing coils.



FRIGO TURBO FL**G**

Water cooled liquid chillers in A class energy efficiency equipped with oil-free centrifugal compressors with magnetic levitation bearings, flooded evaporator and shall and tube condenser.

310 kW

Cooling Capacity,
Range 310-65 kW

±0,3°C

Accurate Cooling

+ 3%

Energy Efficiency increase
compared to R134a

COMPRESSOR TG310



Danfoss

NEW

UNICO TURBO FLG

Cooling Capacity: **260 ÷ 1260 kW**

INVERTER
RC Hi-Tech

HIGH EFFICIENCY
RC Hi-Tech

LOW NOISE
RC Hi-Tech

HFO1234ze
RC Hi-Tech

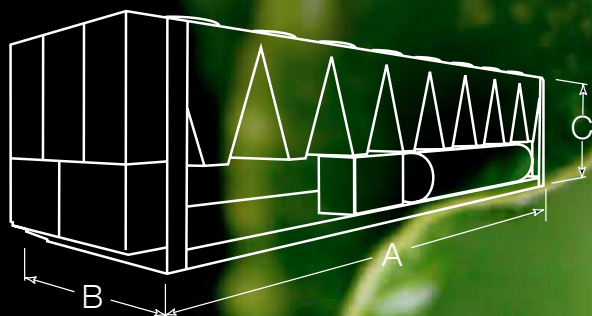


| Model | 260 T1 VT2 | 310 T1E VT3 | 400 T2 VT4 | 520 T2E VT5 | 620 T2E VT6 | 700 T3 VT7 |
|-----------------------|------------|-------------|------------|-------------|-------------|------------|
| Cooling Capacity (kW) | 260 | 310 | 400 | 520 | 620 | 700 |
| EER net | 3,20 | 3,16 | 3,16 | 3,36 | 3,15 | 3,18 |
| ESEER | 4,91 | 5,47 | 4,89 | 5,27 | 5,69 | 5,08 |
| A (mm) | 3760 | 3760 | 4880 | 5994 | 7114 | 8234 |
| B (mm) | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 |
| C (mm) | 2370 | 2370 | 2370 | 2370 | 2370 | 2370 |
| Net Weight (Kg) | 2347 | 2382 | 3182 | 3773 | 4206 | 5335 |

| Model | 780 T3E VT7 | 900 T3E VT8 | 1040 T4E VT10 | 1200 T4E VT11 | 1300 T4E VT12 |
|-----------------------|-------------|-------------|---------------|---------------|---------------|
| Cooling Capacity (kW) | 780 | 900 | 1040 | 1200 | 1260 |
| EER net | 3,28 | 3,16 | 3,24 | 3,20 | 3,14 |
| ESEER | 5,16 | 5,77 | 5,14 | 5,60 | 5,94 |
| A (mm) | 8234 | 9354 | 10468 | 12708 | 13828 |
| B (mm) | 2260 | 2260 | 2260 | 2260 | 2260 |
| C (mm) | 2370 | 2370 | 2370 | 2370 | 2370 |
| Net Weight (Kg) | 5430 | 5863 | 7304 | 8169 | 8601 |

Referred to water temperature 12/7°C and ambient temperature 35°C

EER up to 3,36
ESEER up to 5,94



| Model | Sound Pressure (Lp1m)[dB(A)] | Sound Power Level(Lw)[dB(A)] |
|---------------|------------------------------|------------------------------|
| 260 T1 VT2 | 73,9 | 93,4 |
| 310 T1E VT3 | 73,9 | 93,4 |
| 400 T2 VT4 | 74,8 | 94,8 |
| 520 T2E VT5 | 75,1 | 95,6 |
| 620 T2E VT6 | 75,4 | 96,4 |
| 700 T3 VT7 | 75,7 | 97,1 |
| 780 T3E VT7 | 75,7 | 97,1 |
| 900 T3E VT8 | 76,1 | 97,8 |
| 1040 T4E VT10 | 76,1 | 98,2 |
| 1200 T4E VT11 | 76,4 | 99,1 |
| 1300 T4E VT12 | 76,5 | 99,5 |

