General Brochure

*A **Key Player** committed to*
***Energy Transition** & **Transformation***

NG0-GNRL01ENG-revN

thermowave
Brand of Nexson Group

GROUP Nexson INDUSTRY

GROUP Nexson INDUSTRY

Nexson Group is a French company based in Garchizy in the Nièvre region. Aware of environmental issues, our company helps manufacturers optimize their manufacturing processes by saving energy. Every day, Nexson does more to preserve our natural resources. We offer our customers concrete solutions to reduce energy consumption, which also has a positive impact on the environment.

**80+**
**COUNTRY COVERAGE**

**700+**
**CUSTOMERS IN THE WORLD**

**4**
**PRODUCTION SITES**

**30+**
**YEARS EXPERIENCE**

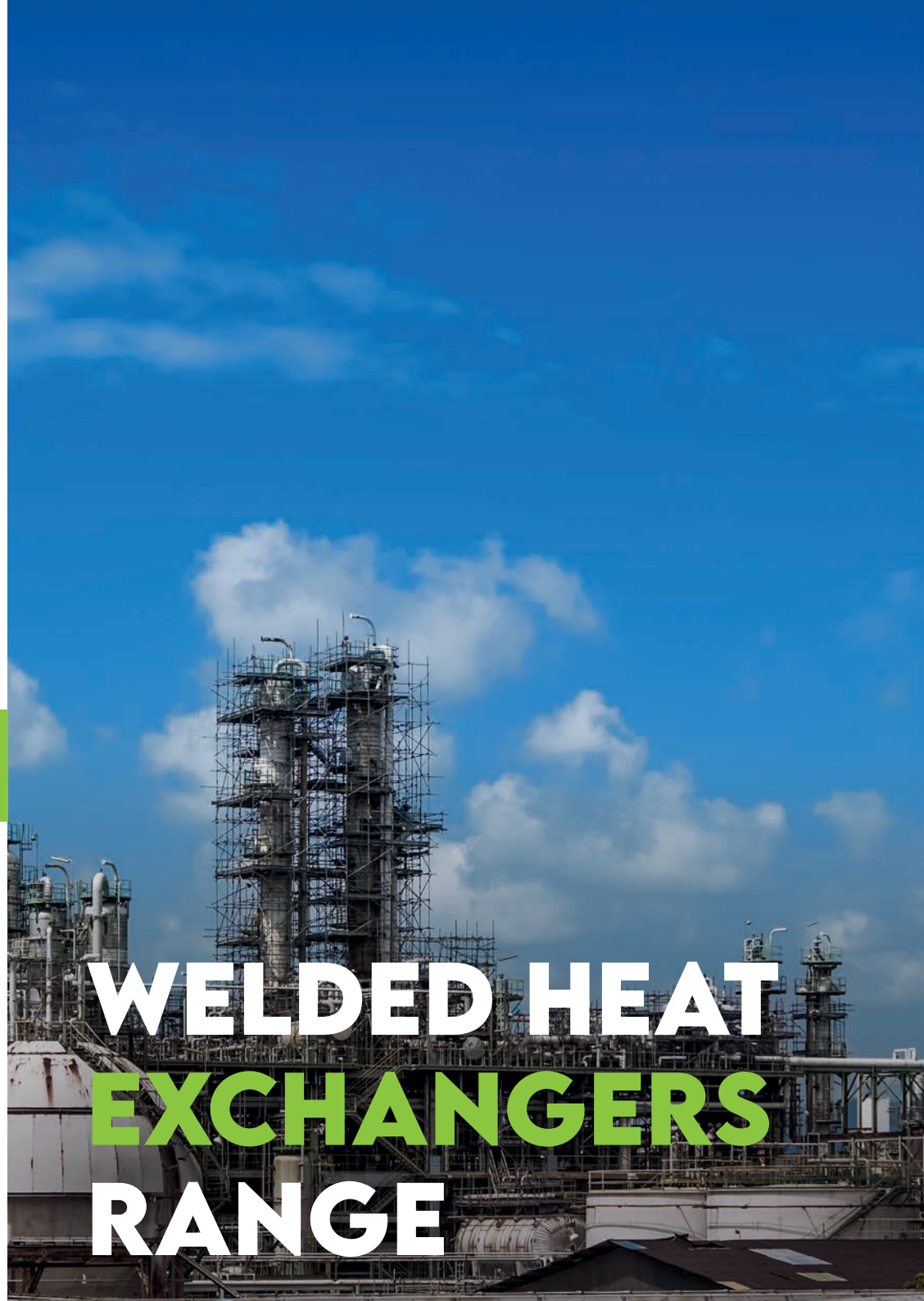
**Reliable quality, specialized skills and performance for key components.**

## Sustainable Growth Driven by Innovation and Performance

For more than ten years, the Group has developed mainly through endogenous growth, based on technological innovation, industrial performance and a customer-focused approach to service quality. This dynamic approach has enabled Nexson Group to establish itself as a key player in the field of heat transfer process components on a global scale.

