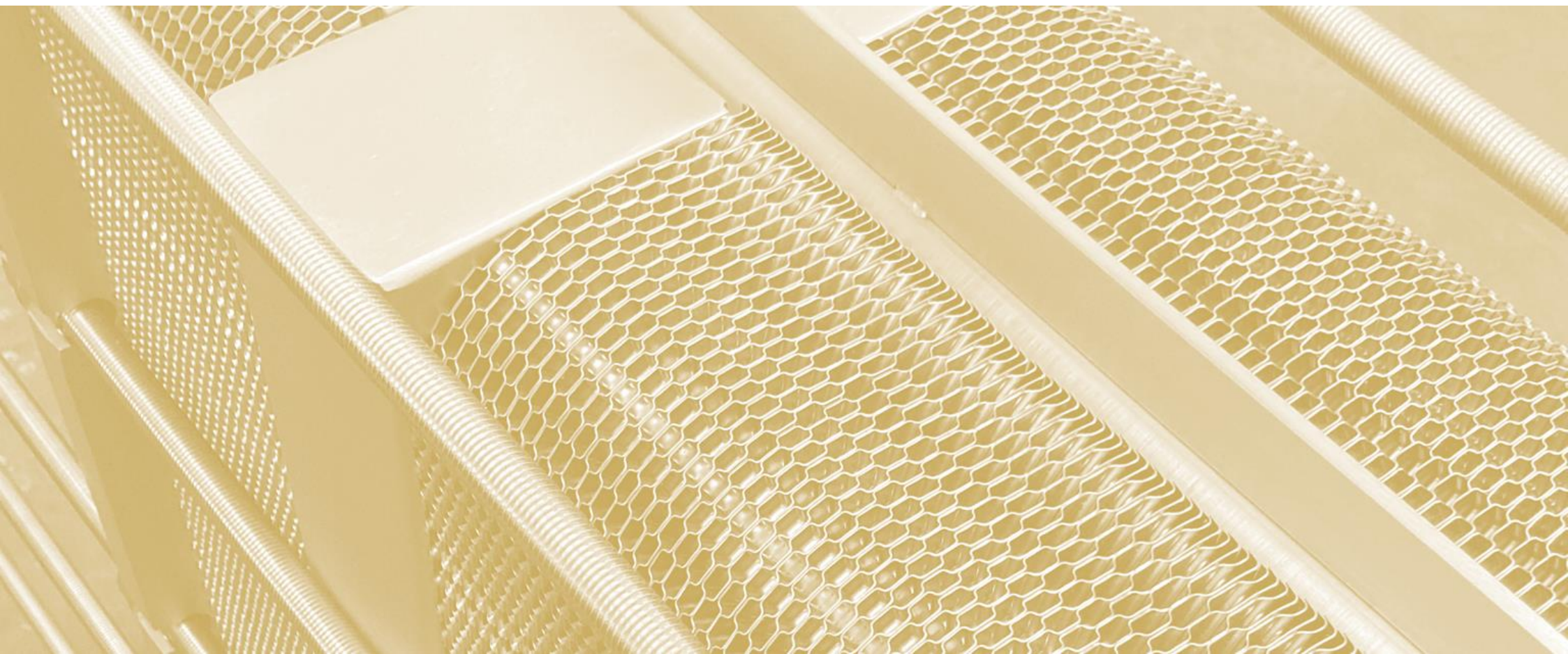


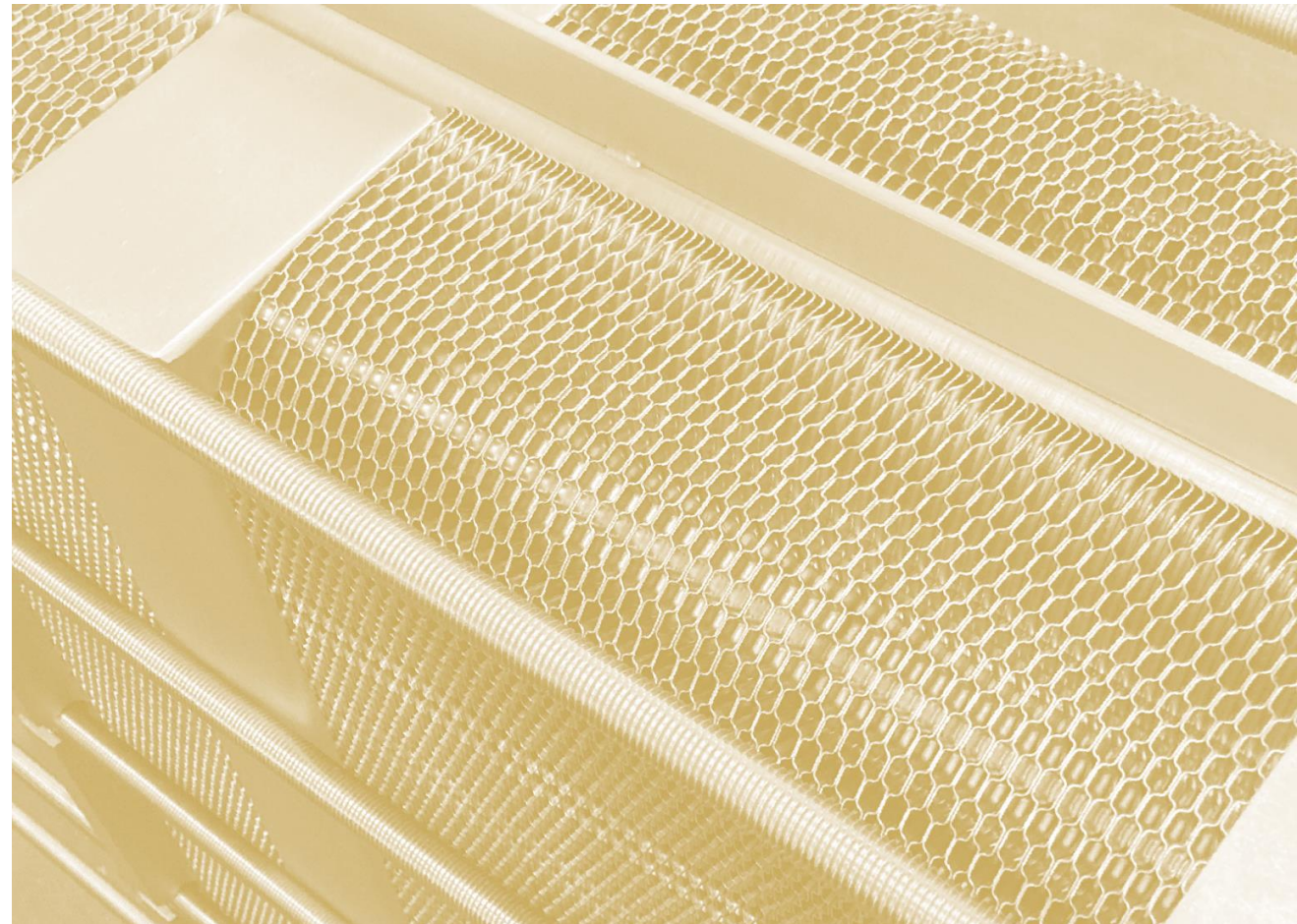
**WE EXCHANGE HEAT  
SINCE 1983**



COMPANY PROFILE



2 - 6	Our History
7	LEAN Production
8	Quality Certifications
9	Products   Plate Heat Exchangers
10	Products   Heat Exchangers and pasteurizers for food industry
11	Modules for domestic hot water+ pools heating
12 - 13	Anti-legionella solutions
14	District heating/cooling stations
15	Customized products
16 - 17	International activities
18 - 19	Calculation tools
20 - 21	Added values
22 - 23	Case histories
24 -25	The team



## SUMMARY

# THE HISTORY | Great will and commitment

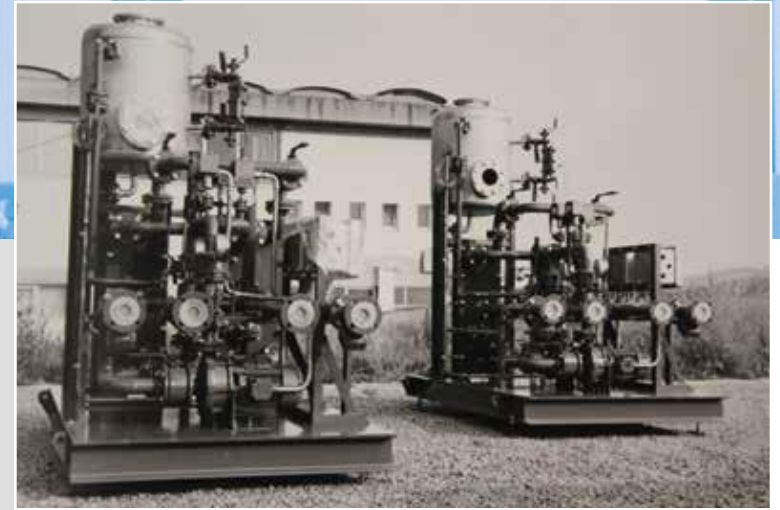
## THE HISTORY AND THE IDEA

After a patent obtained in 1982, **Techno System** was born in 1983, a company that, since then, has been designing, manufacturing, testing and selling plate heat exchangers all over the world. After the prototype of the first exchanger with the legendary name of TS 500, the company has continued to innovate and expand in this sector, becoming a recognized leader. The brilliant idea of Carlo Boccacci, thanks also to his **great enthusiasm and will**, over the years has proved to be actually successful.

