COSMOGAS®
MADE IN ITALY



# Product Guide

## hybrid systems and heat pumps

# Index

## Hybrid systems



## Heat pumps - Fan coils

# Hybrid systems

ECOhybrid Max

Pag. 18

ECOhybrid

Pag. 20

SOLARfryo

Pag. 22

# Heat pumps - Fan coils

SOLARsplit

Pag. 26

ECOtwin

Pag. 30

ECOtower

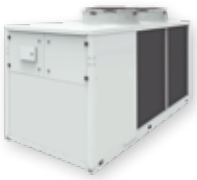
Pag. 32

FRYO R290

Pag. 36

FRYO Pi

Pag. 38

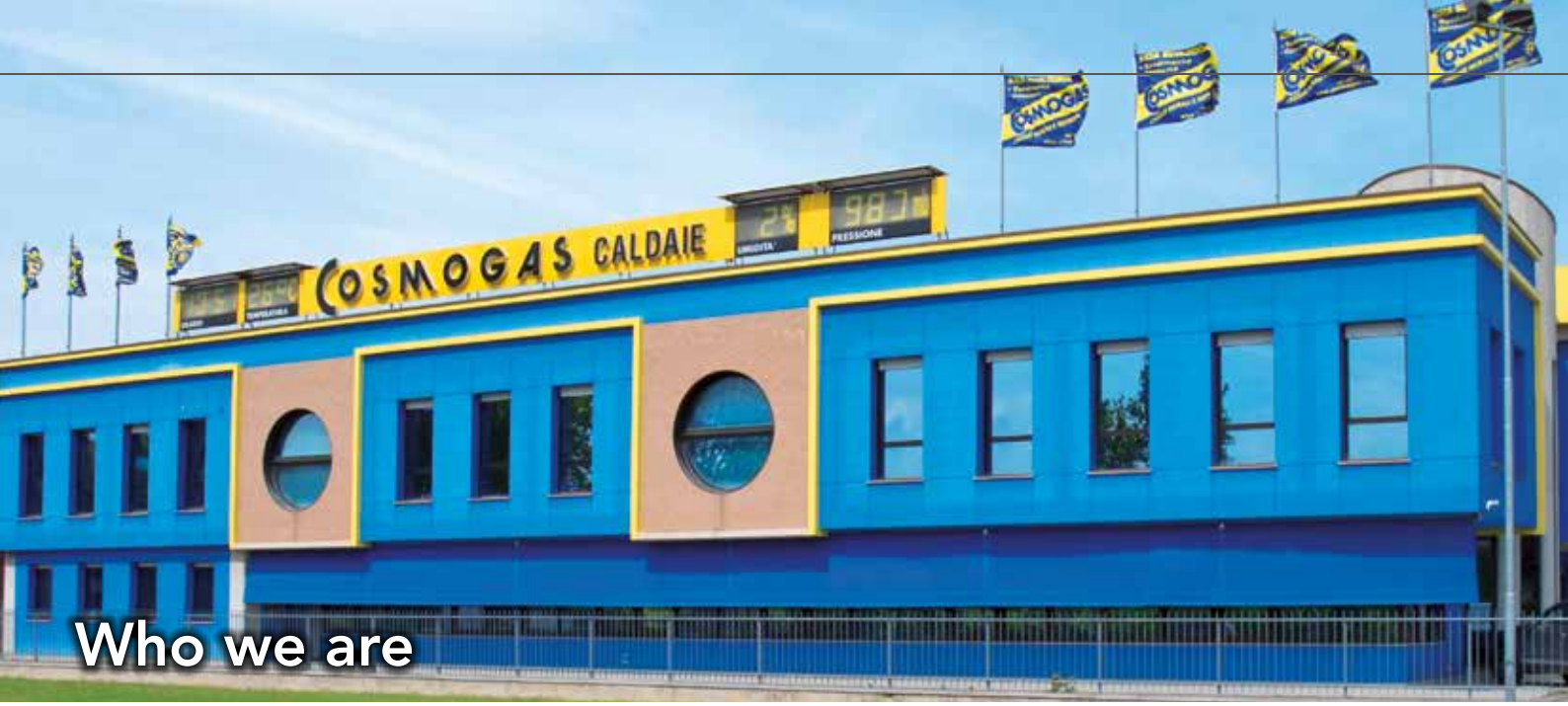


FRYO P2

40

Fan coils

42




# Who we are

## Quality makes the difference
## for over 50 years

In 2016 **COSMOGAS** celebrated its 50° Anniversary.

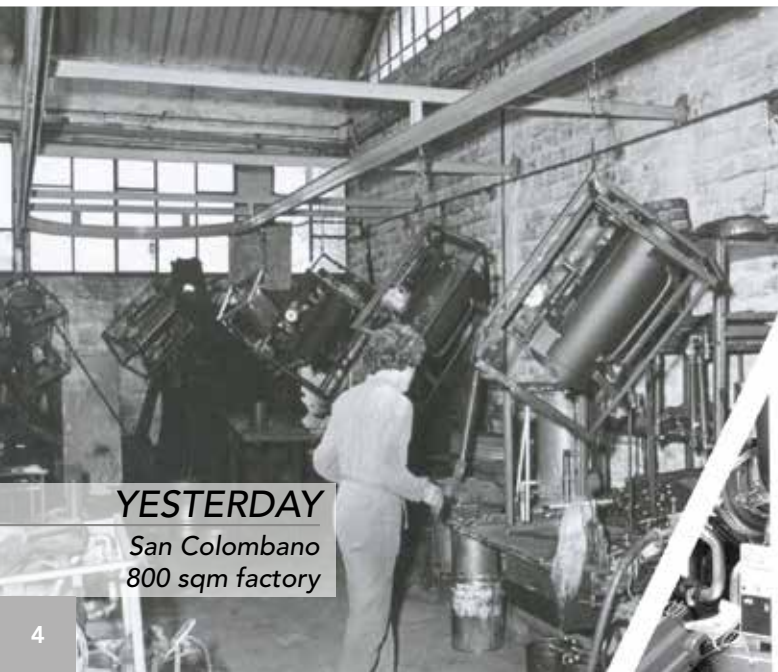
In 1966, in the midst of the Italian economic boom, Arturo Alessandrini, with the entrepreneurial spirit that has always distinguished him and a clear vision of the future, opened a small factory in Meldola (Forlì) for the production of Natural Gas and diesel fuel boilers. It is the beginning of an adventure!

Thanks to the revolutionary copper shell and tube heat exchanger, the heart of COSMOGAS boilers, and the rapid distribution of Natural Gas into Italian homes, the company soon reached an enviable position in the European market for domestic gas boilers.

When his sons joined the Company the research and development department was boosted and many patents were registered making our products unique. **COSMOGAS**, who has been handling the condensation technology since the early 90s, built the unique R.S.C. and stainless steel titanium R.V.C. heat exchangers, nowadays among the most efficient and reliable on the market.
The world has changed in these 50 years and **COSMOGAS** has always reacted by investing on research and development, to provide innovative, unique and high quality products, constantly improving performance and efficiency, to meet its customers expectations. All this with the maximum reliability, respect for the environment and minimizing the energy consumption.

Today **COSMOGAS** offers a wide range of gas condensing boilers, among the most efficient on the market and multiple solutions based on renewable energies, such as hybrid systems, solar thermal systems and heat pumps and it offers the widest range of condensing water heaters on the market.

**COSMOGAS** is led by Alessandrini family even today, after 50 years, that, now as then, designs, patents and in-house produces the entire products range, with the utmost attention to materials and components choice, with the strong belief that **"quality makes the difference!"**



*YESTERDAY*
*San Colombano*
*800 sqm factory*


*TODAY*
*Meldola*
*27.000 sqm factory*

1966-2016 50 COSMOGAS®
MADE IN ITALY

**1966** — Arturo Alessandrini founded Cosmogas

**1970** — New 800 m² factory. The family joined the company and the revolutionary copper shell and tube heat exchanger was born

**1980** — Great success of the copper shell and tube heat exchanger. BMC, BME and BMS became synonymous of reliability

**1994** — Cosmogas conquered new markets abroad

**1996** — Premix technology was introduced. AXIA was BLUE ANGEL certified

**1998** — Kondens, the first AISI 316L stainless steel condensing heat exchanger was born. Heat pumps production started

**2005** — R.S.C. condensing heat exchanger was patented. Great success of NOVAdens boiler with the exclusive KERS system

**2008** — R.S.C. heat exchanger was ASME certified up to 350 kW

**2010** — R.V.C. condensing heat exchanger was patented. MYdens boiler and MYdens T commercial boiler were born

**2012** — HPdens and SOLARfryo hybrid systems were designed in response to the new energy savings regulations

**2013** — The range of residential and commercial condensing water heaters AGUAdens was widened

**2016** — New appliances for condensing D.H.W. such as AGUAplus and a new range of Inverter Heat Pumps

**2017** — POOLdens the chlorine-resistant hot water producer for swimming pools thanks to 100% Titanium heat exchanger was born

**2018** — Q30 is launched that by measuring proton current permits self-regulation of combustion

**2019** — FRYO Pi was born. Reversible monobloc inverter hydronic heat pump.

**2020** — New series of high-efficiency heat pumps called FRYO P2 2-pipe and FRYO P4 4-pipe (with outputs ranging from 28 to 105 kW)

**2021** — SOLAsplit new heat pump and ECOhybrid hybrid system were born to meet retrofitted building needs

**2022** — MEGA the future of commercial heating enters the market with its 1.100 kW

**2023** — FRYO R290 the newest heat pump made in Cosmogas with natural R290 refrigerant

# 3 heat exchangers in 1

## Patented stainless steel R.S.C. and R.V.C. primary heat exchangers


**1 - High temperature heat exchanger**
**2 - Medium temperature heat exchanger**
**3 - Capacitor - Heat exchanger**

### PATENTED EXCLUSIVE DESIGN

Since the early 90's Cosmogas has been handling the condensing technology designing and developping two exclusive primary heat exchangers: R.S.C. and R.V.C..

### TRIPLE HEAT EXCHANGER

Cosmogas condensing heat exchangers are designed to easily condense and recover the greatest amount of latent heat in the flue gases even when they are connected to radiator installations. **R.S.C** and **R.V.C.** heat exchangers are actually equipped with "3 heat exchangers" hydraulically connected to each other. The No.1, with large diameter, envelops the burner to absorb a large amount of heat, the No.2 envelops the first one and further lowers the flue gas temperature and the No.3 wraps around the previous ones and acts as a capacitor. The wide exchange surface allows **efficiency up to 110%** with gas savings up to 30%.

### R.V.C. HEAT EXCHANGER

Radial Variable Circulation, with AISI 316Ti (Titanium) stainless steel non wet chamber **without weld joints** to keep unaltered the characteristics of stainless steel, housed inside a resistant self-supporting monobloc made of insulating composite.
**Up to 11 bar working pressure.**

### R.S.C. HEAT EXCHANGER

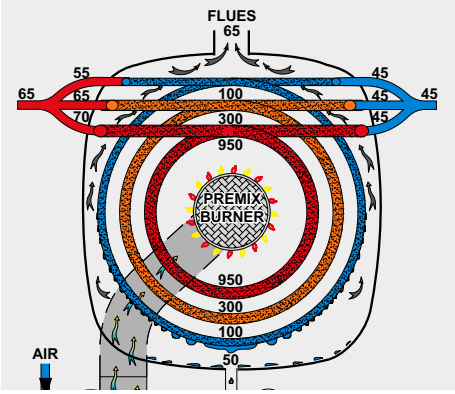
Radial Shared Circulation, with AISI 316L stainless steel wet chamber, to grant the highest resistance to corrosion, housed inside a resistant self-supporting monobloc made of stainless steel.
**Up to 4 bar working pressure.**


### The efficiency of three heat exchangers in the size of one

The 3 series of coils that make up Cosmogas heat exchangers have diameters of 18, 16, 14 mm (R.S.C.) and 18, 16, 16 mm (R.V.C.) and guarantee:

- **Large water flow**
- **Great exchange surface**
- **Low pressure drops**

## Efficiency of R.S.C. and R.V.C.
### heat echangers

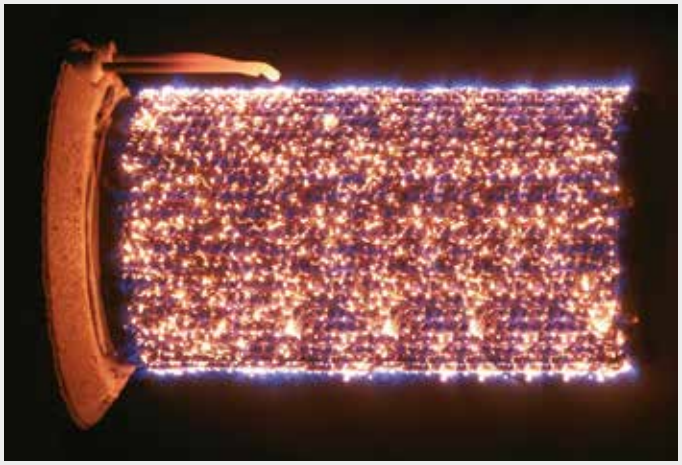


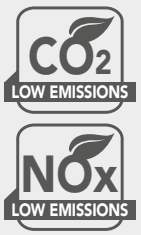

During the operating, return water is distributed on the round tubes series. The advantage of such a system is to condense with 55/56°C temperatures of the return water and to have excellent outputs of the boiler even in radiators systems. The fluid circulation, that is radial shared in the R.S.C. heat exchanger and radial variable in the R.V.C. heat exchanger, allows flue gas/water heat exchange in countercurrent, resulting in high efficiency that quickly brings flue gas to condensation.

**EXCEPTIONAL RESISTANCE TO CORROSION**
The 3 series of stainless steel round tubes, which the heat exchangers are made of, are fasten to guarantee the highest resistance to corrosion.

## Cosmomix patented
### premix system

The innovating premix system employed in Cosmogas commercial and residential boilers allows an exceptional turndown ratio from 1:6 (**SOLARfryo**) to 1:20 (**MYdens 280 T**).






## Ecologic
### premix burner

Ecologic premix boilers have a constant air/gas ratio in each point of the turndown range of the burner, decreasing NOx polluting emissions and CO2 greenhouse effect and streamlining efficiency.
Cosmogas premix burner is made of "Fecralloy" a special metal fibre and has a round shape. The premix burner spreads short and perfectly fed flames.

### Advantages:

- **Constant air/gas ratio**
- **High efficiency combustion**
- **Negative pressure gas valve**
- **NOx low polluting emissions - CO2 low greenhouse effect**
- **Natural gas, LP gas and Natural gas/20% Hydrogen blend operating**


# Software & innovation

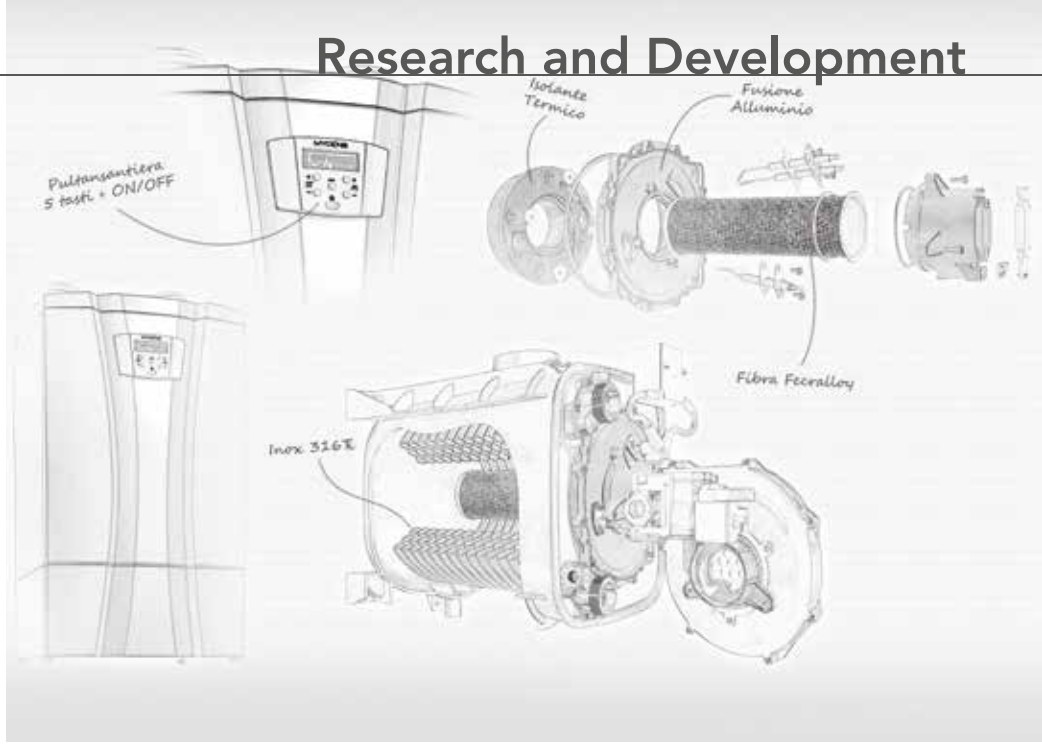
## Research & Development
### continuous innovation

The Research & Development department of Cosmogas, has always been the strength of the company. The constant search for high quality standards and a daily commitment to get better performance, have allowed Cosmogas to improve the reliability and durability of the appliances and offer new solutions. Unique products, eco-friendly and innovative, always up to date.
For over 50 years.

