

The new frontier of thermoregulation in diecasting

High performance combined
with energy saving process
optimisation and
predictive maintenance



Gefond's challenge is to contribute to change

The Industry 5.0 report, published by the European Commission, recognizes that industry has a social role that goes beyond employment and skills development and includes care and respect for the planet. Making the economy greener is now imperative.

European industry will take an important leadership role in implementing the Green Deal and lead by example in the green transformation. Common environmental goals can only be achieved only by incorporating new technologies and rethinking production processes from a sustainable perspective.

This is how HPDC by Gefond was born, and with its temperature control units it affirms the principles of sustainability and digitalization.

HPDC by Gefond temperature control units represent: sustainability thanks to the patented energy saving technology that allows to save up to 85% of electricity compared to traditional controllers; digitalization thanks to the possibility of integrating into every machine Perpetuo, the first predictive maintenance software for foundries.

The pillars of technology and solutions HPDC by GEFOND



SUSTAINABILITY

1. 85% less energy consumption (compared to traditional temperature controllers)
 2. Less CO2 emissions
- Budget saving and saving for the environment



DIGITIZATION

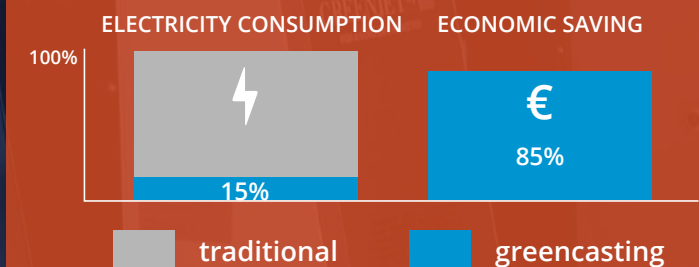
1. Meets Industry 4.0 requirements
 2. Monitor, diagnose and control of faults remotely
- The only temperature controller ready for predictive maintenance thanks to PERPETUO

Innovative sustainable and integrated 4.0 for the industry of die casting, low pressure and gravity

"HPDC by Gefond manufactures cooling systems and multi-circuit water cooling and temperature control systems for industrial applications. Starting from Greenbox technology, HPDC by Gefond develops a complete line of machines dedicated to light alloy.

BENEFITS

- ENERGY SAVING
- LOWER ENVIRONMENTAL IMPACT
- INDUSTRY 4.0
- PREDICTIVE MAINTENANCE
- INCREASED CASTING QUALITY
- CYCLE TIME REDUCTION
- INCREASED PRODUCTIVITY AND CONTROL
- RETROACTION



Measurement data certified by Esco and collected on die-casting cells in real production conditions in comparison with traditional control units

Greencasting 400 and 600

Temperature control unit also ideal for minimal lubrication and structural castings

Greencasting mini the concentrated power

Energy saving and process optimization



Greenjet 100 for jetcooling technology

For larger moulds and structural castings with a flow rate of up to 100 lt/min to cool more circuits

Greenjet for jetcooling technology

High pressure multi-zone temperature controller for plugs and microchannels



High pressure
water units (17 bar)



Operation with mains water



6 Independent outlets



Double filtering system



High pressure
water units (35 bar)



Operation with mains water



4 Independent outlets



Double filtering system

Greenshell: temperature control units for low pressure and gravity

Multi-circuit systems with high cooling power for process optimization



NEW GREENCASTING CONTROL SOFTWARE



User Friendly Technology

- New diagnostic function
- Alarms history implemented
- User friendly graphics
- New float cleaning check function
- Upgrade flow test
- User friendly recipe management
- Scalable temperature and pressure graphs (hours/days)
- ni)

Multizone pressurized water temperature controllers

Multi-circuit systems for process control and increased productivity

HPDC by Gefond temperature control units represents a decisive step forward in the use of energy-saving technologies, guaranteeing fundamental operational advantages in addition to energy savings, such as longer die life, better casting quality and reduced cycle time.

All this translates into savings and increased productivity.