## CHANCE AND KNOWLEDGE

As often happens, everything may seem random, in fact, even as an engineering student, Carlo Boccacci refused to own a project for a shell and tube heat exchanger. But, as he himself says: «In the work, we made cutters and tools for wood, but I again came across a brochure of plate heat exchangers.

Therefore, working in a completely foreign sector, having designed (having the knowledge of it) and built a plate exchanger, without having had any presses or molds available, **really gave me the push to try** ».



## FROM THE START BETWEEN INTERNATIONAL COMPANIES

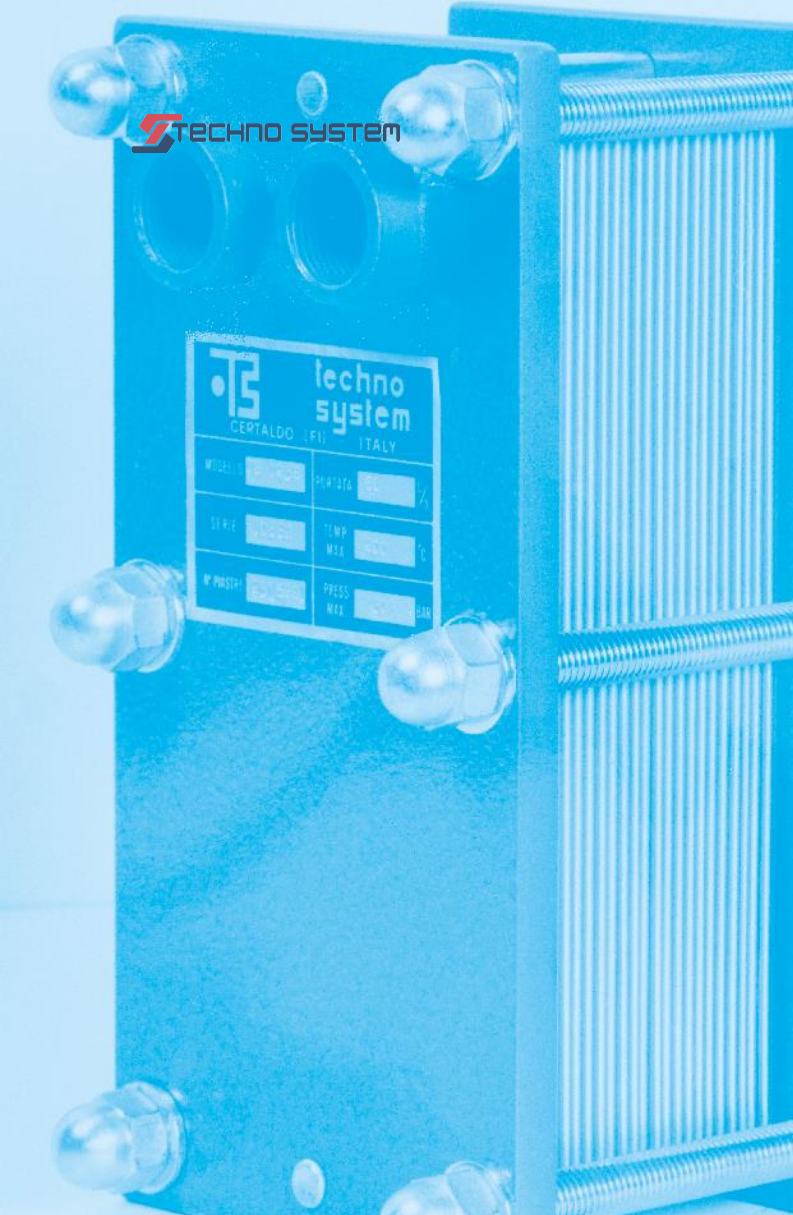
It was also a "good part of recklessness" that led, after founding **Techno System**, Carlo Boccacci and two other colleagues to the first rented office of 150 square meters. As in any start-up, things were certainly not easy. A hard departure, as complete unknown, in a sector already dominated by the large multinationals of northern Europe. A continuous field battle in which all profits were always reinvested in the project.