## Service centers and installers
### prepared and informed partners

Cosmogas has always been investing with great effort and passion on continuous training. That's why it has equipped a training center and organizes theoretical and practical lessons with failure simulation, for maximum learning effectiveness. Cosmogas has developed a reserved area on **www.cosmogas.com** to:

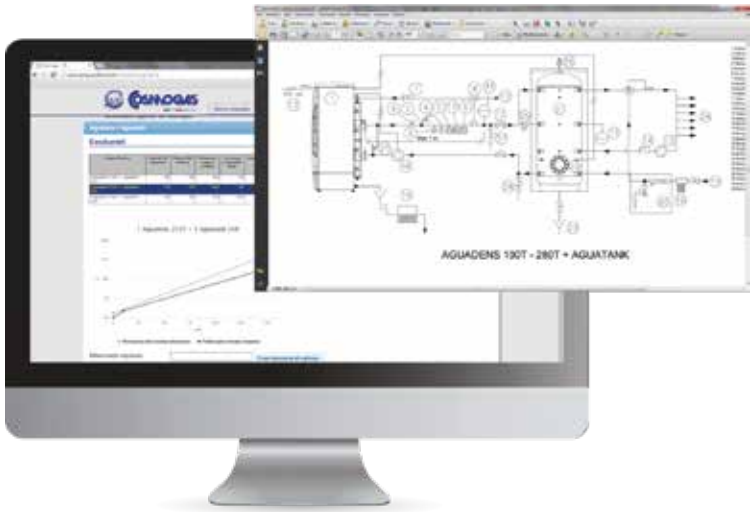
- find the installation and maintenance manuals for all the products in the catalog
- access the **SPARE PARTS ON-LINE** catalog.




# Acquacalda.tech
## the calculating system for real DHW needs

Cosmogas has set **acquacalda.tech** a useful work tool for technicians and a valuable support to designers, to define domestic hot water specific needs to each user such as hotels, camping sites, apartment buildings, gymnasiums, football fields. The application **acquacalda.tech** is a real work tool that determines the real hot water needs in most demanding users, selects the most suitable Cosmogas solution and provides:

- **Technical report**
- **Tendering specifications**
- **Installation schemes in dwg format**
- **Installation schemes in pdf format**




# BIM ready
## for the design


**BIM** is to be understood as a true operational methodology that will revolutionize the entire design process. Thanks to BIM, in fact, the building is "built" before its physical realization, through a virtual model where converge the contributions of all those involved in the project (architects, engineers, designers, consultants, technicians, etc.). COSMOGAS is ready and has already prepared and made available on the **bimObject** platform the **BIM** library of commercial products, with the aim of completing the entire product range shortly.

# Two generators, double efficiency

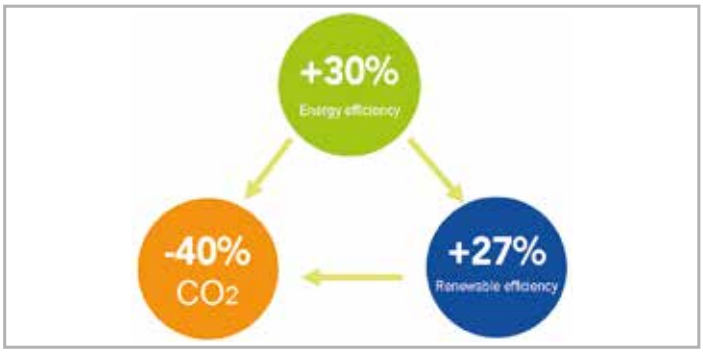
## Energy transition
## and the role of the hybrid system

The new challenge of the future is now irreversible and concerns European energy policy and, consequently, that of our country. The new objectives of the **"Fit for 55"** climate package approved by the European Commission include reducing greenhouse gas emissions by **55%** compared to 1990 levels, with the goal of achieving **"Carbon neutrality"** by 2050, increasing the binding target for renewable energy to **40%**, and reducing primary final energy consumption to **36%**.

In our field, the answer must come from heating, air conditioning and DHW production products, which are responsible for more than 85 percent of energy consumption.

Renewable energy is a source of zero environmental impact, as it produces neither greenhouse gases nor polluting waste for disposal. Today they are experiencing a season of great development worldwide, assuming an increasing weight in energy production.

The high renewable energy inputs mandated by **"Fit for 55"** are not always answered by the application of a single energy source, so **HYBRID SYSTEMS** that integrate **heat pumps, condensing boilers and solar thermal** are the most suitable solution to overcome the application and economic limitations of individual technologies.



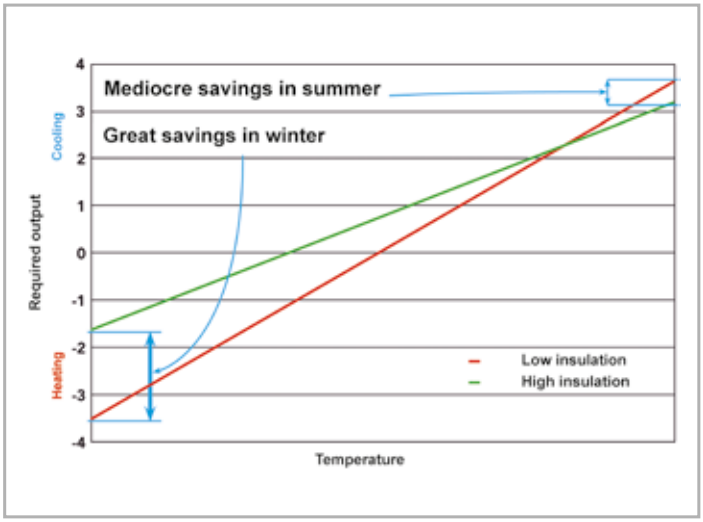

## A hybrid system
## is the answer

For energy saving purposes, the new building design acts on two fronts:

- **the upgrading of the building envelope (thermal cladding and window frames);**
- **the upgrading of the installation**

In climatic conditions such as those in Italy, **it is not advisable to go overboard with thermal insulation**, because you risk losing in summer air conditioning much of what you gain in winter heating.

An excellent solution is represented by a **HYBRID SYSTEM**, i.e. a system in which there are several generators powered by different energy sources such as a **condensing boiler** and a **heat pump**, supplemented by a **smart adjustment system** that gives priority from time to time to the most convenient generator, always ensuring maximum efficiency and savings in energy consumption.



## Raise of the energy class

Switching from a traditional heating system to a renewable heating system, which uses a hybrid system, not only lowers the cost of energy bills and emissions into the atmosphere, but also raises the energy class of buildings and, consequently, the value of real estate.

# All the advantages of an hybrid system

**IT CHOOSES THE VARIOUS ENERGY SOURCES** in the most efficient way, always choosing from the various renewable energies available: sun, air, gas

**IT ENABLES THE PROPERTY TO REACH THE HIGHEST ENERGY CLASSE** due to the very high performance of this solution

**IT GUARANTEES MAXIMUM COMFORT AND RELIABILITY IN EVERY CLIMATE CONDITION:** the system triggers the condensing boiler when the supply from renewable sources is insufficient, without service interruptions

**IT HAS A LONGER LIFE SPAN:** being made up of several generators, each is subjected to less wear and tear

**IT GUARANTEES LOW ENVIRONMENTAL IMPACT** by harnessing renewable energy and significantly reducing NOx emissions

**IT ENABLES HIGH SAVINGS** by always choosing the most convenient energy source

The switch to hybrid technology allows a **drastic reduction in energy consumption and costs, maximising savings.**

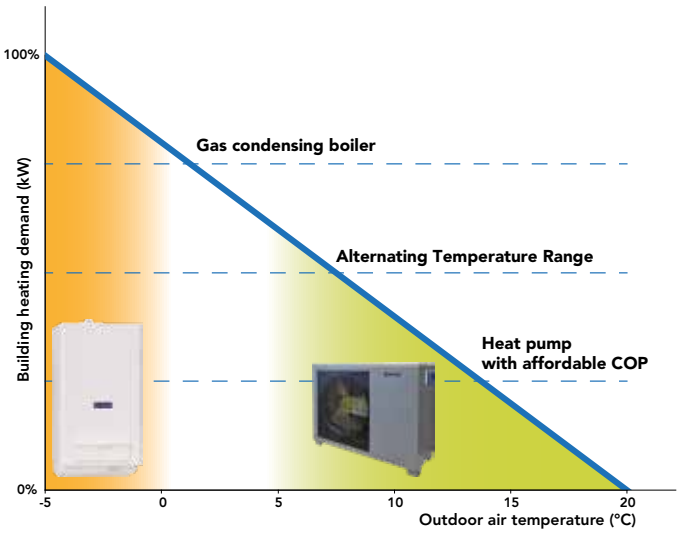
| CONSUMPTION | COSTS | NOx EMISSIONS | |
|---|---|---|---|
| | | Heating mode | DHW production mode |
| -52% | -37% | -82% | -87% |

# Graph of alternation

**The heat pump is able to cover up to 80 per cent of the annual heat load** by using the thermal energy present in the environment for free, thus lowering energy costs;

**The gas condensing boiler takes action when necessary**, for example when, on particularly cold winter days, the heat generated by the heat pump is not sufficient;

The system automatically chooses, depending on the outside temperature, which of the two heat generators will be given priority operation.



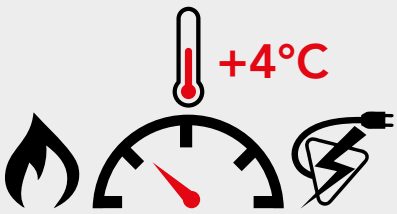
# Quality and uniqueness

## The unique advantages
## of an all-in-one hybrid system by Cosmogas

Cosmogas hybrid systems are the ideal solution for new homes when you want to implement integrated heating systems for cooling and domestic hot water production, but they are also suitable for retrofittings and replacement of existing heat generators if you want to improve the energy performance of your building.

### Smart
### management

The system always chooses the most convenient energy source depending on the outdoor temperature, always giving priority to renewable energy.




### Wide
### range

Cosmogas is able to meet all the needs of modern plant engineering through different solutions consisting of domestic hybrid appliances (output ratings below 35 kW), from compact versions such as **SOLARfryo**; to split versions such as **ECOhybrid**.
All this without forgetting the needs of apartment buildings with commercial central heating systems (greater than 35 kW).
In these cases, **ECOhybrid Max** has just come onto the market: a hybrid unit designed and built to work with heat pumps of up to 105 kW and boilers of 280 kW.


Everything to assemble or...

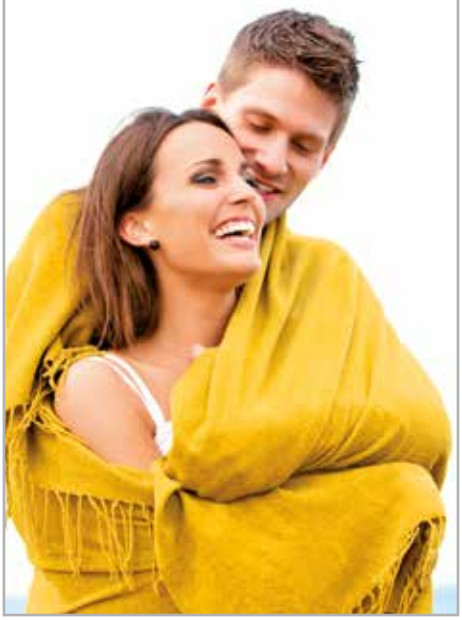
Cosmogas hybrid system

# Single contact point
## guaranteed simplicity and triple benefit

Hybrid systems are manufactured, tested, and assembled entirely in Cosmogas, with the triple benefit of having a single point of contact, minimizing assembly risks and time, and providing great benefits to the user and to all professionals in the field.

### End user

- The system always uses the **most convenient energy**, with no surprises in the bill
- **Guaranteed comfort** in all weather conditions, even in harsh winters with high humidity
- **Raise of the energy class** of the building
- Versatility and compactness allowing installation in **small spaces** while preserving the aesthetics of the building
- **Single contact point** for maintenance



### Installer

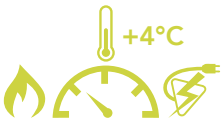
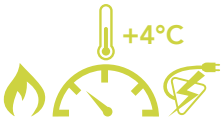
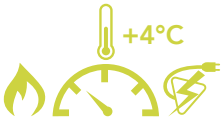
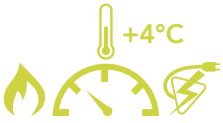
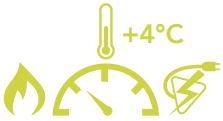
- **Complete**, cabled, certified and tested in-house system **ready for installation**
- **No installation errors** or incorrect electrical connections
- Significantly **reduced installation time**
- **F-Gas licence not required** to carry out work
- Configurations are available to supply **up to 5 circuits**

### Designer/Architect

- **No installation errors** or incorrect electrical connections by the installer
- **Maximum compactness** to facilitate integration into the building project while **respecting aestheticsa**
- Configurations are available to supply **up to 5 circuits**

# Cosmogas experience

| APPLIANCE | FUNCTIONS | HEAT PUMP |
|---|---|---|
|  ECOhybrid | • Heating<br>• Cooling<br>• Domestic hot water | • Monobloc heat pump from 6 to 12 kW |
|  ECOhybrid-E | • Heating<br>• Cooling<br>• Domestic hot water | • Split heat pump from 6 to 12 kW |
|  ECOhybrid-T | • Heating<br>• Cooling<br>• Domestic hot water | • Split heat pump from 6 to 12 kW |
|  ECOhybrid Max | • Heating<br>• Cooling<br>• Domestic hot water | • Monobloc heat pump from 12 to 105 kW |
|  SOLARfryo | • Heating<br>• Cooling<br>• Domestic hot water | • Monobloc heat pump from 6 to 12 kW |


| SMART MANAGEMENT | EQUIPMENT | HEAT EXCHANGER TYPE | CONNECTABLE TANKS |
|---|---|---|---|
| • According to the outdoor temperature, it chooses the most convenient energy between gas and electricity.   | • 1 heating circuit and 1 cooling circuit<br>• Remote control with outdoor temperature sensor |  • AISI 316L stainless steel patented R.S.C. heat exchanger |  • **MULTItank** glass-lined hot water tank with multifunctional double coil for domestic hot water production. |
| • According to the outdoor temperature, it chooses the most convenient energy between gas and electricity.   | • 2 circuits heating/cooling<br>• 1 DHW circuit | |  • **BPF** glass-lined tank with oversized coil for domestic hot water production specifically for use in combination with heat pumps. |
| • According to the outdoor temperature, it chooses the most convenient energy between gas and electricity.   | • 2 circuits heating/cooling<br>• 1 DHW circuit |  |  • Built-in technical water tank equipped with an AISI 316L stainless steel coil with a high exchange surface area. |
| • According to the outdoor temperature, it chooses the most convenient energy between gas and electricity.   | • 2 mixing circuits<br>• 1 sanitary circuit<br>• 1 recycling loop circuit<br>• 1 alarm output | • AISI 316 Ti stainless steel patented R.V.C. heat exchanger |  • **FS** FE 360 steel multi-energy inertial storage tank with stratifier. Useful for increasing the thermal flywheel of the system. |
| • According to the outdoor temperature, it chooses the most convenient energy between gas and electricity.   | • 2 circuits<br>• Recirculating pump<br>• Connectable to solar panels and to multiple renewable sources<br>• Ready for installation (wired and tested in-house) |  • AISI 316L stainless steel patented R.S.C. heat exchanger |  • Built-in technical hot water tank, dedicated entirely to renewable energies, equipped with an AISI 316L stainless steel coil with a high exchange surface area for the direct production of domestic hot water that does not require anti-Legionella cycles. |

# Priority to renewable energy

## Stainless steel
## technical hot water tank

The unique feature of the Cosmogas **SOLARfryo** hybrid systems is the **stainless steel technical water tank** for hot water production. **SOLARfryo** are, in fact, the only hybrid systems on the market to have a dedicated tank **(Buffer)** heated solely by renewable energy since the boiler is not connected to it, so no gas is wasted as is the case with other hybrid systems on the market.

**TWO COILS WITH A HIGH EXCHANGE SURFACE**
The 150-litre Buffer tank is equipped with two coils: one transfers heat from the solar system to the tank, while the other (located at the top) produces domestic hot water directly and guarantees a high exchange surface, thanks to the 22-metre Ø22 mm stainless steel coil.