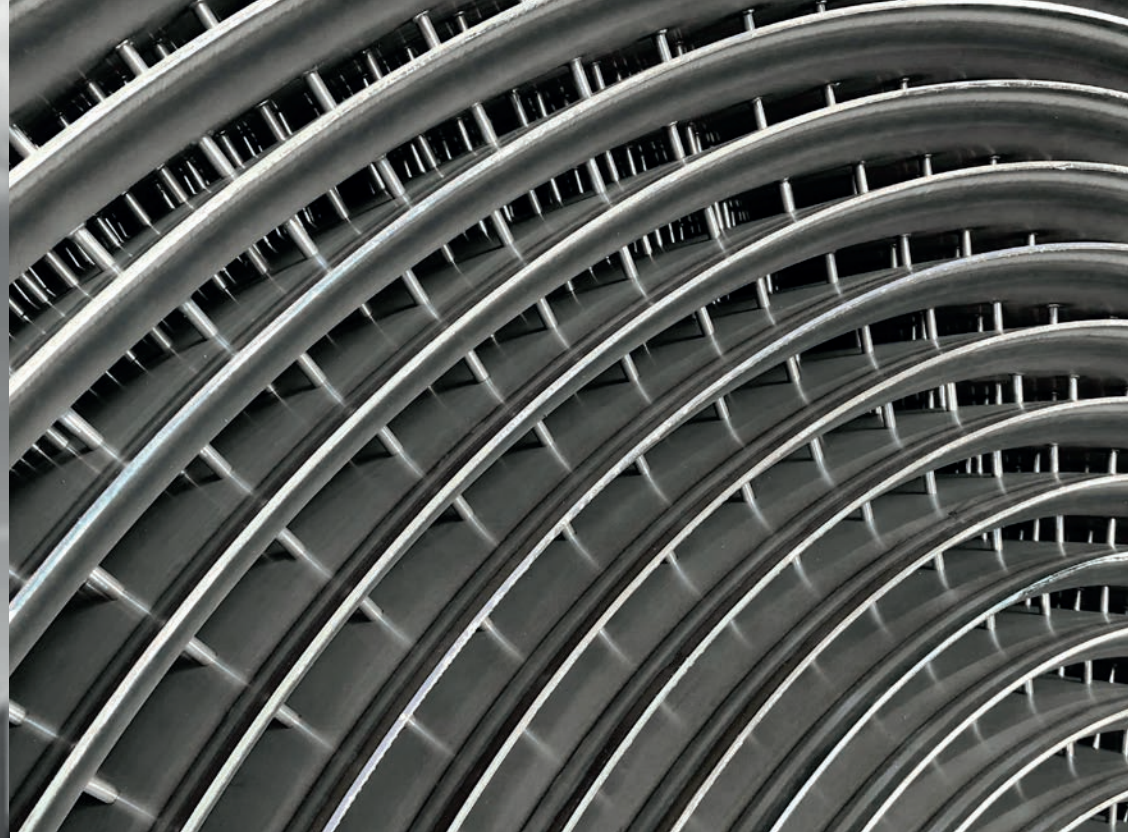
## Multidisciplinary Solutions for a Wide Range of Industries

Today, Nexson Group is structured around several complementary areas of activity, with the ambition of offering a complete and coherent range of tailor-made industrial solutions. These solutions are aimed at a wide range of industrial sectors, both in France and internationally, particularly in the chemical, petrochemical, agri-food, energy and other sectors. Thanks to its multidisciplinary expertise, the group is able to support its customers in their most complex projects, providing them with innovative, sustainable and high-performance solutions.