## ALWAYS AT THE FOREFRONT

Heat exchange was and is a purely technical sector. **There was and there is competition, but those who, like Techno System, have a good product and skills demonstrated by history and experience, can be leaders.** Working with heat, physically speaking, it isn't certainly within everyone's reach and this has favored and still favors Techno System which has always proved to be up to par.

# THE HISTORY





## THE ACKNOWLEDGEMENT OF THE FIRST IN THE WORLD

During the second participation in the 1986 International Fair of Milan, **Techno System**, in its small stand, was visited by the numbers one in the sector who immediately noticed the innovations presented: **the non-glued gaskets**, the possibility of optimizing the flow rates in the two circuits and the higher operating pressures. The compliments received were undoubtedly the first recognition of the value of our exchanger.



## THE HISTORY



A simple rule:  
 “who stand still don’t survive to the market evolution”.

Cooling skid built for the company  
 Nuovo Pignone in Florence at the end of 80 years.



[ COPIA ]

**ISTITUTO SUPERIORE PER LA PREVENZIONE E LA SICUREZZA DEL LAVORO**  
 FIRENZE

Dipartimento: FIRENZE  
 Apparecchio tipo: RV (7) [R] [E] [H] [F] 1069/A  
 Costruttore: TECHRO SYSTEM S.p.A.  
 Località: CERTALDO Anno: 1990

CAMERA	Press. max. di esercizio		TEMP. di esercizio		FLUIDO		CAPACITÀ (litri)
	bar	kg/cm <sup>2</sup>	°C	°F	liquido	gas	
<input type="checkbox"/> Corpi pressurizzati							
<input type="checkbox"/> Duplicati							
<input type="checkbox"/> Ristrutturati							
<input type="checkbox"/> Economici							
<input checked="" type="checkbox"/> S.C.A.M. FIATSEE	<u>16</u>		<u>204</u>		<u>ACQUA</u>	<u>H<sub>2</sub>O</u>	<u>336</u>

\*STATO FISICO: L = Liquido, V = Vapore, G = Gas  
 Superficie ricoperta m<sup>2</sup>: \_\_\_\_\_ Capacità totale: 336  
 Produzione litri/h: \_\_\_\_\_ Potenza kW: \_\_\_\_\_ Capacità a livello: \_\_\_\_\_

VISITA INTERNA (ad apparecchio completo) data: 15/01/1991  
 VERIFICHE DI COSTRUZIONE  
 Località: CERTALDO  
 La costruzione ed i materiali impiegati (vedere documentazione allegata) risultano conformi alle disposizioni vigenti, le parti soggette a monitoraggio conformemente al progetto esecutivo, a firma: P. MARCO BAGNI  
 Note: 1062/30-F1  
 PROVE STRUTTURALI

Data	Prove	Firma	DATA		LOCALITÀ	V. VERBA E MANICATA TECNICO
			gg	mm		

1062/30-F1  
 INFERIORI DELLA STRUTTURAZIONE

Libretto rilasciato in sede di costruzione

Vista la nota n. 45/116/50 in data 11/09/90 del Dipartimento ISPESL Firenze esaminata la documentazione di cui agli allegati n. 1+5 sono specificati, si certifica che l'apparecchio ha subito con buona fede le prescritte regolamentari verifiche di costruzione.

PARSONIATURE ESEGUITE:  
 Dall'apparecchio data dell'ultima prova idraulica, numero di fabbrica e generazione dell'ISPESL, l'ispezione del costruttore 1/10/1990.

Tutte le verifiche: la macchina dell'apparecchio.

Note:  
 Data: 20/1/90  
 ALLEGATI (Disegni n. 1890/1990)  
 DGA Ing. V. VALERI

Prospetto dei materiali impiegati (figli n. \_\_\_\_\_) all. n. 1  
 DICHIARAZIONE DEL COSTRUTTORE all. n. 2  
 RICHIESTO ESISTENTE CARISME ART 32 all. n. 3  
 all. n. 4  
 all. n. 5  
 all. n. 6  
 all. n. 7  
 all. n. 8  
 all. n. 9  
 all. n. 10  
 all. n. 11  
 all. n. 12  
 all. n. 13  
 all. n. 14  
 all. n. 15

FOIRIA UTENZA E VARIAZIONI SUCCESSIVE

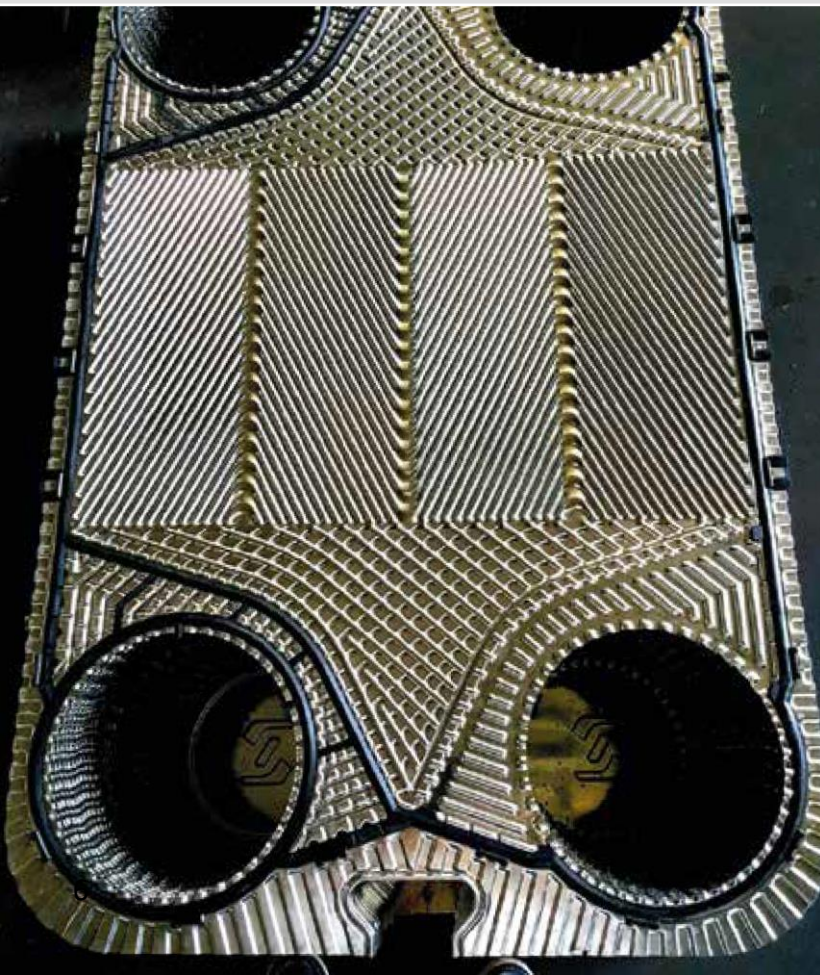
DATA	UTENZE	LOCALITÀ	COMUNE	PROV.