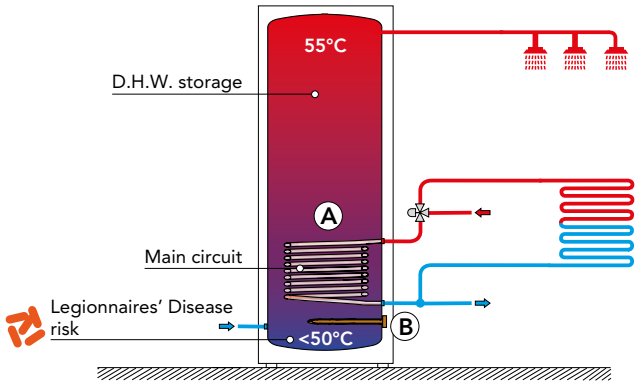
TECHNICAL WATER

System ANTI-LEGIONELLA

## Hybrid systems
## and the Legionella

Legionella Pneumophila is a lung disease caused by an aerobic bacterium that survives between 5 and 55°C. It finds its ideal environment under stagnant conditions and low water temperatures (A).
So unfortunately hot water storage tanks are its natural habitat.
To reduce the risk of this bacterium in traditional systems, expensive anti-Legionella cycles are provided by raising the water temperature and sterilizing it, even with the aid of an electrical resistance (B). This operation, repeated weekly, during the year entails heavy management costs.

### DHW storage typical of traditional hybrid systems

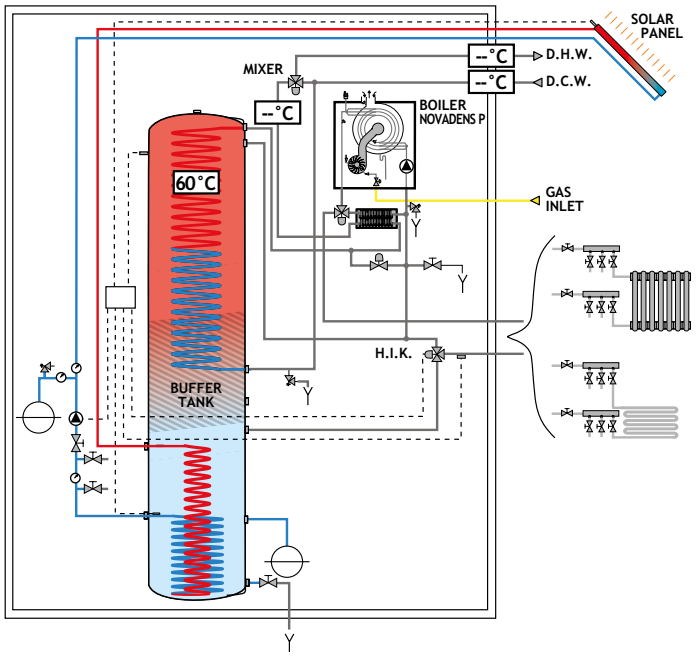


## Connectable to multiple energy sources

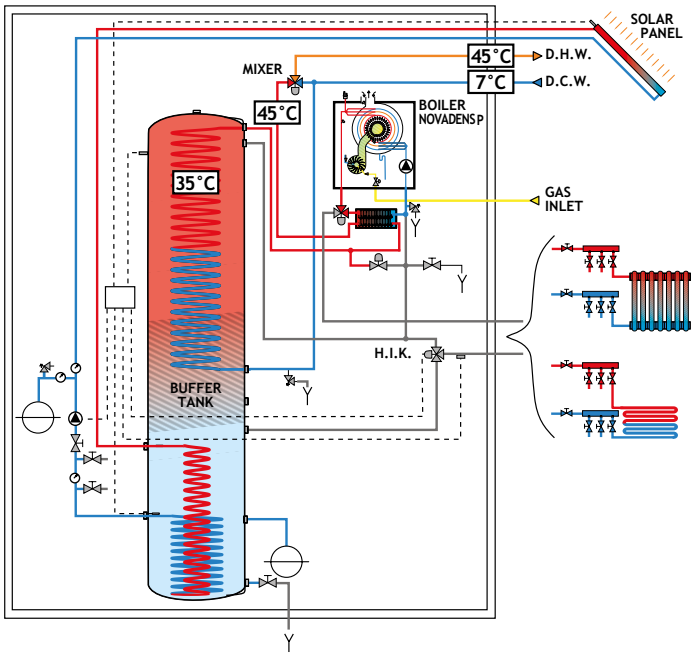
Thanks to the technical hot water storage tank, built-in as standard, Cosmogas **SOLARfryo** hybrid systems allow the use of multiple renewable sources such as solar thermal and heat pumps.

**Solar Thermal** **Heat pump** **Boiler**

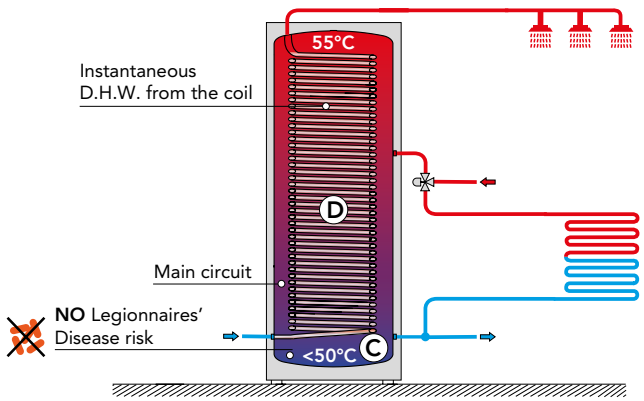
## The hot water storage tank is heated by renewable energy sources only




## The boiler is used as integration only




## Technical hot water tank with rapid DHW production typical of Cosmogas hybrid systems




Cosmogas **SOLARfryo** hybrid systems are characterized by an indirect DHW production system, which eliminates the problem of Legionella as it uses a technical water storage tank (C) and not a water storage tank like traditional systems.
Domestic hot water is instantaneously produced thanks to the AISI 316L stainless steel coil with large exchange surface Ø22 mm (D).
In this way the water is free of bacteria and there is no need for expensive anti-Legionella cycles.

The examples reported are merely indicative

# ECOhybrid Max


## Commercial hybrid systems
## Factory-Made

**ECOhybrid Max** is the innovative, factory-made, smart and environmentally friendly commercial hybrid system for heating, cooling and domestic hot water production.

**ECOHYBRID MAX CONSISTS OF FOUR ELEMENTS:**
commercial condensing boiler, heat pump, hot water storage tank/buffer tank and TUTORbit thermoregulator which, combined differently according to need, can give rise to hundreds of configurations.

**ADVANTAGEOUS FOR NEW AND OLD BUILDINGS**
**ECOhybrid Max** is designed and built by COSMOGAS and is the ideal solution for retrofitted or new residential or commercial buildings and apartment blocks with centralised heating systems.

**SMART MANAGEMENT**
The commercial boiler integrates the heat produced by the heat pump, depending on the outdoor temperature and the building needs, improving energy efficiency in all seasons, increasing energy savings and reducing $CO_2$ emissions.

**ECOHYBRID MAX & PHOTOVOLTAICS: A WINNING SOLUTION**
If a photovoltaic system is installed, the bill savings will be even higher: completely free and zero-emission electricity is used to power the heat pump.

A+++
A XL

EXTREMELY LOW-NOISE
SAVING
ENERGY CLASS RAISE

## Commercial boilers


MYdens 34


MYdens 50 & 60


NOVAplus 34


MYdens T

## Buffer tank


FS 300
FS 500

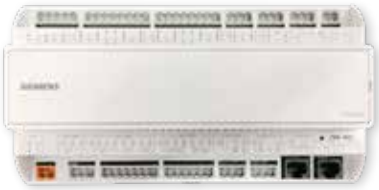
## TUTORbit

## Heat pumps


FRYO 12Pi


FRYO P2

### TUTORbit is the smart and environmentally friendly heart of ECOhybrid Max



**TUTORbit** controls and adjusts the heat pump and the commercial gas boiler of the 'Factory-Made' hybrid system, autonomously identifying the most efficient source according to the climatic conditions and the state of the system to achieve the best performance of the system and domestic hot water production and the desired comfort.
Finally, it supervises the system by signalling any alarms and thanks to the remote control, with display as standard, it allows remote control up to 50 metres.

Functions:
- Multi-circuit heating adjustment
- Sanitary adjustment
- Solar adjustment
- Remote control and cloud monitoring

### How to configure ECOhybrid Max

**ECOhybrid Max** is the commercial hybrid system FACTORY-MADE COSMOGAS which can be combined when ordering with:
- commercial condensing boiler type MYdens 34, 50, 60, NOVAplus 34 and MYdens T from 60 to 280 kW
- air-to-water high efficiency reverse cycle heat pumps FRYO 12Pi and FRYO P2
- thermoregulator TUTORbit with remote control and expansions for heat pump and anti-Legionella mixing pump
- buffer tank 300 or 500 litres

There are many combinations (more than 100) intersecting types and output of the various elements, especially boilers and heat pumps, respecting the rule of every hybrid system: the ratio of heat pump output to boiler output must be less than 0,5.

# ECOhybrid

## Residential hybrid systems
## Factory-Made

**ECOhybrid** is the innovative, factory-made, intelligent and environmentally friendly hybrid system for heating, cooling the home and producing domestic hot water, consisting of a condensing boiler, heat pump and injection box an interface device that controls and balances them.

**MANY COMBINATIONS IN A SMALL SPACE**
Thanks to the multiple combinations of boilers and heat pumps Cosmogas, it is the ideal solution for retrofittings or the replacement of obsolete boilers, even in radiator systems, as it is designed to take up little space and adapt to small rooms or very small spaces, without disrupting the system and without complex and expensive masonry work.

**ADDITIONAL SAVINGS WITH PHOTOVOLTAICS**
Completely free and zero-emission electricity is used by the heat pump to heat and cool the house.

A+++ A XL

EXTREMELY LOW-NOISE | ECO FRIENDLY R32 REFRIGERANT | SAVING | ENERGY CLASS RAISE

## Standard remote control
### with display

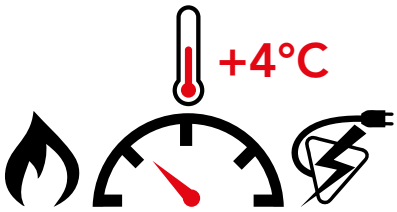
Functions:
- Supply temperature visualization
- Cut-off temperature management
- Alternating Summer/Winter temperature management
- Antifreeze service for boiler
- Antifreeze service for heat pump (directly from heat pump)


## Injection Box the heart of ECOhybrid
### smart and environmentally friendly

**Injection Box** exploits the innovative 'heat injection' principle: when the heat pump cannot meet the heating demands of the system, the boiler is activated to "help".
The heat produced by the boiler is injected countercurrently into the system flow line, improving heat exchange efficiency and temperature adjustment.
Domestic hot water production is always guaranteed by the condensing boiler. **The Injection Box** is equipped with a mud filter for boiler, adjustable differential valve for heat pump, three-way valves, electrical panel with quick terminal box and electronic control unit.

## Smart
### management

**ECOhybrid** consists of a heat pump and a boiler that integrates the heat generated, depending on the outside temperature and the household's needs, improving energy efficiency in all seasons, increasing energy savings and significantly reducing CO2 emissions.



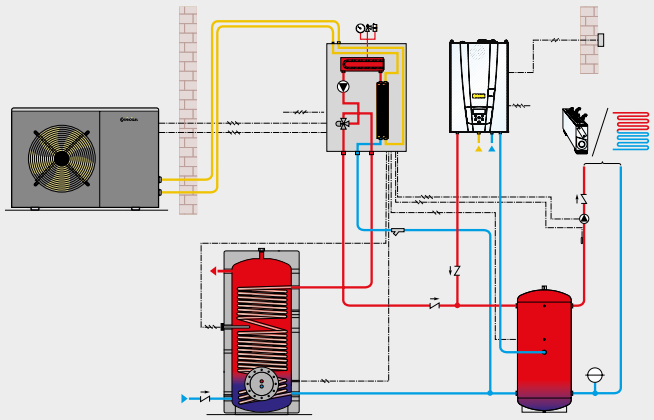

## Lots of domestic hot water
### thanks to the condensing boiler

**ECOhybrid** can be combined when ordering with:
- double condensing boiler type NOVAplus, TOPdens and MYdens
- 6, 9, 12 kW inverter monobloc heat pumps FRYO Pi
- hydraulic connection box and system management in 2 models: **Injection Box C** with 1 circuit/**Injection Box CF** with 2 circuits.

The boiler can be chosen at the preferred output. **ECOhybrid** can supply any existing system including radiators or heating systems operating up to 80°C. The remote control of **Injection Box** and the outdoor temperature sensor are standard provided.

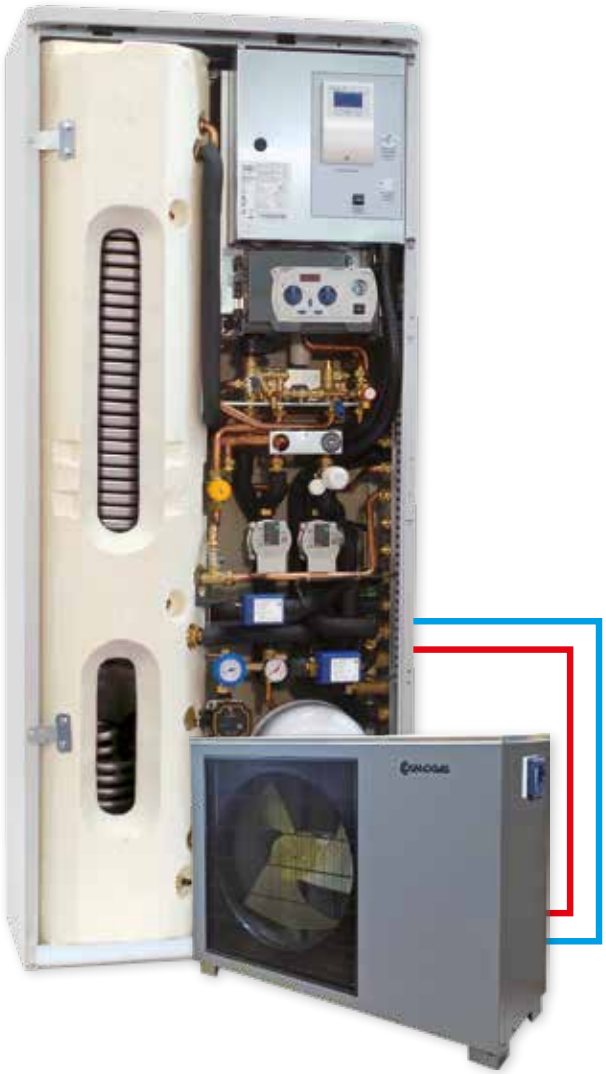
## ECOhybrid-E the ideal hybrid system
### for new and retrofitted buildings

**ECOtwin** heat pump can be installed in connection to Cosmogas condensing boilers achieving a **full hybrid system** capable of optimising all heating and cooling needs throughout the year.
The boiler is used as an auxiliary heat source in the coldest winter days. The smart control system **ECOtouch** streamlines energy sources efficiently and in a more convenient way for the user.



The examples reported are merely indicative

# SOLARfryo



## Hybrid systems
## 3-in-1
## Factory-Made

**SOLARfryo** from 15 to 34 kW are composed of a gas condensing boiler, a 150 litre hot water storage tank (technical hot water stainless steel Buffer), and a split 9 to 12 kW air-to-water inverter heat pump that uses renewable air energy to heat, cool and produce domestic hot water.

**GAS CONDENSING BOILER WITH R.S.C.**
At the heart of **SOLARfryo** is a 15 - 24 - 34 kW condensing boiler with an AISI 316L stainless steel R.S.C. heat exchanger consisting of three sets of round tubes that allow large water passages.

**HEATING FROM THE SUN**
**SOLARfryo** is equipped as standard with the H.I.K., a system that uses alternative energy to integrate heating in both low-temperature and radiator systems.

**SOLARFRYO AVAILABLE MODELS**
Indoors/outdoors SRF 15 - SRF 24 - SRF 34
Built-in SKF 15 - SKF 24 - SKF 34.

A+
A+ XL

TECHNICAL WATER
System ANTI-LEGIONELLA
H.I.K.
ENERGY CLASS RAISE

## Ready to install optimal solution
### for modern installations

**SOLARfryo** is small in size, built and tested entirely in Cosmogas and ready to be installed anywhere; the main unit houses all the components inside a compact box that can also be placed in small niches, both inside and outside the building, with a very small footprint. A further advantage is the built-in version, which allows additional living space to be reclaimed while preserving the aesthetics and architectural harmony of buildings.

Indoors

Built-in

Outdoors

## DIMMI the Wi-Fi chrono thermostat
### always connected

works with Google Assistant

works with amazon alexa

**DIMMI** is the new advanced Wi-Fi temperature control system that allows remote control and configuration of the boiler, heating and domestic hot water production also via APP.
**DIMMI** is compatible with Google Assistant and Amazon Alexa voice assistants.
Thanks to its elegant, minimalist design, it integrates perfectly into any environment.