**PRODUCTIVITY
AND CONTROL**



**INCREASED
CASTING QUALITY**



**ENERGY
SAVING**



**REDUCTION
OF TIME CYCLE**



**INDUSTRIA 4.0 PREDICTIVE
MAINTENANCE**

ADVANTAGES OF HPDC TEMPERATURE CONTROL UNITS

TARGETED HEAT MANAGEMENT

The innovative technology consists of **targeted and synchronized heat removal and synchronized circuit by circuit**, unlike traditional temperature control which consists of constantly circulating in the mold a fluid (water or oil) at a constant temperature.

HPDC by Gefond comes from the analysis of the most diecasting plants during production: the heat input of the aluminum to the mold is normally sufficient to keep it warm and it is therefore unnecessary to heat the thermoregulation fluid during normal production.

PRODUCTION ADVANTAGES

The possibility of differentiating thermoregulation in the various zones of the mold, together **with a greater heat exchange allows to reduce the lubrication cycle** thus increasing productivity and **limiting the costs for the waste disposal**.

In addition, has been verified an **increase in productivity between 12% and 14%** thanks also to the reduction of waste and machine related to the maintenance of the mold.

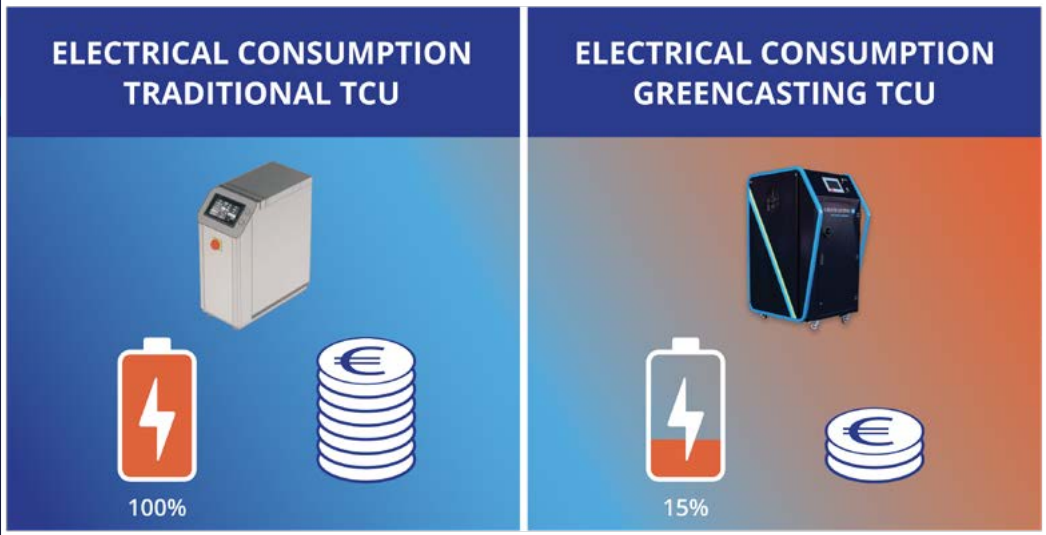
Finally, it is important to underline the **savings the elimination of oil from the process**.