AVVERTENZE:  
 - Il presente libretto di costruzione deve essere accompagnato, a apparecchio in essere e finito, a portata di mano, alla costruzione, costruzione.  
 - Il responsabile della costruzione, prima di essere rilasciato, deve essere verificato e approvato dal Dipartimento ISPESL.

ISPESL testing certificate for pressure equipment built in 1990



**TECHNO SYSTEM**  
products improvements  
from '80 years to today







### RELIABLE DELIVERIES, BETTER QUALITY

In 2019 the "**Lean Method**" in operations was adopted, with the main objectives aimed at the customer of **reliable delivery times** and a further improvement in quality. Obviously, the system also aims to improve everything that this production method includes or **better working environment and improved safety for workers**.

# LEAN MANUFACTURING SYSTEM

## FIRST PRIORITY FOR QUALITY AND SAFETY

All exchangers and skid **Techno System** are built and certified according to the European Directive **PED (2014/68 / EU)** concerning pressure equipment. Techno System, thanks to the **ISO 9001: 2015** certification and the procedure approved by DNV-GL, has obtained Module H1, so it can autonomously design, build and test exchangers and assemblies up to the maximum risk category IV (only for category IV, however, the project must be approved). All this for the customer means **DELIVERY TIMES CONTROL AND COSTS REDUCTION.**

**CERTIFICATO SISTEMA DI GESTIONE**

Certificate No.: 110021-2011-AC-ITA-ACCREDIA      Data Prima Emissione: 05 Luglio 2011      Validità: 05 Luglio 2020 - 05 Luglio 2023

Si certifica che il sistema di gestione di

**TECHNO SYSTEM SOCIETA A RESPONSABILITA LIMITATA**  
Via Toscana, 160/162 - 50052 Certaldo (FI) - Italia

È conforme allo Standard:  
**ISO 9001:2015**

Questa certificazione è valida per il seguente campo applicativo:  
**Progettazione, fabbricazione e vendita di scambiatori di calore a piastre ed insiemi (IAF: 18)**

Luogo e Data:  
Vimercate (MB), 30 luglio 2020

ACCREDIA  
UNIVERSITY OF APPLIED SCIENCES

Per:  
DNV GL - Business Assurance  
Via Energy Park, 14 - 20871 Vimercate (MB) - Italy

Zeno Bellarini  
Management Representative

Il mancato rispetto delle condizioni stabilite nel regolamento di certificazione potrebbe invalidare il certificato.  
UNITEA ACCREDITATA: DNV GL Business Assurance Italia S.p.A., Via Energy Park, 14 - 20871 Vimercate (MB) - Italia, TEL. +39 04 99 901, www.dnvgl.it

**FULL QUALITY ASSURANCE CERTIFICATE**

Certificate No.: 159790-2014-CE-ITA-ACCREDIA      Initial date: 29 July, 2014      Valid: 18 July, 2020 - 17 July, 2023

This certificate consists of 2 pages

This is to certify that the quality system of

**TECHNO SYSTEM SOCIETA A RESPONSABILITA LIMITATA**  
Via Toscana, 160/162 - 50052 Certaldo (FI) - Italy

has been assessed and found to comply with respect to the conformity assessment procedure described in  
**ANNEX III MODULE H1 OF DIRECTIVE 2014/68/EU ON PRESSURE EQUIPMENT**

This certificate is valid for the following scope:

Type of Pressure Equipment	<b>Pressure vessels and assemblies</b>
Product Name	<b>Plate heat exchangers and assemblies</b>

Place and date:  
Vimercate 08 July, 2020

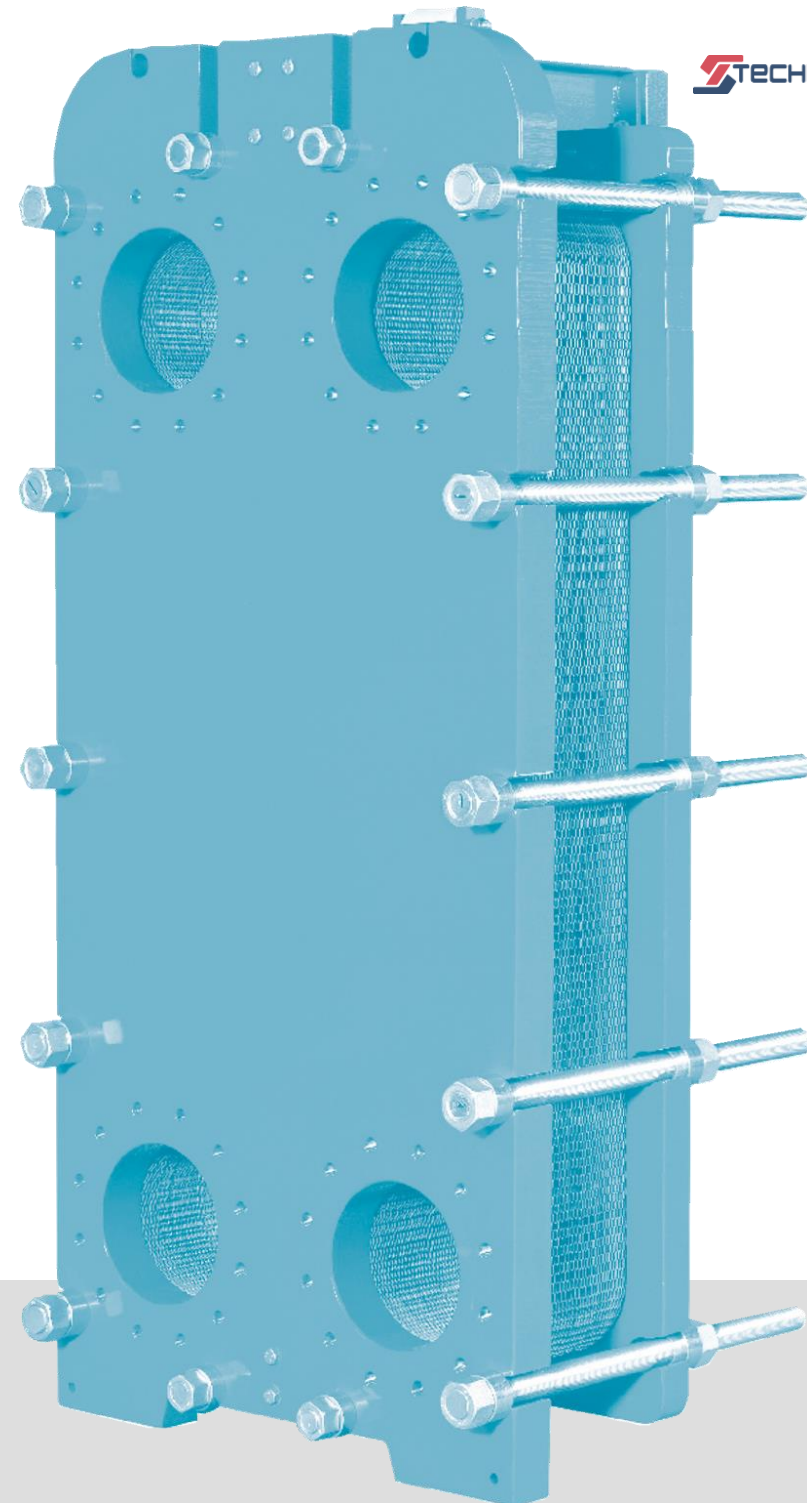
ACCREDIA  
UNIVERSITY OF APPLIED SCIENCES