## Inverter monobloc
### heat pump

In order to meet the different system requirements, Cosmogas has designed **SOLARfryo**, which summarises all the advantages of Cosmogas hybrid units by offering the possibility and versatility of combining them with the **FRYO Pi** series range of inverter heat pumps with output from 6 to 12 kW.

A+++

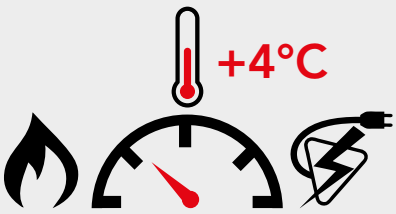
FRYO Pi

ECO FRIENDLY R32 REFRIGERANT

EXTREMELY LOW-NOISE

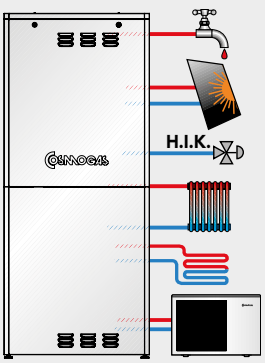
## Smart
### management

**SOLARfryo** streamlines costs by always choosing the most convenient energy, between gas and electricity, depending on the outside temperature.




## Multicircuit
### and multienergy

Thanks to its many accessories, **SOLARfryo** can be combined with other thermal generators such as solar panels and photovoltaic panels. It can also manage up to two circuits simultaneously, a domestic hot water recirculating pump and a solar circuit.




The examples reported are merely indicative

# Ecology and savings

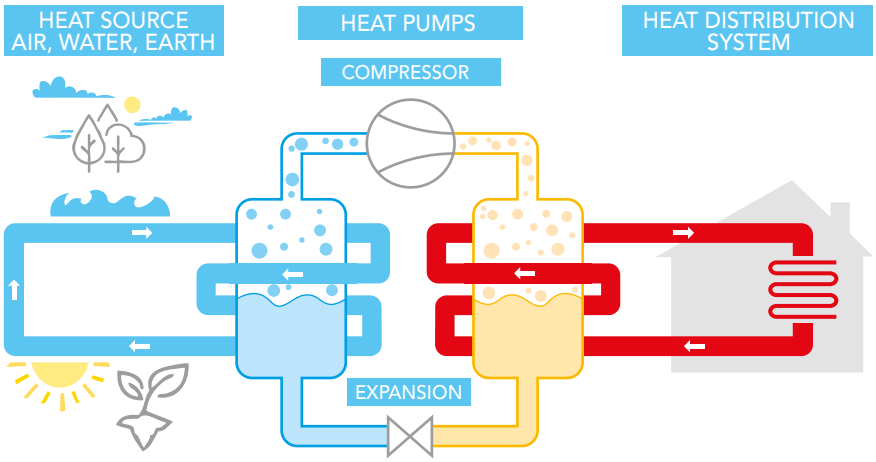
## Inverter & environment friendly heat pumps

The heat pump is an appliance that uses the thermodynamic cycle of the refrigerant fluid to transfer heat from a low temperature to a high temperature environment using the free energy in the air.

The electricity used is only that needed to operate the compressor and the auxiliary devices.

Inverter technology allows the speed of the compressor to be adjusted according to outside air temperature and thermal load, drastically reducing the electrical consumption.

### THE HEAT PUMP PRINCIPLE




### Clean energy
### and respect for the environment

Instead of using fossil fuels as conventional boilers do, Cosmogas heat pumps extract heat from the air by increasing its temperature and transfer it to the water in the circuit via a heat exchanger. The heat pumps use the refrigerant **R290**, **R32** or R410A in an environmentally friendly manner, confirming the conscience and commitment that have always distinguished Cosmogas.

Heat pumps, unlike other heating systems, produce more energy than they consume. Cosmogas heat pumps have a COP efficiency of more than 4, so each kW consumed produces more than 4 times the energy absorbed. This translates into greater comfort and energy efficiency.

## Raise of
## the energy class

Switching from a traditional heating system to a renewable heating system, which uses a heat pump, not only lowers the cost of energy bills and emissions into the atmosphere, but also raises the energy class of buildings and, consequently, the value of real estate.

# The answer to retrofitted and new buildings

Modern technology and the improved level of insulation in homes make it possible to heat rooms using water at a low temperature, allowing Cosmogas heat pumps to be used even in winter, with excellent efficiency, at outside temperatures as low as -25°C.

In summer, Cosmogas heat pumps can be used as air conditioning systems and allow the water circulating inside the home to be cooled by up to 7°C for fan-coils and up to 17°C for radiant panels.

Thanks to their high efficiency, Cosmogas heat pumps **can produce domestic hot water** up to 50°C (SOLARsplit, ECOtwin, ECOtower and FRYO Pi) or up to 75°C (FRYO R290) when combined with DHW storage, that's why Cosmogas has developed the **BPF buffer tank**, which guarantees rapid domestic hot water heating.

# SOLARsplit

## Zero space split inverter heat pumps

**SOLARsplit** 6, 9 and 12 kW is the **zero space** NO-GAS heat pump system composed of a 150 litre hot water storage tank (technical hot water stainless steel Buffer tank), split inverter air-to-water heat pump that uses renewable air energy to heat, cool and produce domestic hot water in a sustainable way.

**LARGE PRODUCTION OF DOMESTIC HOT WATER**
**SOLARsplit** houses 2 hot water tanks, a 150-litre technical water tank and a 50-litre storage tank, ensuring copious and instantaneous hot water deliveries. In particular, the inertial one (which streamlines domestic hot water production) ensures high flow rates.

**PHOTOVOLTAICS WINNING COMBINATION**
**SOLARsplit** becomes even more efficient and sustainable when combined with photovoltaic panels. With this solution, heating, cooling and domestic hot water can be achieved with really very low costs.

**SOLARSPLIT AVAILABLE MODELS**
Indoors/outdoors SST 6 - SST 9 - SST 12
Built-in SKT 6 - SKT 9 - SKT 12

A+++ A XL
EXTREMELY LOW-NOISE
ECO FRIENDLY R32 REFRIGERANT
HIGH PERFORMANCE INVERTER TECHNOLOGY
TECHNICAL WATER
System ANTI-LEGIONELLA

## Ready to install optimal solution
### for modern installations

**SOLARsplit** is small in size, built and tested entirely in Cosmogas and ready to be installed anywhere; the main unit houses all the components inside a compact box that can also be placed in small niches, both inside and outside the building, with a very small footprint. A further advantage is the built-in version, which allows additional living space to be reclaimed while preserving the aesthetics and architectural harmony of buildings.

Indoors

Built-in

Outdoors

## FV link and Power Meter
### connection to photovoltaics

**SOLARsplit** is standard provided with photovoltaic contact, which enables self-consumption of electricity from renewable sources. Thermal energy can be stored by automatically raising the domestic hot water temperature and/or activating the backup heater on the domestic hot water and/or activating the backup heater on the heating in booster function. With the optional 'Power Meter' it is possible to measure the energy produced by photovoltaics and activate the functions for total energy utilisation.


## Details
### that make the difference

"**SPLIT 895**" remote control is standard supplied and allows remote management of **SOLARsplit** in a simple and intuitive way.

- **"Smart storage" function**
  Thanks to the standard electronics, **SOLARsplit allows full exploitation of the photovoltaic system:** in case of energy excess, it automatically activates the auxiliary resistance to raise the temperature of the inertial storage tank and store the additional energy to be used later.

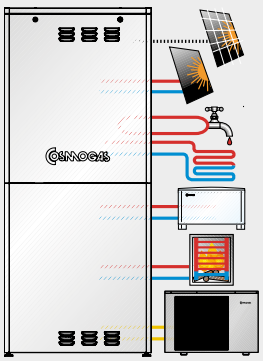
- **"Self-learning" function**
  **The system counts the consumption of energy and informs the user of usage statistics:** how much energy has been recovered from the photovoltaic system, how much has been taken from the electricity grid and how much has been consumed in heating or for the domestic hot water. This gives the end user the opportunity to improve system use and make the most of renewable energy.

## Reduced set point
### for an optimal comfort

By night , the **SOLARsplit** outdoor unit decreases the fan speed, significantly reducing the sound level generated, thus ensuring high acoustic and environmental comfort even at night.


## Multicircuit
### and multienergy

Thanks to many optional devices, **SOLARsplit** offers various connection possibilities, managing up to two circuits simultaneously and a recirculation pump. It can be combined with other heat generators such as thermal fireplaces, hydro stoves, thermal solar panels and photovoltaic panels.



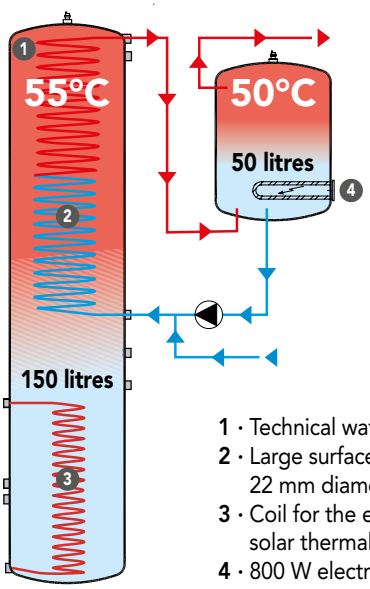
The examples reported are merely indicative

## Stainless steel technical
### hot water storage tank

**SOLARsplit** houses a 150 litre stainless steel technical hot water tank. The production of DHW it is carried out by a high exchange surface stainless steel coil exchanger immersed in the water of the accumulation. In this way hot water is produced instantly eliminating the problem of bacteria such as Legionella.

## Standard double tank
### operating example

Cold water first enters the technical water coil, and preheating enables the 50-litre tank to produce a large amount of domestic hot water. The heat pump heats the technical water, the circulator is switched on to transfer the heat from the large tank to the small one.




**1** · Technical water tank
**2** · Large surface coil for DHW production: 22 mm diameter, 22 metres length
**3** · Coil for the exploitation of renewable solar thermal energy
**4** · 800 W electrical heater

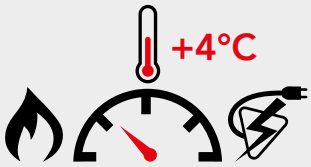
## Low loss header
### avoids blockages with small flow rates

**SOLARsplit** is standard provided with a built-in low loss header, an indispensable tool for all systems with variable flow, such as a low-temperature system with heads.
By creating a primary and a secondary system, the water flow rate to the heat pump is constant, avoiding blockages due to low flow.

## On demand
### KNX room sensor

The **"KNX"** room sensor, available on demand, self-powered, communicates digitally via KNX bus with **SOLARsplit** and allows the room temperature, outside temperature and comfort temperature to be measured, and is equipped with capacitive buttons.


## Smart
### management




Only in the event of adverse external temperature conditions and critical humidity values, the system brings into action the 2 electric heaters of 1,5 + 1,5 kW (on demand) that are switched on in steps according to the actual demand to guarantee optimal comfort at all times. The technical water tank produces the DHW indirectly, thanks to the stainless steel coil, and allows the integration of other heat generators, such as thermal fireplaces or thermal solar panels.

## Fast automatic cycles
### of defrosting

**SOLARsplit** activates its cycle of defrosting by exploiting the technical water storage, which allows fast **cycles of defrosting** without cooling the system or the domestic hot water tank.


# The no-gas heat pump
## super compact

**SOLARsplit** is entirely built, assembled and tested in Cosmogas. Unlike the competitors, **SOLARsplit** arrives ready to be installed and immediately functional because all components are already inside, in a compact box with reduced dimensions, which hides in the wall and does not take up space or damage the aesthetics of your home!
**SOLARsplit** saves you up to 8,5 cubic metres of space!

# ECOtwin

## Air-to-water inverter heat pumps with wall-hung split unit

**ECOtwin** is the split inverter heat pump for heating, air conditioning and domestic hot water production (if connected to a stand alone Buffer storage tank).

**OUTDOOR UNIT** - **STM 06, STM 09** and **STM 12**
They have output ratings of 6, 9 and 12 kW respectively, direct expansion, **quiet operating**, containing compressor, with double soundproof protection consisting of mat and sheet metal box, inverter board and cooling circuit components.

**INDOOR UNIT** - **GS 06, GS 09** and **GS 12**
These indoor units are composed of plate heat exchanger (gas/water), circulating pump, 3-way valve for DHW and thermoregulation board

**DOMESTIC HOT WATER PRODUCTION**
Combined with a stand alone Buffer storage tank.

**ECOLOGIC REFRIGERANT R32 GAS OPERATING**
Indoor and outdoor units are connected with refrigerant lines (liquid/gas)

**NO FREEZING RISK**
Thanks to the total absence of water in the circuit between outdoor and indoor unit, in winter season the risk of freezing is averted.

**ECOTWIN AVAILABLE MODELS**
ECOtwin 6 - ECOtwin 9 - ECOtwin 12

A+++

EXTREMELY LOW-NOISE

ECO FRIENDLY R32 REFRIGERANT

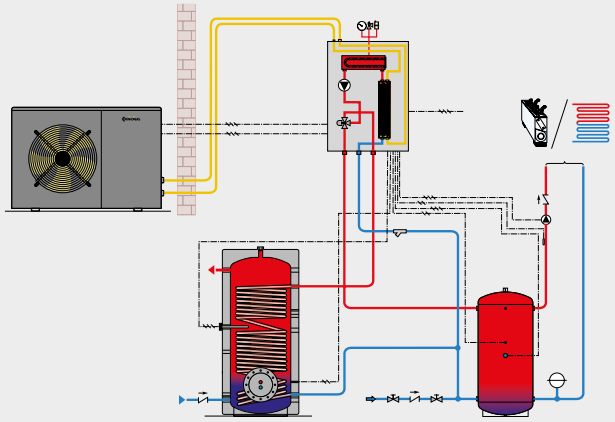
HIGH PERFORMANCE INVERTER TECHNOLOGY

ECOTOUCH

up to -25°C HEATING

## ECOtwin designed for low energy consumption buildings

**ECOtwin** 6, 9 and 12 kW inverter heat pumps are designed by Cosmogas to meet all needs of new low energy consumption residential buildings and boast a COP performance coefficient of 4,61 - 4,47 - 4,35 respectively in compliance with the new ERP eco-sustainability requirements.
**ECOtwin** can not only heat the house and domestic hot water in colder months, but also cool the air in the summer season, with high efficiency and affordable operating costs, without the use of gas fuel.



## BPF: the ideal hot water storage tank for DHW Production

For domestic hot water production **ECOtwin** must be connected to **BPF**, a dedicated storage tank, available with capacity of 200, 300, 500, 800 and 1000 litres. The glass-lined tank is equipped with an oversized coil with a high exchange surface area to ensure high temperatures and high domestic hot water flow rates. In addition, being developed along the entire length of the tank and heating the entire water content evenly, the coil reduces the risk of Legionella bacteria proliferation.

System ANTI-LEGIONELLA

## Multicircuit and multienergy

**ECOtwin** offers several connection possibilities, managing up to two circuits for heating and cooling and one sanitary circuit. It can be combined with other heat generators such as thermal fireplaces, hydro stoves, solar thermal panels and photovoltaic panels.

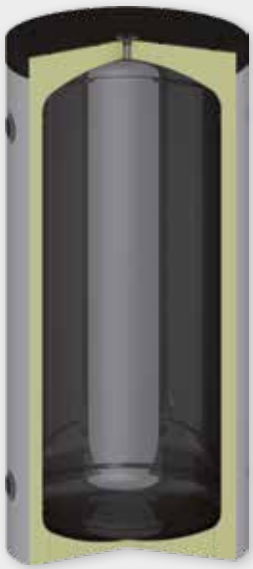
## Technology and exclusive components

**Outdoor unit:**
- BLDC twin rotary compressor - double soundproof
- High efficiency external coil
- Silenced inverter fan
- High and low pressure switch
- High and low pressure sensor
- Suction temperature sensor
- Discharge temperature sensor
- Electronic expansion valve
- Drip tray heater

**Indoor unit:**
- High head inverter pump
- Stainless steel plate heat exchanger
- 3-way diverting valve (sanitary/heating)
- Integration heater
- Automatic purge valve
- Pressure gauge and flow switch
- 4.3” colour touch display

## FS: the Buffer tank to streamline the operating of the heat pump

Although not indispensable, a small Buffer tank on the heating side should be provided, coupled to **ECOtwin**, to **streamline the operating during the defrost process**, avoiding:
- To inlet cold water in the installation
- To use the heat of heating installation to defrost, above all in installations with fan-coils or small central air treatment units
- To let the unit being integrated even with a condensing boiler called to replace or to integrate the heat pump in case of extremely rigid temperatures.



DEFROSTING

The examples reported are merely indicative

# ECOtower

## Split air-to-water inverter heat pumps with built-in hot water storage tanks

**ECOtower** is the split inverter heat pump for heating, air conditioning and domestic hot water production with built-in water storage tank.

**OUTDOOR UNIT** - **STM 06, STM 09** and **STM 12**
They have output ratings of 6, 9 and 12 kW respectively, direct expansion, **quiet operating**, containing compressor, with double soundproof protection consisting of mat and sheet metal box, inverter board and cooling circuit components.