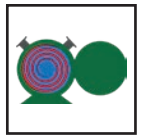


# WELDED HEAT EXCHANGERS RANGE

# SPIRAL PLATE HEAT EXCHANGERS

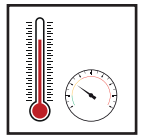


SELF-CLEANING



EASY FOR INSPECTION AND CLEANING

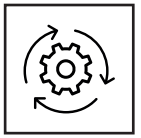
SINGLE CHANNEL



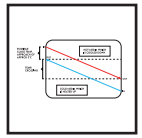
HIGH PRESSURES & TEMPERATURES

HANDLE CORROSIVE/ EROSIVE FOULING MEDIAS

LOW MAINTENANCE COSTS



LOW OPERATING COSTS



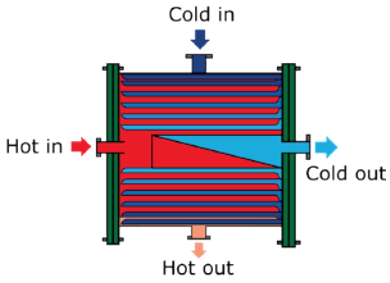
ENERGY SAVING

## GreenSpiral™ Type 1
## LOW PRESSURES

GreenSpiral™ versatile design allows it to handle one or two fouling fluids. Our customized, fit for purpose approach, optimizes the channel spacing vs particle size, and the pressure drop across each channel. The single passage channels facilitate turbulent flows to handle fouling medias and have a self-cleaning effect. Both channels are easy to access for inspection and cleaning. Your alternative to the shell and tube heat exchangers.

## GreenSpiral™ Type 1
## HIGH PRESSURES

Nexson GreenSpiral™ can handle cycling duties. The robust design allows our heat exchangers to expand without mechanical failures during a pressure or temperature fluctuation. The uniform, precise engineered thermal spiral core design, defined cross section that is combined with turbulent flows, allows the GreenSpiral™ heat exchanger technology to have no dead zones in the channels, maximizing the heat transfer surface. This SPHE model is specifically designed to handle high pressures for tough applications.



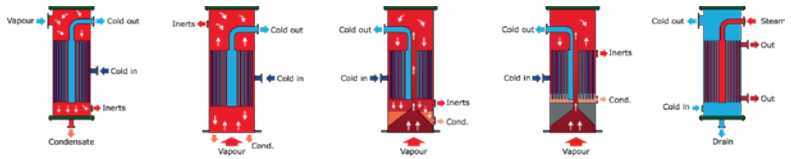



## GreenSpiral™ Type 2

Nexson GreenSpiral™ Type 2 heat exchanger is ideal to handle biphasic applications where condensing is required for vapors, with or without inert gases, evaporation of large flows and when low pressure drop is required, such as near vacuum applications. In evaporator or condenser mode, our SPHE offers easy access for inspections and/or mechanical cleaning on the two sides open vertical vapor media side, while the other (clean) media side is fully welded and thus is not mechanically accessible.

## GreenSpiral™ Type 2 Column

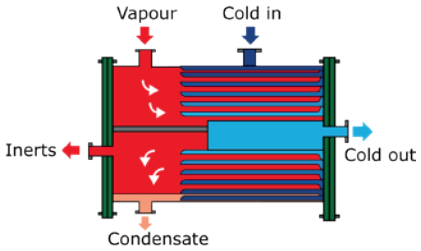
The GreenSpiral™ Type 2 column heat exchanger unique design features can be used for condensing and boiling duties between two gases or a liquid to gas system. Nexson Group's precise engineering capabilities and fit for purpose individual approach design allow us to build the GreenSpiral ™ Type 2 column with several spiral heat exchangers welded in series, in the same shell to achieve large condensing duties with reduced footprint.



Spiral Plate Heat Exchangers

## GreenSpiral™ Type 3
# STEAM HEATER

GreenSpiral™ Type 3 plate heat exchanger is commonly used to heat a fouling, viscous, tough fluid medias by using steam. The steam circulates in a crossflow manner in a both sided fully opened channel, through the complete width of the unit and thus creating the least amount of pressure drop. If present, our design can allow inert gases to be removed easily. The liquid media circulates in a closed spiral channel where the selfcleaning effect mitigates fouling.




## GreenSpiral™ Type 1
# BB / BW HEAT EXCHANGER

The GreenSpiral™ Type 1 BB/BW (Biosolids/ Biosolids and Biosolids/Water) is specifically design to handle highly fouling sludges in the Biogas and Waste Water treatment applications.