For the notified body 0496:  
DNV GL Business Assurance Italia S.p.A.

Nicola Privato  
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.  
DNV GL Business Assurance Italia S.p.A., Via Energy Park, 14, 20871 Vimercate (MB), Italy, TEL: 04 99 901, www.dnvgl.it/businessassurance

Page 1 of 2



The gasketed plate heat exchangers are the main product of the company and are all guaranteed for 24 months against the 12 normally provided by the current laws. Born for the pasteurization of milk, for which they are still used today, they are now for a long time used in many applications and for the most disparate fluids.

Their "secret" is the high turbulence that is generated within the circuits and this allows to significantly increase the efficiency of the heat exchange.

**This allows for equipment that is much more compact and cheaper than other types of exchangers.**

## PRODUCTS | Plate Heat Exchangers

## TECHNO SYSTEM PASTEURIZER FEATURES

- Customizable frame according to specific needs in AISI 304, AISI 316L.
- High efficiency plates in AISI 304, AISI 316L or Titanium with non-glued gaskets in NBR or EPDM - FDA Approved.
- Complete flexibility for connections - DIN 11851, Tri-Clamp®, flanged or special fittings.
- Stainless steel tie rods A 193 B8



- Quick technical sizing, commercial proposal and delivery times.
- Innovative frame design.
- Reduction of cleaning times and safety in the maintenance phase.
- Availability of drawings in .dwg or .stp electronic format.
- Design pressure 6, 10 or 16 bar.
- Height adjustable feet.
- Reversible final and intermediate plates (possibility to modify the position of the nozzles).
- Frame with slotted tie rod seats for quick opening also in small spaces.
- Qualified technical assistance throughout the territory.



## HEATING AND COOLING IN ONE EQUIPMENT

Multi-section exchangers and pasteurizers for the food industry are used for the **heat treatment of fluids such as milk, beer and fruit juices**. For this reason they are entirely made of stainless steel in order to guarantee the most complete hygiene of the workings.

Pasteurizers are devices that allow the bacterial load to be eliminated by bringing the circulating fluid to the temperature required by the process.

Their peculiarity lies in having combined circuits that allow maximum recovery of the heating heat in the subsequent cooling section.

## PRODUCTS

### Pasteurizers for food industry

## FOR CUSTOMIZED COMFORT

With the modules for the production of domestic hot water and swimming pool heating, Techno System offers a **“plug & play” solution** to designers and installers who, with their use, have the solution ready.

The MD modules guarantee excellent temperature control comfort thanks to the sensors and the mixing valve with electronically regulated actuator. They are also equipped with **the anti-legionella program**.

The electronic regulator can also be controlled remotely by means of the ModBus interface. The new ML modules, extremely simple and cheaper, are also equipped with the **anti-legionella program** for the elimination of bacteria and viruses present in pipes and storage systems.

The ML module is also suitable for **heating swimming pools**, allowing quick and efficient installation and fast and comfortable heating.



## PRODUCTS

Modules for domestic hot water production and pools heating



## BEST SOLUTIONS FOR HEALTH AND INSTALLATIONS

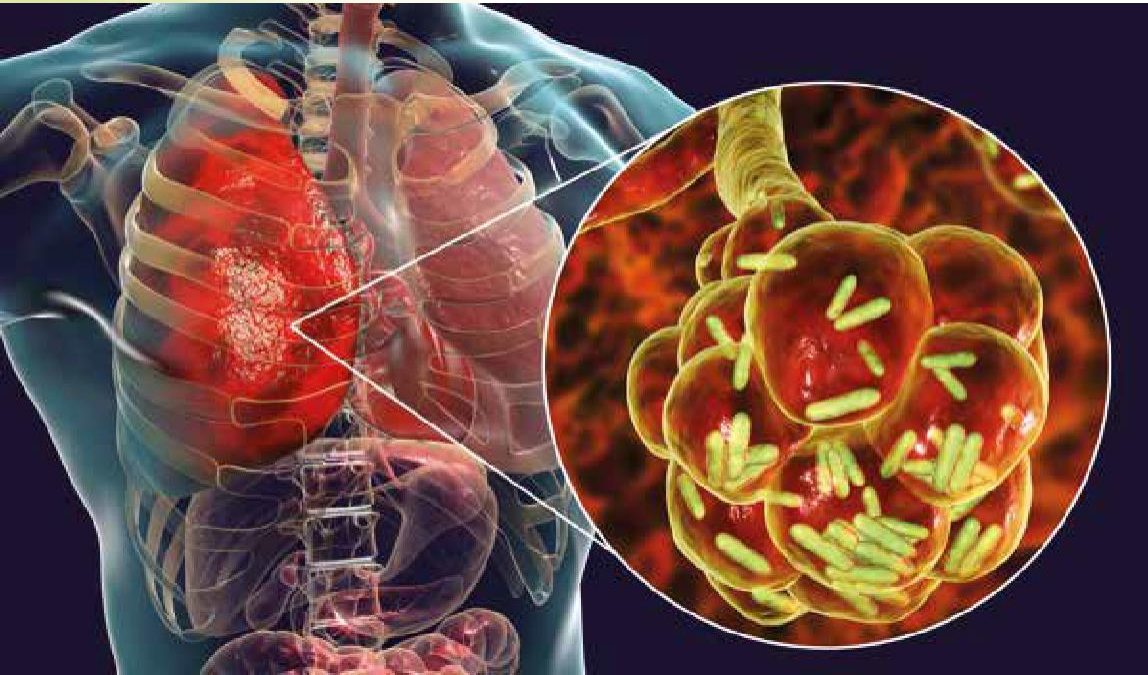
The legionella bacteria, increasingly present in domestic hot water distribution systems, can, if inhaled, cause serious lung infections with even fatal consequences. Its spread can be counteracted with adequate water heat treatment cycles as, at a temperature of 70 ° C, there is the complete and immediate elimination of these bacteria.