ADVANTAGES OF HPDC BY GEFOND TEMPERATURE CONTROL UNITS

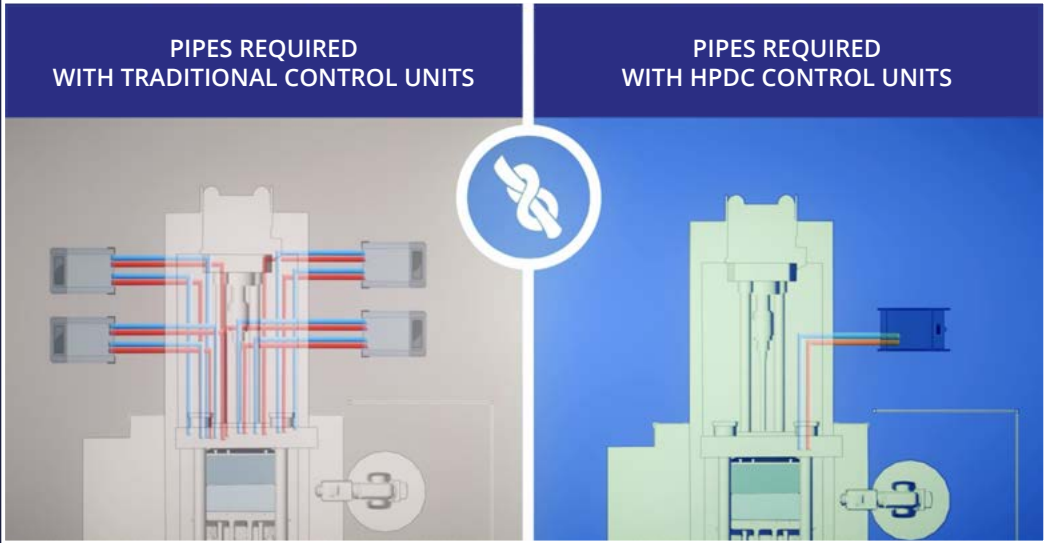
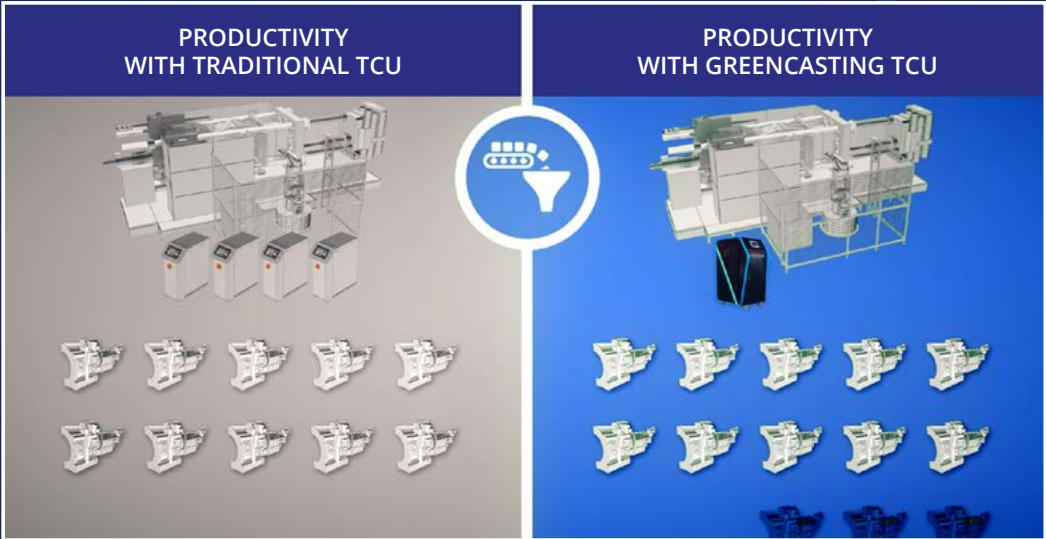
Saving of electric energy used
the larger the size of the mold and its complexity the greater the energy saving that can be achieved.


Energy savings can range from 10-15 kWh up to 23-55-85 kWh. field verified.



Initial investment:
units allow for reduced cycle time and increased production.

With a single GreenCasting unit you can control the temperature of up to 30 different circuits.
It is not necessary to buy 3,4 or 5 traditional TCUs



Traditional thermoregulator  Greencasting thermoregulator		
Olio - Oil	Fluido - Fluid	Acqua - Water
€ 1.500,00	Costo fluido - Fluid cost	€ 1,00
116.124	Consumi kWh/anno - Consumption kWh/year	20.902
€ 17.418,00	Consumi Euro/anno - Consumption €/year	€ 3.135,00
12.400	Pezzi/settimana - Parts/week	14.300
3m2	Ingombro terra - Footprint	0,85m2
32	Tubazioni m - Pipes m	8
4	Zone - Zones	10