**INDOOR UNIT** - **GB 09, GB 09** and **GB 12**
These indoor units are composed of plate heat exchanger (gas/water), circulating pump, 3-way valve for DHW and thermoregulation board

**DOMESTIC HOT WATER PRODUCTION**
Through built-in 250 litre hot water storage tank.

**ECOLOGIC REFRIGERANT R32 GAS OPERATING**
Indoor and outdoor units are connected with refrigerant lines (liquid/gas)

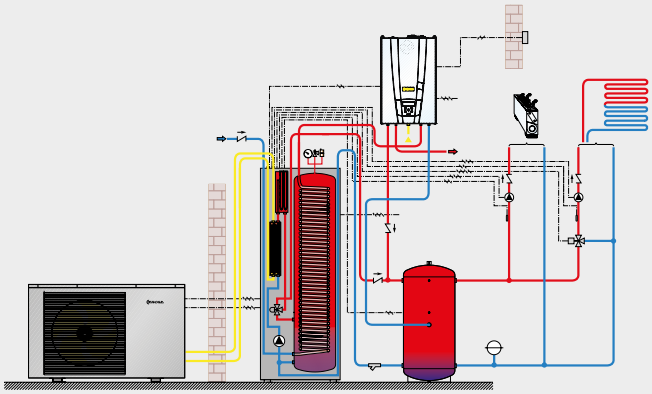
**NO FREEZING RISK**
Thanks to the total absence of water in the circuit between outdoor and indoor unit, in winter season the risk of freezing is averted.

**ECOTOWER AVAILABLE MODELS**
ECOtower 6 - ECOtower 9 - ECOtower 12

A+++ A XL
EXTREMELY LOW-NOISE
ECO FRIENDLY R32 REFRIGERANT
HIGH PERFORMANCE INVERTER TECHNOLOGY
ECOTOUCH
up to -25°C HEATING

## ECOhybrid-T the hybrid ideal for new and retrofitted buildings

**ECOtower** can be installed in connection to Cosmogas condensing boilers achieving a **full hybrid system** capable of streamlining all heating and cooling needs throughout the year. The boiler is used as an auxiliary heat source in the coldest winter days. The smart control system **ECOtouch** streamlines energy sources efficiently and in a more convenient way for the user.
In addition, thanks to its built-in 250 litre technical hot water storage tank, it is able to satisfy domestic hot water needs.



## Maximum comfort in domestic hot water production

- The 70% of the domestic hot water produced is free
- Technical hot water tank allows the ready availability of domestic hot water at constant temperature
- No need for expensive anti-Legionella treatments
- It limits the use of auxiliary heaters to the minimum
- Thanks to the 250-litre hot water storage tank **ECOtower** guarantees great domestic hot water production.

## Multicircuit and multienergy

**ECOtower** offers several connection possibilities, managing up to two circuits for heating and cooling and one sanitary circuit. It can be combined with other heat generators such as thermal fireplaces, hydro stoves, solar thermal panels and photovoltaic panels.

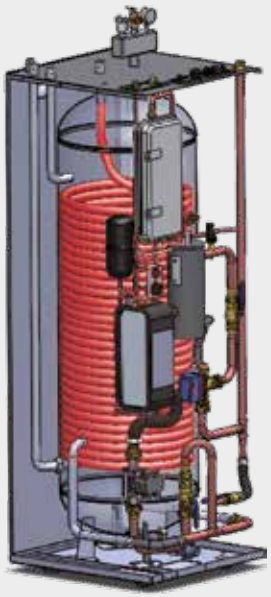
## Technology and exclusive components

**Outdoor unit:**
- BLDC twin rotary compressor - double soundproof
- High efficiency external coil
- Silenced inverter fan
- High and low pressure switch
- High and low pressure sensor
- Suction temperature and discharge temperature sensors
- Electronic expansion valve
- Drip tray heater

**Indoor unit:**
- High head inverter pump
- Stainless steel plate heat exchanger
- 3-way diverting valve (sanitary/heating)
- Flow switch and pressure gauge
- Automatic purge valve
- 250 litre stainless steel technical hot water storage tank
- Built-in integration heater (sanitary/heating)
- Expansion vessel for the technical hot water storage tank
- Hot water storage tank temp./pressure safety relief valve
- 4.3" colour touch display

## Built-in 250 litre hot water storage tank

**ECOtower** houses a stainless steel 250 litre technical water storage tank. Domestic hot water production comes through a stainless steel coil heat exchanger immersed in the storage water. The coil has a large exchange surface and a high efficiency, this grants 16 l/min water flow with contained temperatures of the water storage tank streamlining the efficiency of **ECOtower**, by reducing the amount of electrical energy absorbed during domestic hot water production.
This solution avoids expensive anti-Legionella cycles and ensures safe domestic hot water production.



System ANTI-LEGIONELLA

The examples reported are merely indicative


# Everything under control

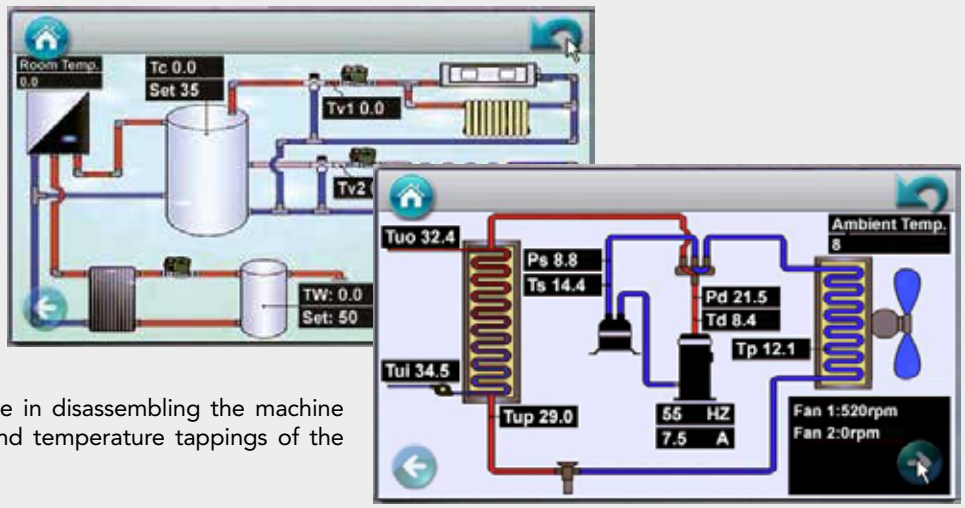
## ECOtouch
## adjustment control

**ECOtwin** and **ECOtower** are provided with the **ECOtouch** controller, designed to be intuitive, simple and easy to use.
Equipped with a 4.3" touch screen, the **ECOtouch** controller integrates the various components of the system to meet the need for different applications, minimizing power consumption.

- Available functions:
- 2 circuits heating and cooling
- 1 sanitary circuit
- D.H.W. storage tank management
- Auxiliary heating management
- Active functions (climatic curve, electrical utility lock, anti freeze function)
- Alarms
- Timer (day/night use for each day of the week up to 12 time bands in 7 days, vacation mode, night operating)

## On-board
## synoptics

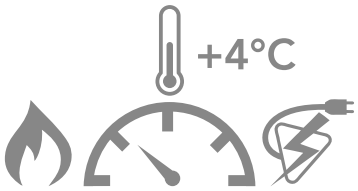
Two synoptic panels are available to monitor the cooling circuit and the hydraulic circuit. All operating pressures and temperatures, compressor speed/ electrical input, and fan speed are displayed.
Regarding the hydraulic circuit, all operating temperatures and flow temperatures of individual circuits are visible.
Synoptic panels allow quick diagnosis of the system status without wasting time in disassembling the machine crankcases and accessing the pressure and temperature tappings of the refrigeration circuit or hydraulic circuit.



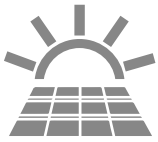
# Standard functions
## that make the difference

### Smart management
#### of energy consumption

As the room temperature drops, the heating efficiency of the heat pumps falls steadily, so in some countries or regions, the use of other heating sources such as a gas boiler can become cheaper than using the heat pump. Cosmogas inverter units allow you to stop the heat pump and turn on other heating appliances when the room temperature drops to a certain level.




### Electrical utility lock
#### and floor curing function



**Electrical utility lock:** in the presence of a photovoltaic system, the "Electrical utility lock" function can be set to switch the heat pump off when using photovoltaic or power main supply is no longer convenient, and automatically activates the auxiliary boiler powered by the most convenient power source.

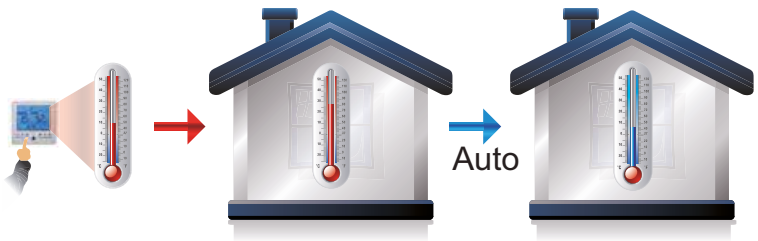
**Floor curing function:** after the concrete and substrates have been formed, the screed may be damp. The "floor curing" function is used to dry the floor and ensure proper laying of the tiles.

### Built-in
#### vacation mode

Built-in "Vacation Mode" allows the users to set the system to operate under minimized vacation settings between the programmed starting and ending time of their vacation periods. In this mode, Cosmogas heat pumps work to maintain the minimal required temperatures to save the maximum amount of energy. System will switch back to normal mode at the ending time of vacation mode properly, so that the occupants will be welcome with proper heating temperature and sanitary hot water, upon returning from their vacations.

### Reduced set point
#### for heating

In this mode the system adjusts outlet water temperature or room temperature to save energy and lowers the operation noise by reducing the working speed of the compressor and fan motor for optimum sleeping comfort. Specially recommended in populous areas.




### Automatic heat/cool
#### switch-over mode

Cosmogas inverter heat pumps use Automatic Heat/Cool Switch-over function to enable the user a truly unattended automatic operation of the system. User can choose to set this mode based on the ambient temperature, room temperature, or a signal input from other external devices.
To avoid too short operating cycles between one mode and the other, the unit will also consider the previous average temperature to choose the correct operating mode.

# FRYO R290

FRYO R290 6 - 10 - 10TR

FRYO R290 15TR

## Air-to-water inverter heat pumps with natural R290 refrigerant

**FRYO R290** is the new series of innovative, inverter and environmentally friendly high-temperature heat pumps, produced entirely in Cosmogas factories, for heating, cooling and domestic hot water production.
With their refined design, they integrate into the architecture of homes with their clean lines, finding harmony in all contexts.

### HIGH OPERATING RANGE

Their strong point is their high operating range: in heating mode, with temperatures of -20°C outside air they reach supply temperatures of 60°C and with temperatures of -12°C outside air up to 75°C supply temperature. This allows the **FRYO R290** heat pumps to also be installed in radiator systems. Furthermore, in cooling mode they can work with outside temperatures of up to 50°C.

### ENVIRONMENTALLY FRIENDLY

Our new **FRYO R290** heat pumps use in their refrigeration circuit a natural R290 refrigerant (propane), which with a GWP 3 places these heat pumps among those with the lowest environmental impact.
F-gas licence not required as the natural R290 refrigerant contains no fluorinated gases.

### VERSATILITY AND ACCESSIBILITY

**FRYO R290** are easy to install as they can be placed on the floor, with related anti-vibrating supports, or fixed to the wall by special brackets and connected to the heating or cooling system with insulated supply and return piping.
They are equipped with a completely removable casing, which facilitates cleaning and maintenance, and the user has the option of repainting the panels.

### FRYO R290 AVAILABLE MODELS

FRYO R290 6 - FRYO R290 10 single-phase version
FRYO R290 10TR - FRYO R290 15TR three-phase version

A+++

EXTREMELY LOW-NOISE

R290 REFRIGERANT NATURAL

HIGH PERFORMANCE INVERTER TECHNOLOGY

FV LINK

up to 75°C WATER SUPPLY

## Password
### silence!

Much attention has been paid to silent operation by adopting:
- Oversized diameter fans with silenced blade profile
- Latest-generation 'Scroll' type compressor, soundproofed with sound-absorbing cladding
- Floating frame, a dual floating support system to reduce vibration
- 'High Silent' function: when is activated, the sound pressure can be reduced to the desired value (as low as 30 dB) at times of your choice.



## 'Polar' protection
### safe even in winter

The **FRYO R290** is an air-to-water heat pump equipped with two electrical heaters.
One standard heater is located on the plate heat exchanger. The second heater, on demand, is a convenient heating cable to protect the section of piping that exits the unit and enters the home.

## "No Ice"
### high seasonal efficiency

Thanks to the generous 2.5 mm fin spacing, the ice that forms within the fins of the coil, during the winter period, reduces air passages only slightly.
This reduces defrost cycles and increases efficiency, economy and comfort levels during the harshest part of the winter season.

## Energy Saving (PCR)
### consumption optimisation

**FRYO R290** heat pumps are equipped as standard with the PCR (Power Consumption Reduction) function.
When active, it reduces the absorbed electrical power (as modern induction hobs do), thus avoiding the risk of interruption due to power overload when several appliances are used at the same time.

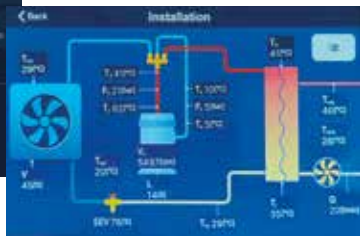
## Comodo and Cosmo+
### control at your fingertips

The brain of the **FRYO R290** is the new electronic platform **CIMA** (Cosmogas Integrated Modular Architecture) designed and manufactured in Italy to Cosmogas specifications. Equipped with modern and powerful microprocessors, it communicates via Modbus with **Comodo** the elegant and innovative Wi-Fi advanced chrono control, present as standard, which allows the user to comfortably adjust and control from inside the house on the 5" touch screen display the temperature for different time slots during the day and week, as well as a remote check of operating parameters and electricity consumption diagrams of the heat pump.
Operating data are also displayed in the **'Syn Check'** synoptic panel for instant monitoring of all refrigeration and hydraulic circuit parameters.
Using the **Cosmo+** App, users can monitor the comfort of their home from their smartphone and the Service Centre can take action remotely by checking and making changes (RAM - Remote Asset Monitoring).


comodo

Download on the App Store

Google play

# FRYO Pi


## Monobloc reverse cycle inverter heat pumps

**FRYO Pi** 6, 9 and 12 kW are air-to-water heat pumps that offer high efficiency (up to COP 4,61) thanks to next generation BLDC Twin Rotary compressors. These heat pumps are ideal for room heating and cooling.

**MONOBLOC EASY TO INSTALL**
**FRYO Pi** are very easy to install. A monobloc with the refrigerant circuit already sealed inside the machine. You only need to connect the hydraulic pipes of the outdoor unit to the heating system of the house. The monobloc can also be combined with boilers and hybrid systems, with already sized components that further simplify installation operations.

**BUILT-IN DHW FUNCTION**
**FRYO Pi** are able to produce domestic hot water by connecting a hot water storage tank and an external 3-way valve (on demand). All models are provided with a 4-way valve for cold water production in summer time.

**FRYO Pi AVAILABLE MODELS**
FRYO 6Pi - FRYO 9Pi - FRYO 12Pi

A+++

EXTREMELY LOW-NOISE

ECO FRIENDLY R32 REFRIGERANT

HIGH PERFORMANCE INVERTER TECHNOLOGY

up to -25°C HEATING

## FRYO Pi and BPF
### a winning solution

**FRYO Pi** heat pumps are designed to be combined with the **BPF** storage tank, available in 5 models (200 - 300 - 500 - 800 - 1000 litres), to streamline the production of domestic hot water.
**BPF** is equipped with an oversized coil with a high exchange surface area, which optimises the efficiency of heat pumps and provides rapid domestic hot water heating while reducing the amount of electrical energy absorbed. The presence of the coil heat exchanger, which extends along the entire length of the storage tank, ensures that the entire water content is heated evenly, even in the lower part, thus reducing the risk of proliferation of Legionella bacteria.

System ANTI-LEGIONELLA


## Standard details
### that make the difference

The 4-wire remote chrono-control is standard supplied, easy to install and intuitive, it manages switching on and off on time slots, regulates both heating/cooling operating and domestic hot water production, reduced setpoint, temperatures, alarms and anti-legionella function if connected to a water storage tank. It can be detached from the appliance and placed inside the environment.