**Techno System** for this reason it has the safest, easiest and most economical solution for installations:

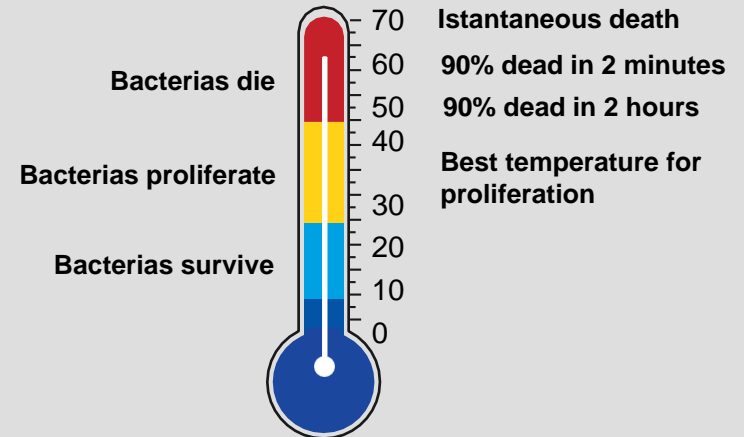
- INSTANTANEOUS PRODUCTION = Modules MDI
- WITH TANK = Modules ML

These modules are designed to guarantee:

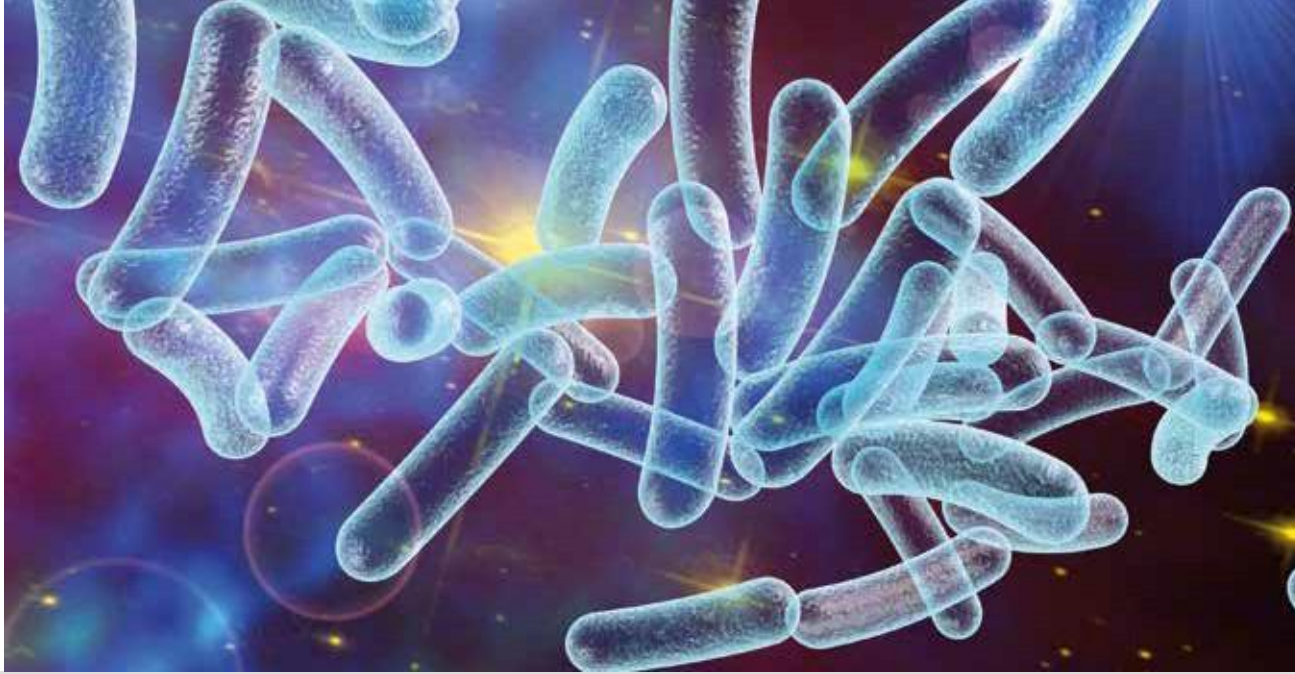
- **SAFETY FOR THE USERS**
- **NO PROBLEMS FOR THE PIPING**
- **COST SAVING**



## THERMAL TREATMENT



# ANTILEGIONELLA SOLUTIONS



**Legionella is a serious problem and must be addressed and prevented very carefully.**

Techno System modules are able to effectively counteract the proliferation of the bacterium until its complete elimination.

Through a programmable electronic regulator controlled by in-line probes, the water is recirculated at the appropriate temperature and for the foreseen time. The thermal cycles are always recorded in such a way as to have a document to show for the necessary checks. The use of these modules is undoubtedly the simplest, healthiest and cheapest solution for ensure the hygiene of domestic hot water.

In some places the risk of legionella is widespread. In particular, the managers of all public or private facilities that use domestic hot water, especially where there are debilitated or elderly people, such as hospitals, retirement homes but also hotels, spas, sports centers and buildings with centralized sanitary hot water systems should, by law, provide for the prevention of legionella risks.

It should be remembered that the responsibility for health problems caused by legionellosis caused to users is civil, administrative and criminal.



### **AN IMPORTANT INTERFACE**

Basement or wall-mounted substations are equipment that have the function to interface the user with the heat distribution network, produced in a distant plant.

These substations, completely wired and customizable, allow to regulate, on the user circuit (secondary), temperature and power supplied by means of a regulator installed in the electrical control panel. They are obviously equipped with all the control and safety instruments required by law.



**Techno System substations are all built according to PED (2014/68/UE) standards and rules**

## **PRODUCTS**

# **District heating/cooling substations**





One of the strengths of Techno System is the ability to create **customized products** according to the customer's needs.

- Design / co-design and technical verification.
- 2d or 3d drawings available in very short time

- Availability for special connections, materials or painting cycles
- Witnessed testing, quality control plan, Gantt diagram, seaworthy packings, export worldwide.