Sound pressure ISO3744 Sound power ISO9614-2

NEW

UNICO TURBO FLG FREE

Cooling Capacity: **400 ÷ 1260 kW**
Free-Cooling: **497 ÷ 1492 kW**



HFO1234ze
RC Hi-Tech

FREE COOLING
RC Hi-Tech

HIGH EFFICIENCY
RC Hi-Tech

INVERTER
RC Hi-Tech

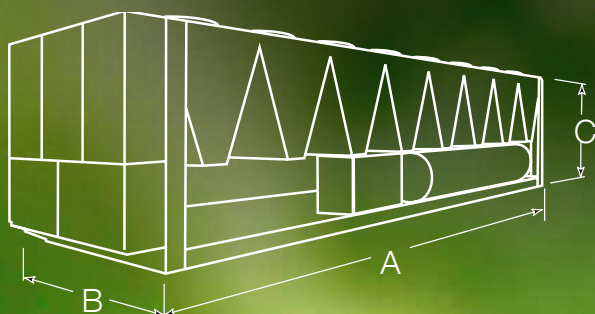
LOW NOISE
RC Hi-Tech

| Model | 400 T2 VT4 | 520 T2E VT5 | 620 T2E VT6 | 700 T3 VT7 |
|-----------------------|------------|-------------|-------------|------------|
| Cooling Capacity (kW) | 400 | 520 | 620 | 700 |
| Free-Cooling (kW) | 497 | 621 | 746 | 870 |
| EER net | 3,20 | 3,50 | 3,39 | 3,34 |
| ESEER | 4,62 | 5,07 | 5,52 | 4,83 |
| A (mm) | 4880 | 5994 | 7114 | 8234 |
| B (mm) | 2260 | 2260 | 2260 | 2260 |
| C (mm) | 2370 | 2370 | 2370 | 2370 |
| Net Weight (Kg) | 3742 | 4471 | 5065 | 6336 |

| Model | 780 T3E VT7 | 900 T3E VT8 | 1040 T4E VT10 | 1200 T4E VT11 | 1300 T4E VT12 |
|-----------------------|-------------|-------------|---------------|---------------|---------------|
| Cooling Capacity (kW) | 780 | 900 | 1040 | 1200 | 1260 |
| Free-Cooling (kW) | 870 | 994 | 1119 | 1367 | 1492 |
| EER net | 3,47 | 3,38 | 3,44 | 3,43 | 3,38 |
| ESEER | 5,12 | 5,51 | 5,07 | 5,43 | 5,60 |
| A (mm) | 8234 | 9354 | 10468 | 12708 | 13828 |
| B (mm) | 2260 | 2260 | 2260 | 2260 | 2260 |
| C (mm) | 2370 | 2370 | 2370 | 2370 | 2370 |
| Net Weight (Kg) | 6431 | 7005 | 8588 | 9736 | 10310 |

Mechanical Cooling: Referred to Glycol Solution temperature 15/10°C with 20% Ethylene Glycol and ambient temperature 35°C
Free Cooling: Referred to Glycol Solution inlet temperature 15°C with 20% Ethylene Glycol and ambient temperature 3°C

EER up to 3,50
ESEER up to 5,60



| Model | Sound Pressure (Lp1m)[dB(A)] | Sound Power (Lw)[dB(A)] |
|---------------|------------------------------|-------------------------|
| 400 T2 VT4 | 74,8 | 94,8 |
| 520 T2E VT5 | 75,1 | 95,6 |
| 620 T2E VT6 | 75,4 | 96,4 |
| 700 T3 VT7 | 75,7 | 97,1 |
| 780 T3E VT7 | 75,7 | 97,1 |
| 900 T3E VT8 | 76,1 | 97,8 |
| 1040 T4E VT10 | 76,1 | 98,2 |
| 1200 T4E VT11 | 76,4 | 99,1 |
| 1300 T4E VT12 | 76,5 | 99,5 |