## Technology and
### exclusive components

**Cooling circuit:**
- BLDC Twin Rotary compressor
- High efficiency external coil
- Hi and low pressure switches
- Hi and low pressure sensors
- Suction temperature sensor
- Discharge temperature sensor
- Electronic expansion valve
- Dehydrating filter

**Electrical circuit:**
- Silenced inverter fan
- On-call backup heater (backup heater on deman)
- Operating conditions with outdoor temperatures from -20°C to + 50°C
- Maximum heating supply temperature 55°C

**Hydraulic circuit:**
- Inverter high head pump
- Stainless steel plate heat exchanger
- DHW function (external 3-way valve on demand)
- Flow meter and automatic purge valve

## To combine with
### SOLARfryo hybrid system

The **FRYO Pi** monobloc heat pump can also be combined with hybrid systems. It is particularly suitable for combination with the **SOLARfryo hybrid system** by Cosmogas completely pre-assembled and ready to install.

## Double soundproof
### protection

**FRYO Pi** are highly noiseless heat pumps due to the large-diameter low-speed fan and compressor with sound-absorbing coat enclosed in a metal sheet compartment.

The examples reported are merely indicative

# FRYO P2

## High-efficiency reverse cycle heat pumps with 2 pipes

The new series of high-efficiency heat pumps named **FRYO P2** with 2 pipes (with output from 28 up to 105 kW) for heating, air-conditioning and domestic hot water production join the Cosmogas catalogue.

**HIGH QUALITY COMPONENTS**
These are products with components from leading international companies, controlled and verified by Cosmogas and complying with the strictest European standards.
**FRYO P2** are also characterised by housing a series of devices and extras such as a circulation pump, antifreeze kit, heated condensate drip tray and anti-vibration feet.

**SILENT AND COST-SAVING**
Designed to minimise electricity consumption, ensure quiet operation and durability. They are built with high-efficiency Scroll compressors in tandem configuration mounted on a double anti-vibration floating frame and acoustically insulated by means of hoods and high-density materials, as well as silenced fans with inverter modulating motors.

**FRYO P2 AVAILABLE MODELS**
FRYO 30P2 - 40P2 - 50P2 - 70P2 - 80P2 - 95P2 - 105P2

A++

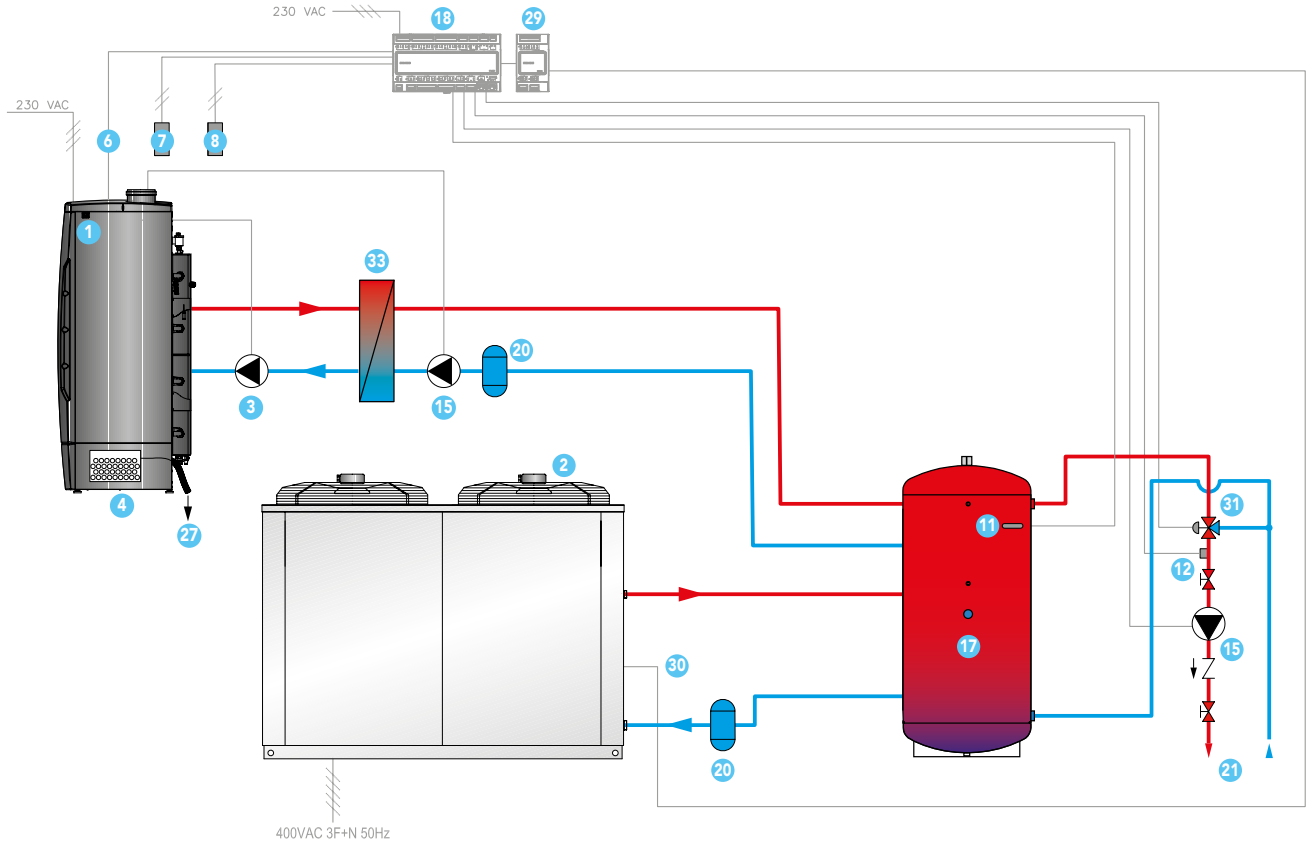
EXTREMELY LOW-NOISE

R410A REFRIGERANT

HIGH PERFORMANCE INVERTER TECHNOLOGY

IPX4 PROTECTION

## FRYO P2 HYBRID POSSIBLE ARRANGEMENT




1 · MYdens T commercial boilers
2 · Heat pump FRYO P2
3 · Main circuit pump
4 · Condensate neutralizer
6 · 0-10V input
7 · Outdoor temperature sensor
8 · Room thermostat circuit
11 · Buffer tank temperature sensor
12 · Mix circuit temperature sensor
15 · Circulating pump
17 · Buffer tank for heating/cooling
18 · Thermoregulator TUTORbit
20 · Filter
21 · Heating circuit
27 · Condensate drain
29 · Expansion for heat pump management
30 · Heating/cooling supply/return
31 · 3-way mixing valve
33 · Plate heat exchanger for heating

## Technology and exclusive components

**External casing**
- Hot-dip galvanized sheet metal painted, self-supporting with removable panels lined with soundproofing material
- Anti-vibration feet

**Cooling circuit**
- Dehydrating filter
- Expansion valve with external equalizer
- 4-way reversing valve
- Check valves
- Schrader valves for maintaining and control
- High-efficiency Scroll compressors in tandem configuration mounted on a double anti-vibration floating frame and acoustically insulated
- High efficiency external coil
- Heated condensate drip tray
- Brazed AISI 316 stainless steel plate heat exchanger
- High and low pressure switches with automatic reset
- Antifreeze kit composed of cable heater on water circuit
- High and low pressure control valves

**Hydraulic circuit**
- High head pump
- Water flow switch
- Drain valve
- Safety relief valve set at 6 bar

**Electrical circuit**
- Aluminium axial fans with silenced winged blades and BLDC motors
- Control panel with display and user interface
- Control microprocessor
- Circuit breakers
- Protection fuses
- Phase control
- Phase sequence relay, compressors and pump
- Utility water return temperature sensor
- Antifreeze protection temperature sensor
- Supply and return temperature sensor
- Compressor thermal protection
- Fan thermal protection
- High and low pressure transducers

The examples reported are merely indicative

# Fan coils

RUFY

FLAIR

SLIMMY

## Wall and ceiling mounted
## hydronic fan coils

Cosmogas fan coils are hydronic terminals for two-pipe systems that combine performance, energy efficiency, excellent quietness and minimalist design, 100% Made in Italy.

**MODULATION AND COMFORT**
All models are equipped as standard with ECM low consumption motor, an innovative Brushless motor, which provides precise and modular control of air flow rate, adapting to the actual workload required.

**SYSTEM OPTIMIZATION**
Using the standard three-way valve, water flow is diverted into the system when the unit is switched off, so that unnecessary waste is efficiently avoided.

**UNLIMITED WATER**
Cosmogas fan coils can be installed in variable numbers to heat or cool rooms, with the same system, in a simple and functional way. The efficiency of the heat pump or boiler is not affected even if the fan coils are installed at a considerable distance, as only water circulates in the house and not high-pressure refrigerant gases, which are harmful to the ozone layer and have a high greenhouse effect.

**ADVANCED CONNECTION**
Equipped with a heat pump interface as standard, all fan coils communicate with Cosmogas heat pumps, boilers and hybrid systems.

**FAN COILS AVAILABLE MODELS**
FLAIR 3 - FLAIR 4
SLIMMY 2 - SLIMMY 4 - SLIMMY 5
RUFY 3 - RUFY 5

All fan coils are RAL 9016 matt white.

## FLAIR
### wall-hung simplicity and technology

Wall-hung fan coil unit only 185 mm thick, suitable for installation in commercial and residential environments.
Minimalist design and state-of-the-art technology housed in a casing made of steel front and ABS side panels.
Extremely low-noise and performance ensured by the low-speed tangential fan and energy saving by the inverter motor.
Easy installation and maintenance with removable cover by removing only 2/3 screws depending on size.
Motorised flaps and infrared remote control as standard.
Cooling capacity from 1,5 to 3,8 kW and heating capacity from 1,6 to 4,3 kW.

## SLIMMY
### 127 mm of design and innovation

Ultra-thin tangential fan coil unit only 127 mm thick with advanced, integrated Touch control system, Wi-Fi and Bluetooth connection.
Innovation, design, compactness and silence for perfect integration in any context.
Supporting structure in 1 mm thick hot-galvanised steel, shaped to ensure greater rigidity and internally insulated.
Fast and dynamic in achieving and maintaining the conditions required by the user with smart modulation of the air flow rate at low fan speeds.
High energy savings through optimised air flow rates and reduced consumption thanks to the unique inverter motor and tangential fan.
Cooling capacity from 0,8 to 4,5 kW and heating capacity from 1,1 to 4,9 kW.

## RUFY
### suspended elegance and unrivalled comfort

Cassette fan coil unit for false ceilings that prefers high silence and high efficiency thanks to the internal insulation and dedicated radial fan.
Structure in 1.5 mm thick galvanised sheet metal, externally finished with anti-condensation barrier.
No disturbing direct cold air jets, the Coanda effect is exploited to the full by the specially designed side fins: the cold air is distributed evenly and gradually in the room.
In heating mode, on the other hand, the fins automatically position themselves at 35° so that the warm air is directed downwards.
The three-way valve, integrated inside the machine, facilitates maintenance operations.
Motorised flaps and infrared remote control as standard.
Cooling capacity from 1,9 to 5,0 kW and heating capacity from 1,9 to 4,9 kW.

# Hybrid systems

| HYBRID SYSTEMS BOILER | | MU | SRF 15 | SRF 24 |
|---|---|---|---|---|
| Type (Type of exhaust flue gas/air intake) | | | | B23; B23P; C13; C33; C43; C53; C63; C |
| Category | | | II2H3P | II2H3P |
| EU type approval certificate (PIN) | | | 0476CU2452 | 0476CU2452 |
| Range Rated Boiler | | | APPROVED | APPROVED |
| Heating maximum heat input "Qn" LHV (HHV) | | kW | 14,0 (15,5) | 25,5 (28,3) |
| Sanitary circuit maximum heat input "Qnw" LHV (HHV) | | kW | 25,5 (28,3) | 25,5 (28,3) |
| Heating minimum heat input LHV (HHV) | | kW | 4,4 (4,9) | 4,4 (4,9) |
| Sanitary circuit minimum heat input LHV (HHV) | | kW | 4,4 (4,9) | 4,4 (4,9) |
| Heating maximum heat output (80/60) "Pn" | | kW | 13,6 | 24,7 |
| Efficiency at 100% load (80/60) LHV (HHV) | | % | 96,5 (86,9) | 96,5 (86,9) |
| Minimum heat output (80/60) | | kW | 4,3 | 4,3 |
| Efficiency at minimum heat output (80/60) LHV (HHV) | | % | 96,9 (87,3) | 96,9 (87,3) |
| Heating maximum heat output (50/30) | | kW | 14,5 | 26,4 |
| Efficiency at heating maximum heat output (50/30) LHV (HHV) | | % | 103,7 (93,4) | 103,7 (93,4) |
| Minimum heat output (50/30) | | kW | 4,5 | 4,5 |
| Efficiency at minimum heat output (50/30) LHV (HHV) | | % | 102,7 (92,5) | 102,7 (92,5) |
| Efficiency at 30% of the load LHV (HHV) | | % | 107,8 (97,0) | 107,8 (97,0) |
| Gas flow rate | G20 | $m^3/h$ | 2,70 | 2,70 |
| | G31 | kg/h | 1,09 | 1,98 |
| DHW temperature adjustment range | | °C | 40-60 | 40-60 |
| Heating minimum/maximum temperature | | °C | 20 - 80 | 20 - 80 |
| Minimum/maximum heating pressure "PMS" | | bar | 1 / 3 | 1 / 3 |
| Minimum/maximum sanitary circuit pressure "PMW" | | bar | 0,3 / 7 | 0,3 / 7 |
| Voltage/Frequency rated power supply | | V/Hz | 230/50 | 230/50 |
| Absorbed electrical power (basic model)(1 pump) * | | W | 142 | 142 |
| Absorbed electrical power (with circulating pump) ** | | W | 95 | 95 |
| Electrical protection rating | | | IP X5D | IP X5D |
| Flue gas exhaust pipe diameter (split) | | mm | 80, 60 or 50 | 80, 60 or 50 |
| Flue gas exhaust pipe maximum length/air intake (split) (80) | | m | 20 / 20 | 20 / 20 |
| Flue gas exhaust pipe maximum length/air intake (split) (60) | | m | 7,5 / 7,5 | 7,5 / 7,5 |
| Flue gas exhaust pipe maximum length/air intake (split) (50) | | m | 7*** / 7*** | 7*** / 7*** |
| Minimum available diameter of air intake collective duct (type C93) | | mm | 100 | 100 |
| Weighted CO (0% O2) | G20 | ppm | 8 | 8 |
| Weighted NOx (0% O2)(class 6 EN 15502) HHV | G20 | mg/kWh | 15 | 15 |
| Weight of the thermal unit | | kg | | 200 (empty) - 400 (full load) |

* Absorbed electrical power calculated without circulating pump / ** If there is also a circulation pump, add this power to that of the corresponding configuration / *** In the

| HYBRID SYSTEMS HOT WATER STORAGE TANK | MU | SRF 15 | SRF 24 |
|---|---|---|---|
| Capacity of solar hot water storage tank with double coil | l | 150 | 150 |
| Upper stainless steel coil exchange surface | $m^2$ | 1,52 | 1,52 |
| Upper stainless steel coil diameter | mm | 22 | 22 |
| Upper stainless steel coil length | m | 22 | 22 |
| Lower stainless steel coil exchange surface | $m^2$ | 0,63 | 0,63 |
| Lower stainless steel coil diameter | mm | 20 | 20 |
| Lower stainless steel coil length | m | 10 | 10 |
| K boll | W/K | 1,5 | 1,5 |
| Instantaneous DHW production (Δt 30°C) | l/min | 12,2 | 12,2 |
| DHW hourly production (storage at 65°C) (Δt 30°C) | l | 840 | 840 |

| HYBRID SYSTEMS HEAT PUMP | MU | FRYO 6Pi / 9Pi / 12Pi (R32 |
|---|---|---|
| Maximum heat output | | |
| Total absorbed power | | |
| COP max | | |
| Cooling output | kW | |
| EER max | kW | see reference chart |
| Voltage/Frequency rated power supply | V/Hz | |
| Maximum absorbed power | A | |
| Compressor type | | |
| Refrigerant type | | |

Operating conditions: Outdoor temperature 7°C ; supply 35°C ; return 30°C

| SRF 34 |
|---|
| C83; C93 |
| II2H3P |
| 0476CU2452 |
| APPROVED |
| 34,8 (38,6) |
| 34,8 (38,6) |
| 6,0 (6,7) |
| 6,0 (6,7) |
| 34,0 |
| 98,0 (88,2) |
| 5,9 |
| 98,0 (88,3) |
| 36,2 |
| 104 (93,7) |
| 6,3 |
| 104,2 (93,9) |
| 108,2 (97,4) |
| 3,68 |
| 2,70 |
| 40-60 |
| 20 - 80 |
| 1 / 3 |
| 0,3 / 7 |
| 230/50 |
| 142 |
| 95 |
| IP X5D |
| 80, 60 or 50 |
| 12,5 / 12,5 |
| 5 / 5 |
| 3*** / 3*** |
| 100 |
| 15 |
| 28 |

se conditions, the appliance output is reduced by 10%

| SRF 34 |
|---|
| 150 |
| 1,52 |
| 22 |
| 22 |
| 0,63 |
| 20 |
| 10 |
| 1,5 |
| 16,3 |
| 1090 |

2)