## Customized PRODUCTS



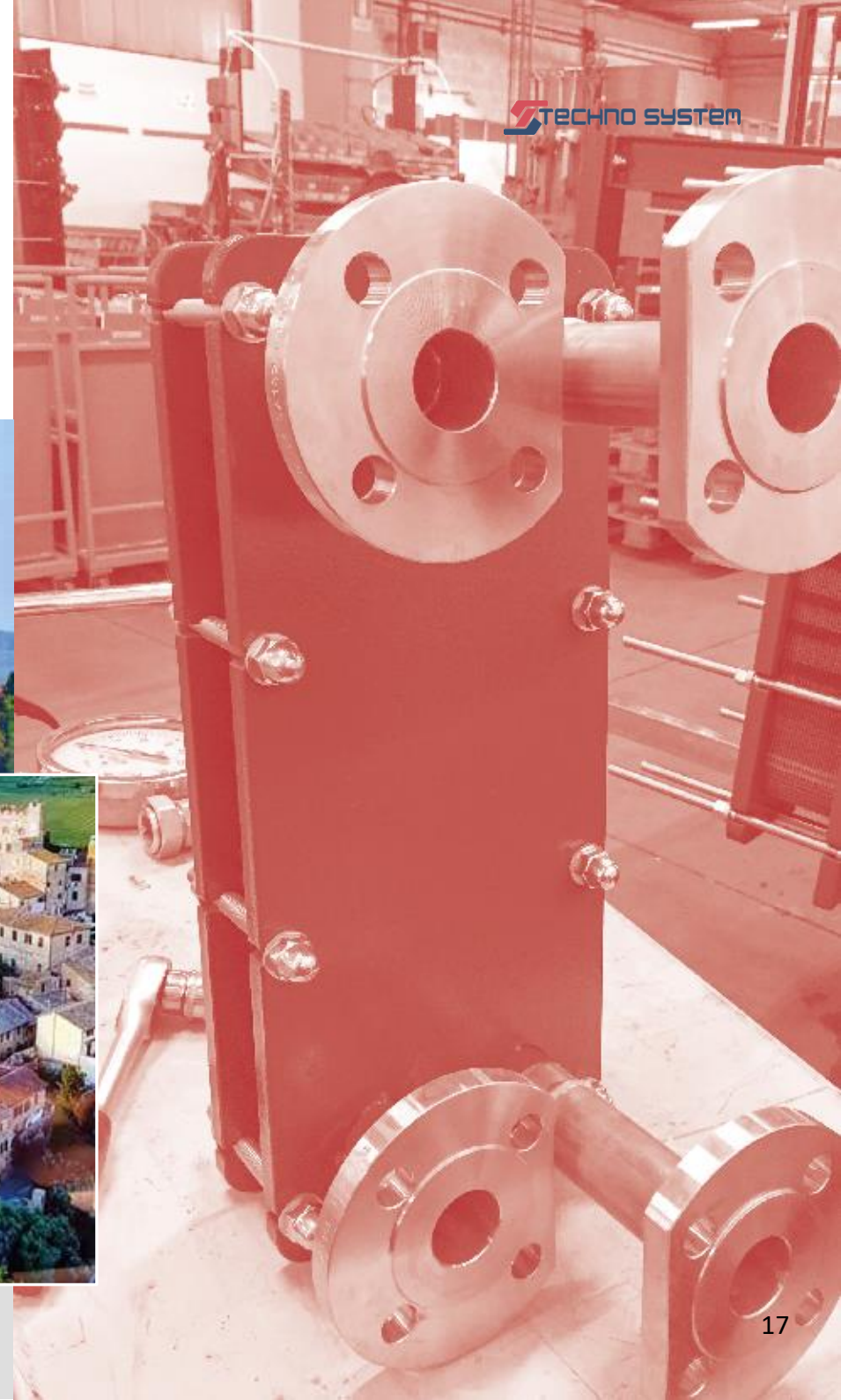
**WE EXCHANGE HEAT  
WORLDWIDE**



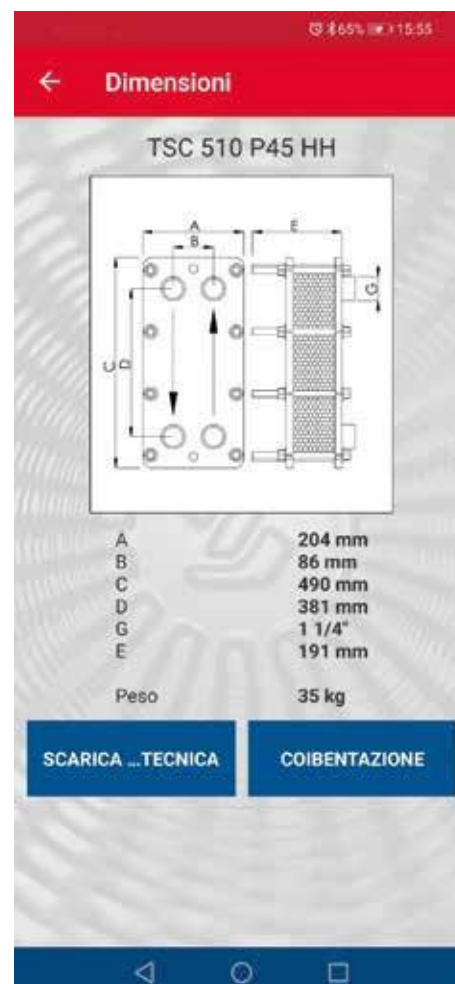
## CERTALDO AND TUSCANY A TERRITORIAL AND HISTORICALLY LUXURY

- Certaldo and the Tuscan territory are an important starting point for the company.
- Tuscany in the world has always evoked history, culture, beauties of the cities and territory.

All this has often been transferred to the art and products of this region.  
Also Techno System tries to make the most of these riches and to transfer them, for the benefit of customers, in their projects and products.



**INTERNATIONALITY**  
From Certaldo to the world



## SAVE YOUR PRECIOUS TIME

The calculation program shared on the web by Techno System allows you to manage this process in complete autonomy, simply and quickly.

### THE APP

It is downloadable for free in 5 languages, both from Google Play for devices Android and from the App Store for IOS devices. It provides the sizing of the exchangers on the basis of standardized thermal programs for the various applications in HVAC sector such as: heating, domestic hot water production, swimming pool heating.

In addition to the main calculation function, it is equipped with interesting utilities for users (see screenshot in fig.)

### THE CALCULATION PROGRAM

The program is available in a reserved area of the Techno System website.