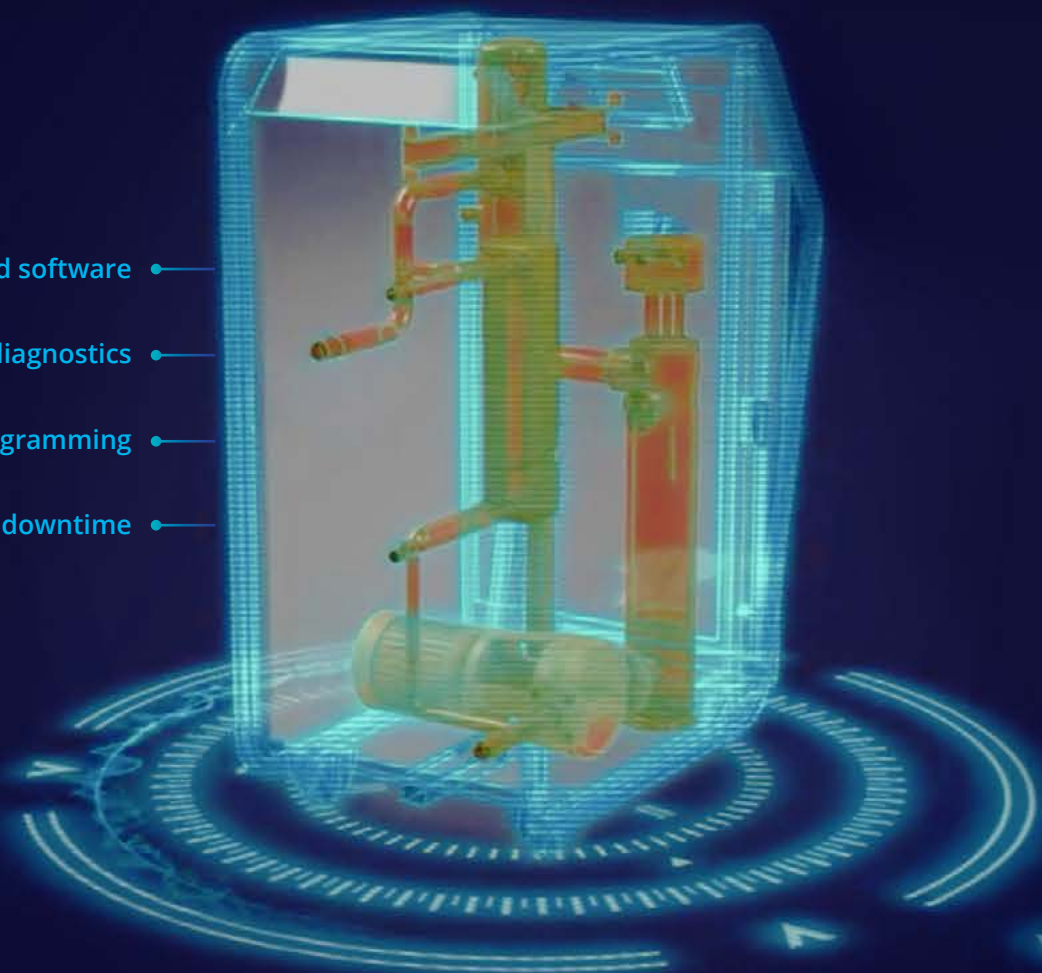
Fluid Cost:
the GreenCasting unit works with mains water instead of than with thermal oil, with consequent low management costs

Waste reduction:
Thanks to the ability to control the temperature in each circuit, the GreenCasting unit allows to reduce the number of rejects

Installation Costs:
the installation of a GreenCasting unit is very simple compared to other multi-zone TCUs, with only two pipes from the TCU to the mold



- Integrated software
- Constant plant diagnostics
- Intervention programming
- Reduction of equipment downtime



Predictive maintenance:
HPDC by Gefond machines talk to you with Perpetuo

PERPETUO™

Artificial intelligence software for predictive maintenance in foundries
that allows you to anticipate failures and reduce downtime
HPDC by Gefond temperature control units are PERPETUO READY.