# SOLARsplit

| MODEL | | UM | SOLARSPLIT 6 | SOLARSPLIT 9 | SOLARSPLIT 12 |
|---|---|---|---|---|---|
| Rated power supply | | V/Hz/Ph | 220-240/50/1 | 220-240/50/1 | 220-240/50/1 |
| Refrigerant | | kg | R32 / 1,0 | R32 / 1,6 | R32 / 1,8 |
| Heating output (1) | | kW | 6,50 | 9,20 | 11,65 |
| Heating absorbed power (1) | | W | 1410 | 2060 | 2683 |
| COP load factor 100% (1) | | W/W | 4,61 | 4,47 | 4,35 |
| Heating output (2) | | kW | 6,24 | 8,68 | 11,25 |
| Heating absorbed power (2) | | W | 1977 | 2509 | 3261 |
| COP load factor 100% (2) | | W/W | 3,44 | 3,46 | 3,45 |
| Cooling output (3) | | kW | 7,41 | 9,48 | 9,80 |
| Cooling absorbed power (3) | | W | 1807 | 2199 | 2510 |
| EER load factor 100% (3) | | W/W | 4,10 | 4,31 | 3,90 |
| Cooling output (4) | | kW | 4,25 | 6,95 | 6,56 |
| Cooling absorbed power (4) | | W | 1687 | 2324 | 2448 |
| EER load factor 100% (4) | | W/W | 2,52 | 2,99 | 2,68 |
| Circuit maximum pressure | | bar | 42 | 42 | 42 |
| Rated output 1 pump (2 pumps) | | W | 90 (135) | 90 (135) | 90 (135) |
| Max. absorbed power (FLI) | | kW | 5,52 | 6,25 | 7,13 |
| Max. electric current absorbed (FLA) | | A | 24 | 27 | 31 |
| Pump maximum head | | m | 7,5 | 7,5 | 7,5 |
| Twin Rotary compressor | Quantity / System | | 1 | 1 | 1 |
| | Oil | | FV68S | FV68S | FV68S |
| Fan | Quantity | | 1 | 1 | 1 |
| | Air flow | m³/h | 2500 | 3150 | 3150 |
| | Rated output | W | 34 | 45 | 45 |
| Air side heat exchanger | Surface | m² | 0,542 | 0,542 | 1,5 |
| | Rows / Inch | N° / " | 2 Rows / 1/4" | 2 Rows / 1/4" | 2 Rows / 1/4" |
| | Pipe diameter | " | 1/4 O.D. | 3/8 O.D. | 3/8 O.D. |
| Sound power level | Indoor / Outdoor | dB (A) | 35 / 52 | 35 / 53 | 35 / 52 |
| Buffer storage tank technical water volume | | l | 150 | 150 | 150 |
| Domestic hot water storage tank water volume | | l | 50 | 50 | 50 |
| K boll technical water buffer tank (150 litres) | | W/K | 1,5 | 1,5 | 1,5 |
| K boll domestic hot water buffer tank (50 litres) | | W/K | 0,7 | 0,7 | 0,7 |
| Domestic hot water production in 10 minutes (6) | | l | 140 | 140 | 140 |
| Refrigerant connection | Liquid / Gas | " | 1/4" / 1/2" | 3/8" / 5/8" | 3/8" / 5/8" |
| Electrical protection rating | | | IP X5D | IP X5D | IP X5D |
| Water side plate heat exchanger | Material | | | Stainless steel - Copper | |
| | Pressure drops | kPa | 23 | 23 | 26 |
| | Connection | " | G1" | G1" | G1" |
| Plate heat exch. allowable water flow | Min/Rated/Max. | l/s | 0,21 / 0,29 / 0,35 | 0,26 / 0,43 / 0,52 | 0,34 / 0,57 / 0,68 |
| Net size (W×D×H) | Outdoor unit | mm | 1010x370x700 | 1165x370x850 | 1165x370x850 |
| | Indoor unit | mm | 975x390x2015 | 975x390x2015 | 975x390x2015 |
| Weight (empty) | Outdoor/Indoor unit | kg | 62,0 / 150 | 63,0 / 150 | 80,0 / 150 |
| Operating ambient temperature range | Heating | °C | -25~46 | -25~46 | -25~46 |
| | Cooling | °C | 20~50 | 20~50 | 20~50 |
| Inlet water temperature | | °C | 7~75 | 7~75 | 7~75 |
| Adjustable temperature range (5) | | °C | 20-75 | 20-75 | 20-75 |
| DHW storage tank heater | | kW | 0,8 | 0,8 | 0,8 |
| Maximum water pressure | DHW / Heating | MPa | 0,7 / 0,3 | 0,7 / 0,3 | 0,7 / 0,3 |
| Heating built-in electrical heater (2-stage) | | kW | 1,5 + 1,5 | 1,5 + 1,5 | 1,5 + 1,5 |
| Seasonal space heating energy efficiency (ηs) | | % | 186,7 | 186,0 | 185,5 |

(1) Heating operating conditions: inlet/supply water temperature: 30°C/35°C, room temperature: DB/WB 7°C/6°C
(2) Heating operating conditions: inlet/supply water temperature: 40°C/45°C, room temperature: DB/WB 7°C/6°C
(3) Cooling operating conditions: inlet/supply water temperature: 23°C/18°C, room temperature: 35°C
(4) Cooling operating conditions: inlet/supply water temperature: 12°C/7°C, room temperature: 35°C
(5) The water temperature can reach 55°C through the heat pump and 75°C with simultaneous use of electrical heaters
(6) Domestic hot water production conditions: inlet water temperature: 12°C, DHW production at 40°C with hot water tank set temperature: 50°C
Performance test according to Commission Regulation UNI EN 14511:2022
Technical features are subject to change without prior notice. For actual technical features of the unit, please refer to the label on the unit

# ECOtwin / ECOtower

| MODEL | | UM | ECOTWIN | | | ECOTOWER | | |
|---|---|---|---|---|---|---|---|---|
| | | | 6 | 9 | 12 | 6 | 9 | 12 |
| Rated power supply | | V/Hz/Ph | 220-240/50/1 | | | 220-240/50/1 | | |
| Refrigerant | | kg | R32 / 1,0 | R32 / 1,6 | R32 / 1,8 | R32 / 1,0 | R32 / 1,6 | R32 / 1,8 |
| Heating output (1) | | kW | 6,50 | 9,20 | 11,65 | 6,50 | 9,20 | 11,65 |
| Heating absorbed power (1) | | W | 1410 | 2060 | 2683 | 1410 | 2060 | 2683 |
| COP load factor 100% (1) | | W/W | 4,61 | 4,47 | 4,35 | 4,61 | 4,47 | 4,35 |
| Heating output (2) | | kW | 6,24 | 8,68 | 11,25 | 6,24 | 8,68 | 11,25 |
| Heating absorbed power (2) | | W | 1977 | 2509 | 3261 | 1977 | 2509 | 3261 |
| COP load factor 100% (2) | | W/W | 3,44 | 3,46 | 3,45 | 3,44 | 3,46 | 3,45 |
| Cooling output (3) | | kW | 7,41 | 9,48 | 9,80 | 7,41 | 9,48 | 9,80 |
| Cooling absorbed power (3) | | W | 1807 | 2199 | 2510 | 1807 | 2199 | 2510 |
| EER load factor 100% (3) | | W/W | 4,10 | 4,31 | 3,90 | 4,10 | 4,31 | 3,90 |
| Cooling output (4) | | kW | 4,25 | 6,95 | 6,56 | 4,25 | 6,95 | 6,56 |
| Cooling absorbed power (4) | | W | 1687 | 2324 | 2448 | 1687 | 2324 | 2448 |
| EER load factor 100% (4) | | W/W | 2,52 | 2,99 | 2,68 | 2,52 | 2,99 | 2,68 |
| Max. absorbed power (FLI) | | kW | 5,52 | 6,25 | 7,13 | 5,52 | 6,25 | 7,13 |
| Max. electric current absorbed (FLA) | | A | 24 | 27 | 31 | 24 | 27 | 31 |
| Circuit maximum pressure | | bar | 42 | 42 | 42 | 42 | 42 | 42 |
| Twin Rotary compressor | Quantity/System | | 1 | 1 | 1 | 1 | 1 | 1 |
| | Oil | | FV68S | FV68S | FV68S | FV68S | FV68S | FV68S |
| Fan | Quantity | | 1 | 1 | 1 | 1 | 1 | 1 |
| | Air flow | m³/h | 2500 | 3150 | 3150 | 2500 | 3150 | 3150 |
| | Rated output | W | 34 | 45 | 45 | 34 | 45 | 45 |
| Sound power level | Indoor / Outdoor | dB (A) | 35 / 52 | 35 / 53 | 35 / 52 | 35 / 52 | 35 / 53 | 35 / 52 |
| Refrigerant connection | Liquid / Gas | " | 1/4" / 1/2" | 3/8" / 5/8" | 3/8" / 5/8" | 1/4" / 1/2" | 3/8" / 5/8" | 3/8" / 5/8" |
| Indoor unit electrical protection rating | | | IP X0 | IP X0 | IP X0 | IP X0 | IP X0 | IP X0 |
| Outdoor unit electrical protection rating | | | IP X5D | IP X5D | IP X5D | IP X5D | IP X5D | IP X5D |
| Net size (W×D×H) | Outdoor unit | mm | 1010x370x700 | 1165x370x850 | 1165x370x850 | 1010x370x700 | 1165x370x850 | 1165x370x850 |
| | Indoor unit | mm | 790×288×505 | 790×288×505 | 790×288×505 | 600x675x1720 | 600x675x1720 | 600x675x1720 |
| Net weight | Outdoor / Indoor unit | kg | 62 / 45 | 63 / 45 | 80 / 45 | 62 / 140 | 63 / 140 | 80 / 140 |
| Operating ambient temperature range | Heating | °C | -25~46 | -25~46 | -25~46 | -25~46 | -25~46 | -25~46 |
| | Cooling | °C | 20~50 | 20~50 | 20~50 | 20~50 | 20~50 | 20~50 |
| Supply temperature range (5) | | °C | 7~75 | 7~75 | 7~75 | 7~75 | 7~75 | 7~75 |
| Water volume | | l | 4,5 | 4,5 | 4,5 | 250 | 250 | 250 |
| Maximum water pressure (heating) | | MPa | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 |
| DHW storage tank heater | | kW | - | - | - | 1,5 | 1,5 | 1,5 |
| Heating built-in electrical heater | | kW | 3 | 3 | 3 | 3+3 | 3+3 | 3+3 |
| Seasonal space heating energy efficiency (ηs) | | % | 182,0 | 185,0 | 187,0 | 182,0 | 185,0 | 187,0 |

(1) Heating operating conditions: inlet/supply water temperature: 30°C/35°C, room temperature: DB/WB 7°C/6°C
(2) Heating operating conditions: inlet/supply water temperature: 40°C/45°C, room temperature: DB/WB 7°C/6°C
(3) Cooling operating conditions: inlet/supply water temperature: 23°C/18°C, room temperature: 35°C
(4) Cooling operating conditions: inlet/supply water temperature: 12°C/7°C, room temperature: 35°C
(5) The water temperature can reach 55°C through the heat pump and 75°C with simultaneous use of electrical heaters.
Performance test according to Commission Regulation UNI EN 14511:2022
Technical features are subject to change without prior notice. For actual technical features of the unit, please refer to the label on the unit.

# FRYO R290

| MODEL | | MU | FRYO R290 6 | 10 | 10TR | 15TR |
|---|---|---|---|---|---|---|
| Rated power supply | | V/Hz/Ph | 220-240/50-60/1 | 220-240/50-60/1 | 400/50-60/3 | 400/50-60/3 |
| Refrigerant | | kg | R290 / 0,68 | R290 / 1,50 | R290 / 1,50 | R290 / 2,75 |
| Max. heating output (A7/W35) | | kW | 8,80 | 13,70 | 13,70 | 20,30 |
| Max. heating output (A-7/W35) | | kW | 6,0 | 9,7 | 9,7 | 15,0 |
| Max. cooling output (A35/W7) | | kW | 6,6 | 10,9 | 10,9 | 16,6 |
| Max. cooling output (A35/W18) | | kW | 9,6 | 15,7 | 15,7 | 23,1 |
| Heating output (1) | | kW | 4,8 | 7,8 | 7,8 | 12,0 |
| Absorbed power in heating (1) | | W | 1000 | 1592 | 1592 | 2449 |
| COP (1) | | W/W | 4,8 | 4,9 | 4,9 | 4,9 |
| Heating output (2) | | kW | 4,2 | 6,7 | 6,7 | 10,5 |
| Absorbed power in heating (2) | | W | 1024 | 1626 | 1595 | 2561 |
| COP (2) | | W/W | 4,1 | 4,1 | 4,2 | 4,1 |
| Heating output (3) | | kW | 3,2 | 5,0 | 5,0 | 7,5 |
| Absorbed power in heating (3) | | W | 1030 | 1420 | 1420 | 2080 |
| COP (3) | | W/W | 3,1 | 3,5 | 3,5 | 3,6 |
| Cooling output (4) | | kW | 3,8 | 7,2 | 7,2 | 11,5 |
| Absorbed power in cooling (4) | | W | 1188 | 2250 | 2250 | 3594 |
| EER (4) | | W/W | 3,2 | 3,2 | 3,2 | 3,2 |
| Cooling output (5) | | kW | 5,4 | 9,1 | 9,1 | 14,0 |
| Absorbed power in cooling (5) | | W | 1200 | 2022 | 2022 | 3111 |
| EER (5) | | W/W | 4,5 | 4,5 | 4,5 | 4,5 |
| Max. absorbed power (FLI) | | kW | 4,5 | 5,5 | 6,0 | 9,0 |
| Max. electric current absorbed (FLA) | | A | 27 | 31 | 17 | 19 |
| Max. electric current absorbed in heating mode | | A | 18 | 22 | 8 | 11 |
| Max. electric current absorbed in cooling mode | | A | 15 | 19 | 7 | 10 |
| Cooling circuit maximum pressure | | bar | 31,0 | 31,0 | 31,0 | 31,0 |
| Pump rated output | | W | 50 | 87 | 87 | 195 |
| Compressor | Type | | Scroll | Scroll | Scroll | Scroll |
| | Quantity / System | | 1 | 1 | 1 | 1 |
| | Oil | | PAG | PAG | PAG | PAG |
| Fan | Quantity | | 1 | 1 | 1 | 2 |
| Electrical protection rating | | | IP X5D | IP X5D | IP X5D | IP X5D |
| Sound power level (ISO 3744) | | dB (A) | 55 | 55 | 55 | 55 |
| Water side plate heat exchanger | | Material | AISI 316 | AISI 316 | AISI 316 | AISI 316 |
| Hydraulic connections diameter | | " | 1" | 1" | 1" | 1" 1/4 |
| Net size (D×W×H) | | mm | 1350x580x980 | 1350x580x980 | 1350x580x980 | 1350x580x1430 |
| Net weight | | kg | 168 | 177 | 177 | 260 |
| Max. supply temperature | | °C | 75 | 75 | 75 | 75 |
| Water volume | | l | 1,7 | 2,3 | 2,3 | 3,7 |
| Maximum water pressure in heating | | bar | 2,5 | 2,5 | 2,5 | 2,5 |

(1) Heating operating conditions: Inlet/supply water temperature: 30°C/35°C, room temperature: 7°C
(2) Heating operating conditions: Inlet/supply water temperature: 30°C/35°C, room temperature: 2°C
(3) Heating operating conditions: Inlet/supply water temperature: 30°C/35°C, room temperature: -7°C
(4) Cooling operating conditions: Inlet/supply water temperature: 12°C/7°C, room temperature: 35°C
(5) Cooling operating conditions: Inlet/supply water temperature: 23°C/18°C, room temperature: 35°C
Performance testing according to UNI EN 14511:2022

# Regulation UE 811/2013

| MODEL | MU | FRYO R290 6 | 10 | 10TR | 15TR |
|---|---|---|---|---|---|
| Seasonal space heating energy efficiency (ηs) (W35) | % | 187 | 181 | 182 | 185 |
| Rated output (W35) | kW | 5,5 | 9,2 | 9,2 | 14,2 |
| Energy efficiency class (W35) | | A+++ | A+++ | A+++ | A+++ |
| Seasonal space heating energy efficiency (ηs) (W55) | % | 157 | 151 | 152 | 155 |
| Rated output (W55) | kW | 5,1 | 8,0 | 8,1 | 13,8 |
| Energy efficiency class (W55) | | A+++ | A+++ | A+++ | A+++ |

Technical features are subject to change without prior notice. For actual technical features of the unit, please refer to the label on the unit.