It is a complete and very easy to use tool, within its sections it is possible to:

# ON-LINE CALCULATION TOOLS

- Select all parameters calculation of your project with the possibility of using different units of measurement.
- Having the heat balance that is performed automatically and it is also possible, once the calculation has been made, to increase or decrease the number of plates of the exchanger with a simple "click".
- For partners it is also possible to have the list price of the selected exchangers directly.
- It is available in 5 languages.
- At the end of the sizing, it is possible to download the technical data sheet complete with all the thermodynamic data and accompanied by a general drawing showing the main measurements, dimensions and weights.
- With the chat, Techno System engineers can provide in real time in addition to technical clarifications on the calculations, also updated information on the delivery times of the selected exchangers.

	Primario (caldo)	Secondario (freddo)	Unità di misura
Fluido	ACQUA	ACQUA	
Temp. ingresso	80	50	°C
Temperatura uscita	60	70	°C
Portata	6,6129	6,5844	m <sup>3</sup> /h
Perdite di carico	20	20	kPa
Potenza		150	kW
Sovradimensionamento			%
Fouling			m <sup>2</sup> C/kW
Condensazione	<input type="checkbox"/>		
DW	<input type="checkbox"/>		

Calcolo Automatico

### SCAMBIATORE DI CALORE A PIASTRE TSC 910 P 39 HL 27

Classificazione: Art.4 par. 3 PED (2014/68/UE)

**DATI DI PROGETTO**

Temperatura [°C] -10/110  
 Pressione [Bar] 10  
 Pressione collaudo [Bar] 14,3

**DATI FLUIDO-TERMICE**

PRIMARIO: ACQUA [ ]      SECONDARIO: ACQUA [ ]

Temperatura (in) [°C] 80      Temperatura (in) [°C] 50  
 Temperatura (out) [°C] 60      Temperatura (out) [°C] 70  
 Portata [m<sup>3</sup>/h] 6,61      Portata [m<sup>3</sup>/h] 6,58  
 Perdite di carico [kPa] 18,74      Perdite di carico [kPa] 19,32

Delta t medio logaritmico [°C] 10  
 Potenzialità [kW] 150

**DATI COSTRUTTIVI**

Superficie di scambio [m<sup>2</sup>] 3,367      Sovradimensionamento [m<sup>2</sup>C/kW] 11,57  
 K service [W/m<sup>2</sup>C] 4452,74      Fouling [m<sup>2</sup>C/kW] 0,47  
 Spessore piastre [mm] 0,5      K clean [W/m<sup>2</sup>C] 4868,04  
 Peso a vuoto [kg] 64,08      Peso a pieno [kg] 70,47  
 Volume circuito primario [l] 3,192      Volume circuito second. [l] 3,292  
 N. pass. serie primario [ ] 1      N. pass. serie secondario [ ] 1  
 N. pass. parall. primario [ ] 19      N. pass. parall. second. [ ] 19

**MATERIALI**

Telaio (piastroni) [ ] P 355 NH  
 Piastre [ ] AISI 304  
 Guarnizioni [ ] EPDM (max 150°C)  
 Rocchetti primario [ ] STD  
 Rocchetti secondario [ ] STD  
 Tiranti n.12 M12 [ ] A 193 B7

**DIMENSIONI - INCONTRI**

A (Larghezza) [mm] 204      B (Interasse attacchi) [mm] 86  
 C (Altezza) [mm] 640      D (Interasse attacchi) [mm] 657  
 E (Profondità per PN STD) [mm] 384      F (Quota di serraggio) [mm] 103,35  
 G (Dimensione attacchi) [mm] DN 32      S (Spessore piastre) [mm] 14/12  
 H (Altezza attacchi) [mm] 128,5

Cliente / Commessa \_\_\_\_\_      Data 05/02/2021      Posizione \_\_\_\_\_

**AZIENDA CON SISTEMA DI GESTIONE E QUALITÀ CERTIFICATO DA DNV GL**  
 AZIENDA CERTIFICATA PED DA DNV GL  
 2014/68/UE MODULO HH1

TS 20.62 T (WEB)



## OUR PLUS

- Design, development, mechanical and fluid dynamics simulations conducted in our headquarters.
- Direct dialogue in real time with our technicians and our engineers.
- Construction and testing of our exchangers according to the most important codes **PED 2014/68 / EU, EN 13445, BS 5500, ASME VIII Div.1.**

## THE ADDED VALUE





- **Quick answers** to customer requests especially in the offer phase with definition of delivery terms.
- **Sharing of knowledge** with technical training sessions and the possibility given to customers and partners to calculate the exchangers, with a view to collaboration and absolute transparency.
- **Possibility to control the progress of deliveries for the ordered material**, thanks to the adoption of "Lean manufacturing".
- **Complete tracing of products and materials**, in order to have, even after decades, technical information and original spare parts.
- **Commitment and ethics** in relations with all our interlocutors: collaborators, suppliers, partners, customers and institutions.





**PARTNER OF FIRST-CLASS COMPANIES**

**Techno System** has collaborated and collaborates with leader companies on the Italian and international market. Companies that represent excellence in their reference sectors. Among the many installations created, we can mention the following as an example:

- **Liberty Tower Milano:** interface with groundwater-fed heat pumps.
- **University of Tor Vergata Rome:** thermal power plant.
- **Steel mills built in Uzbekistan, Turkey and Morocco** from a leading international company.



*Supply of swimming pool heating exchangers to Acquaworld in Concorezzo (MB), the first and bigger Italian indoor water park*

- **Juventus Village Turin** - 11.5 MW in total to heat and cool the new company headquarters, training grounds, hotels, press centers and other buildings.
- Supply of **beer wort pasteurizer** for brewery construction in **Tanzania**.
- Supply of heat exchangers for pool water heating of **Acquaworld in Concorezzo (MB)**, the first Italian indoor water park.
- Supply of a series of modules for the **Fracastoro San Bonifacio hospital (VR)**.



*Liberty Tower Milano: interface with groundwater-fed heat pumps*





*Steel mills built in Uzbekistan, Turkey and Morocco from a leading international company*



*Tor Vergata University in Rome: thermal power plant*



*Supply of series of modules for Fracastoro San Bonifacio Hospital (VR)*



*Supply of pasteurizer for beer wort for the construction of a brewery in Tanzania*

## ALL THE TEAM IS READY TO SUPPORT YOU

Company organization is focalized on these areas:

- Sales
- Technical office and R&D
- Administration, logistic and finance
- Quality
- Manufacturing





**CARLO BOCCACCI**  
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**LAURA ROSI**  
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**MARIA ROSARIA CARFORA**  
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339/7236921



**FEDERICO CALVETTI**  
Sales  
[sales@techno-system.it](mailto:sales@techno-system.it)

## THE TEAM



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[it.linkedin.com/company/techno-system-scambiatori](https://it.linkedin.com/company/techno-system-scambiatori)