ADVANTAGES OF MAINTENANCE PREDICTIVE

+70%

INCREASED USE
OF MACHINERY

+15%

EXTENSION OF THE LIFE
OF THE PLANT

+16%

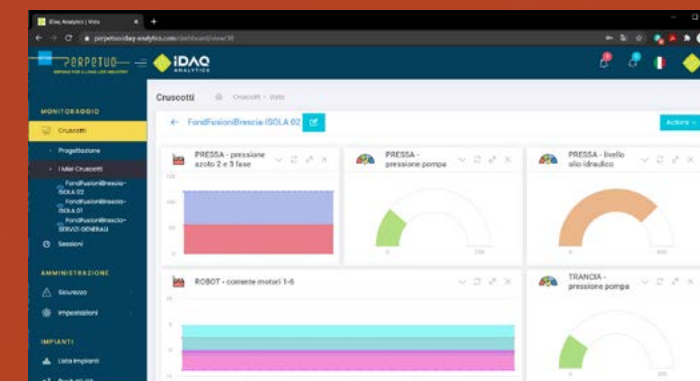
INCREASE
PRODUCTION

A perfect knowledge of the machine combined with the potential of machine learning Machine Learning software, allows you to apply predictive maintenance algorithms to the Greencasting TCU components.



What can we monitor with Perpetuo software?

- proper operation of the heat exchanger
- correct functioning of the filters
- correct functioning of the pump
- efficiency of the heating elements





Guarda al futuro
sceglie le alte prestazioni

Gefond's challenge is to stay ahead of the changing time.

Gefond, through its **innovative technical solutions**, supports manufacturing industry trends as it prepares to meet industry challenges.

Over the years GEFOND has developed a strategic competence, making available to Italian companies, mainly operating in the automotive sector, with technologically advanced and innovative products.

HPDC by Gefond with its line of temperature control units looks towards the **future of the manufacturing industry by representing the ideal technology to be combined with water-free lubrication and the production of structural castings**

Gefond for a long life industry

Founded in 1994, Gefond represents leading suppliers in the diecasting sector and distributes technologically advanced equipment for foundries working mainly for the automotive industry. Gefond has won the trust of customers both for the quality of the systems and for a reliable and flexible technical assistance service.

2020

Buy the patent and know-how from Greenbox and start your own production to be closer and flexible to the needs of customers.



2016

It starts to commercialize temperature control thermoregulation units produced by Greenbox. In a few years the market has recognized in these controllers a concrete added value both at a productive production and return of investment.



1994

Since its foundation, GEFOND has been able to distinguish itself in the die-casting sector representing leading suppliers in the market and distributing technologically advanced equipment to foundries that work mainly for the automotive industry.

INNOVATIVE TECHNOLOGICAL SOLUTIONS
HIGH PERFORMANCE DIECASTING
RELIABLE SPRAYING MACHINES
REPLACEMENT PARTS

Services and dedicated solutions for temperature control units

Assistance, advantages and solutions for different needs.

HPDC by Gefond is at the side of its customers through the expertise of our technicians specialists

COST SAVING ANALYSIS

Do you want to understand how much you could save with HPDC by Gefond control units?

We prepare a complete and tailored analysis of energy consumption costs and return on investment for the purchase of our temperature control units

FREE TRIAL

Do you want to test the temperature control unit and verify if it fits your process production process?

We give you the opportunity to use the temperature control unit for free for a whole month with technical assistance included to make the evaluation with your timing

RENTAL SERVICE

Do you want to use the temperature control unit in the long term without a total initial investment?

You can use the rental service of temperature controllers which includes the control unit and maintenance management. We think technical management of the temperature control unit

TRAINING FOR MAINTENANCE AND PROCESS OPTIMIZATION

Do you want to learn all the potentialities of the thermoregulation control unit and put your technicians to use it?

We provide full support, training and assistance for the use of temperature control units through our competent technicians and trained to transfer all our know-how

IMMEDIATE ASSISTANCE

Do you want efficient and immediate temperature control unit technical assistance that eliminates travel costs?

Try the technical assistance to our temperature control units with augmented reality

PERIODIC MAINTENANCE

Do you want a periodic technical assistance to temperature control units so as not to slow down the production?

In the proposal of purchase of our temperature control units we can include periodic verification visits.

We take care of the technical management of temperature controllers

MAINTENANCE PREDICTIVE

Do you want to anticipate possible failures and reduce the downtime of your temperature control unit?

The temperature control unit is Perpetuo ready, prepared to work with the first predictive maintenance software developed by Gefond for the foundry