# FRYO Pi

| MODEL | | MU | FRYO Pi | | |
|---|---|---|---|---|---|
| | | | 6 | 9 | 12 |
| Rated power supply | | V/Hz/Ph | 220-240/50/1 | 220-240/50/1 | 220-240/50/1 |
| Refrigerant | | kg | R32 / 0,9 | R32 / 1,4 | R32 / 1,8 |
| Heating output (1) | | kW | 6,50 | 9,20 | 11,65 |
| Absorbed power (1) | | W | 1410 | 2060 | 2683 |
| COP load factor 100% (1) | | W/W | 4,61 | 4,47 | 4,35 |
| Heating output (2) | | kW | 6,24 | 8,68 | 11,25 |
| Absorbed power (2) | | W | 1977 | 2509 | 3261 |
| COP load factor 100% (2) | | W/W | 3,44 | 3,46 | 3,45 |
| Cooling output (3) | | kW | 7,41 | 9,48 | 9,80 |
| Cooling absorbed power (3) | | W | 1807 | 2199 | 2510 |
| EER load factor 100% (3) | | W/W | 4,10 | 4,31 | 3,90 |
| Cooling output (4) | | kW | 4,25 | 6,95 | 6,56 |
| Cooling absorbed power (4) | | W | 1687 | 2324 | 2448 |
| EER load factor 100% (4) | | W/W | 2,52 | 2,99 | 2,68 |
| Max. absorbed power (FLI) | | kW | 2,52 | 3,25 | 4,13 |
| Max. electric current absorbed (FLA) | | A | 11 | 15 | 18 |
| Circuit maximum pressure | | bar | 42 | 42 | 42 |
| Pump rated output | | W | 87 | 87 | 87 |
| Compressor | Type | | Twin Rotary | Twin Rotary | Twin Rotary |
| | Quantity | | 1 | 1 | 1 |
| | Oil | | FV68S | FV68S | FV68S |
| | Max. speed in heating | Hz | 90 | 90 | 90 |
| | Max. speed in cooling | Hz | 74 | 80 | 74 |
| Fan | Quantity | | 1 | 1 | 1 |
| Electrical protection rating | | | IP X5D | IP X5D | IP X5D |
| Sound power level | | dB (A) | 52 | 53 | 52 |
| Water side heat exchanger | Type | | Plate heat exchanger | Plate heat exchanger | Plate heat exchanger |
| | Material | | Stainless steel | Stainless steel | Stainless steel |
| Hydraulic connections diameter | | " | 1" | 1" | 1" |
| Net size (W×D×H) | | mm | 1008x371x734 | 1165x371x882 | 1165x371x882 |
| Packaging size (W×D×H) | | mm | 1050x470x900 | 1220x470x1060 | 1220x470x1060 |
| Net weight | | kg | 65 | 78 | 85 |
| Operating ambient temperature range | Heating | °C | -25~43 | -25~43 | -25~43 |
| | Cooling | °C | 20~50 | 20~50 | 20~50 |
| Heating max. supply temperature | | °C | 55 | 55 | 55 |
| Cooling max. supply temperature | | °C | 7 | 7 | 7 |
| Water volume | | l | 3,0 | 3,5 | 4,0 |
| Heating maximum water pressure | | MPa | 0,3 | 0,3 | 0,3 |
| Seasonal space heating energy efficiency (ηs) | | % | 186 | 186 | 185 |

(1) Heating operating conditions: inlet/supply water temperature: 30°C/35°C, room temperature: DB/WB 7°C/6°C
(2) Heating operating conditions: inlet/supply water temperature: 40°C/45°C, room temperature: DB/WB 7°C/6°C
(3) Cooling operating conditions: inlet/supply water temperature: 23°C/18°C, room temperature: 35°C
(4) Cooling operating conditions: inlet/supply water temperature: 12°C/7°C, room temperature: 35°C
Performance test according to Commission Regulation UNI EN 14511:2022
Technical features are subject to change without prior notice. For actual technical features of the unit, please refer to the label on the unit

# FRYO P2

| MODEL | | MU | 30P2 | 40P2 |
|---|---|---|---|---|
| Rated power supply | | V/Hz/Ph | 400/50/3 | 400/50/3 |
| Refrigerant | | kg | R410A / 8,0 | R410A / 11,0 |
| Maximum heating output (1) | | kW | 29,4 | 37,2 |
| Maximum heating absorbed power (1) | | kW | 7,06 | 8,76 |
| COP (1) | | W/W | 4,16 | 4,25 |
| SCOP (2) | | kWh/kWh | 3,86 | 3,85 |
| Seasonal space heating energy efficiency (ηs) (2) | | % | 151,0 | 151,0 |
| Maximum cooling output (3) | | kW | 25,4 | 30,6 |
| Maximum cooling absorbed power (3) | | W | 8,37 | 10,9 |
| EER (3) | | W/W | 3,03 | 2,81 |
| EER (4) | | W/W | 3,92 | 3,84 |
| Max. absorbed power (FLI) | | kW | 13,4 | 17,4 |
| Max. electric current absorbed (FLA) | | A | 22 | 28 |
| Electrical protection rating | | | IP X5D | IP X5D |
| Sound power level (ISO 3744) | | dB (A) | 74 | 74 |
| Sound pressure level (5) | | dB (A) | 42 | 42 |
| Compressor | Type / Quantity | | SCROLL / 2 | SCROLL / 2 |
| | No. circuits | | 1 | 1 |
| Fan | Quantity | | 2 | 2 |
| Hydraulic connections diameter | | " | 1" 1/4 | 1" 1/2 |
| Net size (W×D×H) | | mm | 1915x875x1500 | 2400x1150x1690 |
| Net weight | | kg | 560 | 670 |
| Available head | | kPa | 130 | 100 |
| Water flow | | l/h | 5083 | 6409 |
| Maximum heating water pressure | | bar | 6 | 6 |

(1) Heating operating conditions: inlet/supply water temperature: 30°C/35°C, outdoor air temperature: DB/WB 7°C/6°C
(2) Temperate climate, low temperature, variable - EU Reg 811/2013
(3) Cooling operating conditions: inlet/supply water temperature: 12°C/7°C, outdoor air temperature: 35°C
(4) Cooling operating conditions: inlet/supply water temperature: 23°C/18°C, outdoor air temperature: 35°C
(5) Sound pressure level calculated in free field, 10 meters from the unit, according to ISO 3744
Performance test according to Commission Regulation UNI EN 14511:2022 / Technical features are subject to change without prior notice. For actual technical features of the

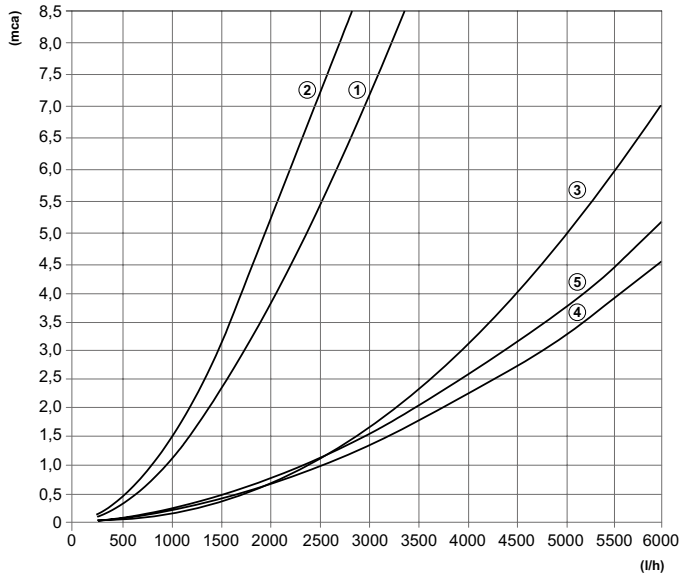
# BPF

| MODEL | MU | BPF 200 | 300 | 500 | 800 | 1000 |
|---|---|---|---|---|---|---|
| Capacity | l | 190 | 263 | 470 | 702 | 900 |
| Heating fluid | | Water | Water | Water | Water | Water |
| Heated fluid | | Water | Water | Water | Water | Water |
| Vessel material | | | | Carbon steel | | |
| Vessel thickness | mm | 2,5 | 2,5 | 2,5 | 3 | 3 |
| Heat exchanger material | | | | Carbon steel | | |
| Heat exchanger thickness | mm | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Heat exchanger maximum pressure | bar | 10 | 10 | 10 | 10 | 10 |
| Heat exchanger exchange surface | $m^2$ | 3,0 | 4,0 | 6,0 | 7,0 | 8,0 |
| Heat exchanger water content | l | 17,2 | 23,0 | 51,5 | 60,0 | 68,5 |
| External cover material / color | | PVC / White | PVC / White | PVC / White | PVC / White | PVC / White |
| Cap material / color | | ABS / Black | ABS / Black | ABS / Black | ABS / Black | ABS / Black |
| Insulation material | | PU hard foam (CFC free) | | | Polyester fibre (class M1/B1) | |
| Insulation thickness | mm | 70 | 70 | 70 | 100 | 100 |
| Standing loss (Reg. 811/2013) | W | 51 | 63 | 80 | 130 | 142 |
| Thermal loss $K_{BOLL}$ (UNI TS 11300-2) | W/k | 1,13 | 1,40 | 1,78 | 2,89 | 3,16 |
| DHW maximum working pressure | bar | 10 | 10 | 10 | 10 | 10 |
| Hydraulic test | bar | 15 | 15 | 15 | 15 | 15 |
| Maximum working temperature | °C | 95 | 95 | 95 | 95 | 95 |
| Anodic protection | | Magnesium | Magnesium | Magnesium | Magnesium | Magnesium |
| Tank weight empty / full load | kg | 85 / 275 | 119 / 382 | 166 / 636 | 217 / 919 | 247 / 1147 |
| Size (diameter x height) | mm | 640 x 1215 | 640 x 1615 | 790 x 1705 | 990 x 1875 | 990 x 2205 |

| FRYO | | | | |
|---|---|---|---|---|
| 50P2 | 60P2 | 70P2 | 95P2 | 105P2 |
| 400/50/3 | 400/50/3 | 400/50/3 | 400/50/3 | 400/50/3 |
| R410A / 11,0 | R410A / 15,0 | R410A / 15,0 | R410A / 23,0 | R410A / 23,0 |
| 47,0 | 61,2 | 68,8 | 93,1 | 105,0 |
| 11,4 | 13,3 | 15,7 | 21,2 | 24,5 |
| 4,12 | 4,60 | 4,38 | 4,39 | 4,29 |
| 3,85 | 4,13 | 4,01 | 3,87 | 3,84 |
| 151,0 | 162,0 | 157,0 | 152,0 | 151,0 |
| 40,8 | 52,4 | 60,3 | 80,4 | 90,2 |
| 14,4 | 18,2 | 20,0 | 26,6 | 31,2 |
| 2,83 | 2,88 | 3,01 | 3,02 | 2,89 |
| 3,50 | 3,60 | 3,64 | 3,71 | 3,54 |
| 20,7 | 26,2 | 28,6 | 37,8 | 43,4 |
| 36 | 48 | 54 | 74 | 80 |
| IP X5D | IP X5D | IP X5D | IP X5D | IP X5D |
| 75 | 76 | 78 | 82 | 83 |
| 43 | 44 | 46 | 50 | 51 |
| SCROLL / 2 | SCROLL / 2 | SCROLL / 2 | SCROLL / 2 | SCROLL / 2 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 1" 1/2 | 2" | 2" | 2" | 2" |
| 2400x1150x1690 | 2905x1150x1890 | 2905x1150x1890 | 2905x1150x1890 | 2905x1150x1890 |
| 690 | 1060 | 1070 | 1120 | 1160 |
| 136 | 128 | 124 | 88 | 105 |
| 8103 | 10533 | 12092 | 16022 | 18043 |
| 6 | 6 | 6 | 6 | 6 |

unit, please refer to the label on the unit

## PRESSURE DROPS




**1 · BPF 200**
**2 · BPF 300**
**3 · BPF 500**
**4 · BPF 800**
**5 · BPF 1000**

# Fan coils

| MODEL | | MU | FLAIR 3 | FLAIR 4 |
|---|---|---|---|---|
| Total cooling output (1) | Min. | W | 1510 | 1940 |
| | Med. | W | 2080 | 2920 |
| | Max. | W | 2520 | 3800 |
| Sensible cooling capacity (1) | Min. | W | 1140 | 1390 |
| | Med. | W | 1620 | 2150 |
| | Max. | W | 2020 | 3000 |
| Rated water flow (1) | Min. | l/h | 260 | 334 |
| | Med. | l/h | 358 | 502 |
| | Max. | l/h | 433 | 654 |
| Water side pressure drops (1) | Min. | kPa | 11,5 | 16,9 |
| | Med. | kPa | 19,4 | 35,1 |
| | Max. | kPa | 25,5 | 55,1 |
| Heating output (2) | Min. | W | 1610 | 2080 |
| | Med. | W | 2290 | 3140 |
| | Max. | W | 2820 | 4290 |
| Rated water flow (2) | Min. | l/h | 277 | 358 |
| | Med. | l/h | 394 | 540 |
| | Max. | l/h | 485 | 738 |
| Water side pressure drops (2) | Min. | kPa | 9,5 | 15,7 |
| | Med. | kPa | 18,3 | 35,1 |
| | Max. | kPa | 27,1 | 56,8 |
| Rated air flow | Min. | m3/h | 262 | 302 |
| | Med. | m3/h | 406 | 502 |
| | Max. | m3/h | 554 | 778 |
| Sound power level | Min. | db(A) | 40 | 37 |
| | Med. | db(A) | 49 | 47 |
| | Max. | db(A) | 54 | 55 |
| Sound pressure level | Min. | db(A) | 31 | 29 |
| | Med. | db(A) | 40 | 38 |
| | Max. | db(A) | 45 | 46 |
| Water content | | l | 1,1 | 1,6 |
| Fan motor absorbed electrical power | Min. | W | 8 | 7 |
| | Med. | W | 10 | 11 |
| | Max. | W | 14 | 24 |
| Rated power supply | | V/ph/Hz | 230/1/50-60 | 230/1/50-60 |
| Maximum water operating pressure | | bar | 8 | 8 |
| Minimum / Maximum working temperature | | °C | 6 / 70 | 6 / 70 |
| Minimum water supply temperature | | °C | 11 | 11 |
| Minimum / Maximum room temperature | | °C | 15 / 30 | 15 / 30 |
| Maximum room humidity | | % | 63 | 63 |

(1) Heating operating conditions: inlet/supply water temperature: 7°C/12°C, room temperature: DB/WB 27°C/19°C
(2) Cooling operating conditions: inlet/supply water temperature: 45°C/40°C, room temperature: 20°C

| SLIMMY | | | RUFY | |
|---|---|---|---|---|
| 2 | 4 | 5 | 3 | 5 |
| 851 | 1677 | 1965 | 1944 | 2697 |
| 1274 | 2304 | 2751 | 2433 | 3648 |
| 2000 | 3536 | 4467 | 2667 | 4975 |
| 635 | 1206 | 1419 | 1424 | 1907 |
| 959 | 1656 | 1963 | 1813 | 2628 |
| 1580 | 2620 | 3318 | 2027 | 3695 |
| 146 | 288 | 338 | 338 | 468 |
| 219 | 396 | 473 | 424 | 635 |
| 344 | 608 | 768 | 465 | 867 |
| 1,8 | 9,2 | 9,0 | 10,0 | 16,0 |
| 4,5 | 17,7 | 16,9 | 14,0 | 18,0 |
| 11,5 | 42,4 | 41,4 | 16,0 | 24,0 |
| 1063 | 1863 | 2189 | 1910 | 2580 |
| 1530 | 2533 | 3114 | 2370 | 3440 |
| 2368 | 4000 | 4886 | 2620 | 4910 |
| 183 | 320 | 376 | 333 | 449 |
| 263 | 436 | 536 | 413 | 600 |
| 407 | 688 | 840 | 456 | 855 |
| 2,4 | 9,2 | 9,3 | 8,9 | 15,3 |
| 5,3 | 17,3 | 18,3 | 12,5 | 18,0 |
| 13,1 | 44,1 | 43,2 | 15,5 | 22,8 |
| 137 | 230 | 256 | 269 | 328 |
| 231 | 365 | 437 | 355 | 468 |
| 395 | 637 | 753 | 398 | 660 |
| 32 | 32 | 33 | 34 | 39 |
| 38 | 39 | 40 | 41 | 49 |
| 52 | 53 | 53 | 44 | 60 |
| 23 | 23 | 24 | 25 | 30 |
| 29 | 30 | 31 | 32 | 40 |
| 43 | 44 | 44 | 35 | 51 |
| - | - | - | - | - |
| 5 | 5 | 7 | 7 | 10 |
| 7 | 8 | 10 | 10 | 22 |
| 17 | 27 | 34 | 12 | 52 |
| 230/1/50-60 | 230/1/50-60 | 230/1/50-60 | 230/1/50-60 | 230/1/50-60 |
| 8 | 8 | 8 | 8 | 8 |
| 6 / 70 | 6 / 70 | 6 / 70 | 6 / 70 | 6 / 70 |
| 11 | 11 | 11 | 11 | 11 |
| 15 / 30 | 15 / 30 | 15 /30 | 4 / 35 | 4 / 35 |
| 63 | 63 | 63 | 78 | 78 |

Massimiliano Pieraccini

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