Sound pressure ISO3744 Sound power ISO9614-2

NEW

FRIGO TURBO FLG

Cooling Capacity: **250 ÷ 1240 kW**

INVERTER
RC Hi-Tech

HIGH EFFICIENCY
RC Hi-Tech

LOW NOISE
RC Hi-Tech

HFO1234ze
RC Hi-Tech

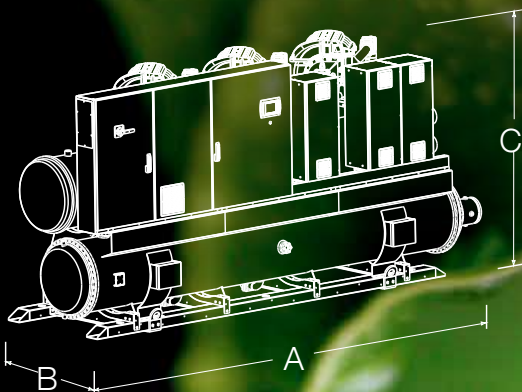


| Model | 250 T1 P4 | 280 T1 | 310 T1E | 400 T2 | 400 T2 P4 | 500 T2 P4 | 560 T2 |
|-----------------------|-----------|--------|---------|--------|-----------|-----------|--------|
| Cooling Capacity (kW) | 250 | 280 | 310 | 400 | 400 | 500 | 560 |
| EER net | 5,41 | 5,17 | 5,24 | 5,26 | 5,25 | 5,34 | 5,20 |
| ESEER | 8,56 | 8,29 | 8,52 | 8,13 | 8,46 | 8,87 | 8,88 |
| A (mm) | 3465 | 3465 | 3465 | 3465 | 3465 | 3505 | 3505 |
| B (mm) | 1360 | 1360 | 1360 | 1360 | 1360 | 1360 | 1360 |
| C (mm) | 1770 | 1770 | 1770 | 1929 | 1929 | 1929 | 1929 |
| Net Weight (Kg) | 2066 | 2065 | 2209 | 2700 | 2636 | 2949 | 3141 |

| Model | 620 T2E | 750 T3 P4 | 840 T3 | 930 T3E | 1000 T4 P4 | 1120 T4 | 1240 T4E |
|-----------------------|---------|-----------|--------|---------|------------|---------|----------|
| Cooling Capacity (kW) | 620 | 750 | 840 | 930 | 1000 | 1120 | 1240 |
| EER net | 5,24 | 5,41 | 5,16 | 5,31 | 5,41 | 5,17 | 5,25 |
| ESEER | 8,94 | 9,10 | 8,92 | 8,92 | 8,89 | 8,65 | 8,70 |
| A (mm) | 3685 | 3770 | 3770 | 3770 | 4520 | 4520 | 4520 |
| B (mm) | 1360 | 1360 | 1360 | 1400 | 1400 | 1360 | 1360 |
| C (mm) | 1929 | 2059 | 2059 | 2059 | 2090 | 2090 | 2090 |
| Net Weight (Kg) | 3526 | 4425 | 4730 | 5211 | 6195 | 6376 | 6964 |

Referred to water temperature 12/7°C and condenser water temperature 30/35°C

EER up to 5,41
ESEER up to 9,10



| Model | Sound Pressure (Lp1m)[dB(A)] | Sound Power (Lw)[dB(A)] |
|------------|------------------------------|-------------------------|
| 250 T1 P4 | 69,6 | 87,9 |
| 280 T1 | 69,6 | 87,9 |
| 310 T1E | 69,6 | 87,9 |
| 400 T2 | 71,4 | 89,9 |
| 400 T2 P4 | 71,4 | 89,9 |
| 500 T2 P4 | 71,4 | 89,9 |
| 560 T2 | 71,4 | 89,9 |
| 620 T2E | 71,3 | 89,9 |
| 750 T3 P4 | 72,8 | 91,6 |
| 840 T3 | 72,8 | 91,6 |
| 930 T3E | 72,8 | 91,6 |
| 1000 T4 P4 | 73,3 | 92,5 |
| 1120 T4 | 73,3 | 92,5 |
| 1240 T4E | 73,3 | 92,5 |

Sound pressure ISO3744 Sound power ISO9614-2

GO

Reliable
Ecologic
Evolved
Natural



rcgroup.it

1 9 6 3 2 0 1 3
fifty cool years



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DELCLIMA

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