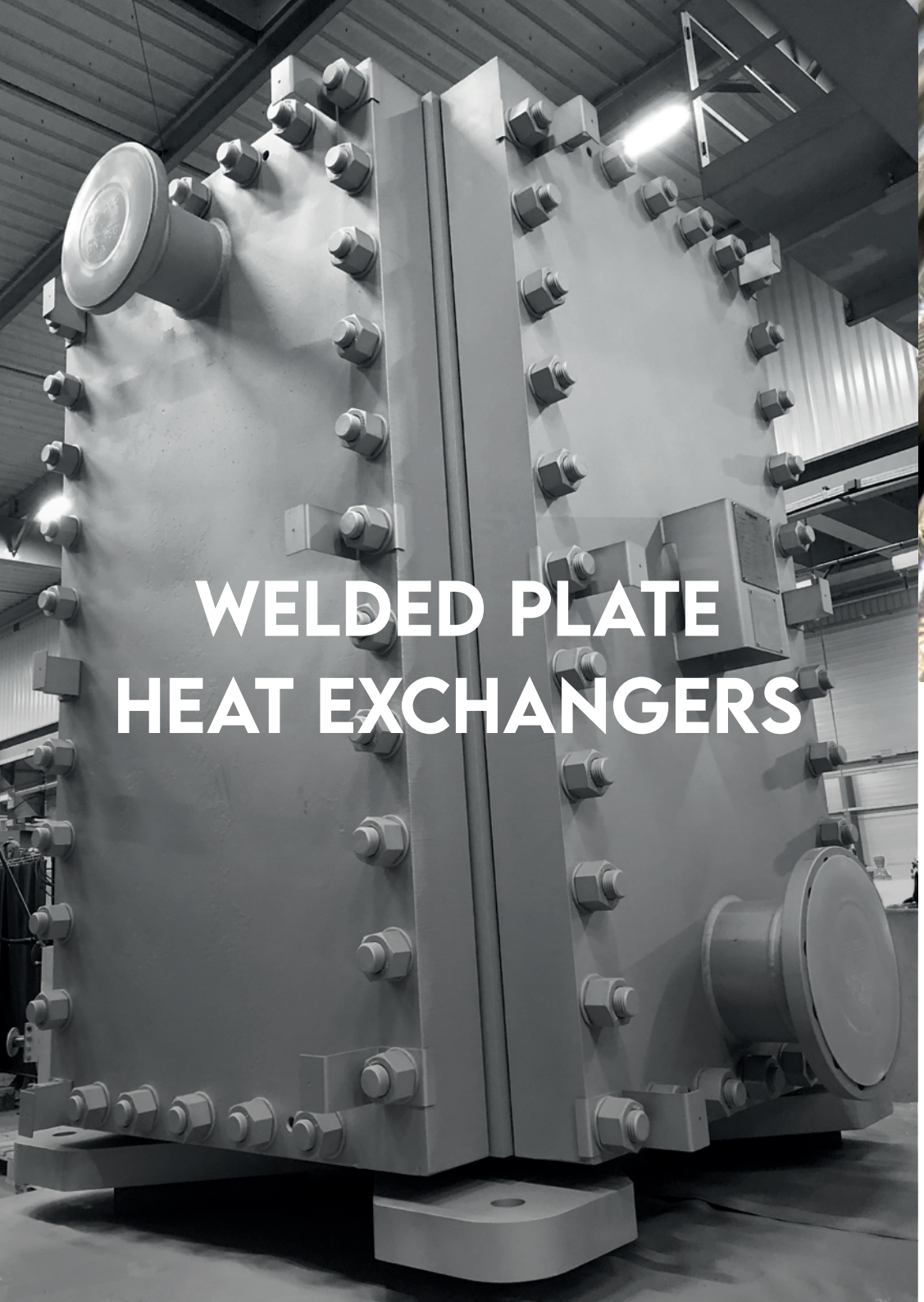
GreenSpiral™ Type 1BB / BW Spiral plate heat exchangers are specially designed for digester sludge heating and other heat recovery applications like raw sludge heating and heat recovery from effluents, pasteurization and/or methanisation.

| | | TYPE 1 LOW PRESSURES | TYPE 1 HIGH PRESSURES | TYPE 2 MULTI-PHASE | TYPE 2 COLUMN | TYPE 3 STEAM HEATER | TYPE 1 BB / BW |
|---|---|---|---|---|---|---|---|
| **APPLICATIONS** | | | | | | | |
| ENERGY | OIL & GAS / REFINERY | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | CHEMICAL | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | HEAVY INDUSTRIES | ✓ | | ✓ | ✓ | ✓ | |
| | PULP & PAPER | ✓ | | ✓ | ✓ | ✓ | |
| | POWER | ✓ | | ✓ | ✓ | ✓ | |
| | HVAC | | | | | | |
| FOOD | FOOD RAW MATERIAL | ✓ | | ✓ | ✓ | ✓ | |
| | PHARMACEUTICAL | | | | | | |
| | REFRIGERATION | | | | | | |
| | FOOD PRODUCTION | ✓ | | ✓ | ✓ | ✓ | |
| ENVIRONMENT | WATER TREATMENT | | | | | | ✓ |
| | CARBON CAPTURE | | | | | | |
| | CLEAN ENERGY | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | MARINE | | | | | | |
| **TECHNICAL DATA** | | | | | | | |
| Min temperature (°C) | | -100 | -100 | -100 | -100 | -100 | -100 |
| Max temperature (°C) | | 450 | 500 | 450 | 450 | 450 | 150 |
| Max pressure (Bar) | | 25 | 100 | 25 | 25 | 25 | 8 |
| Max area (m²) | | 700 | 700 | 700 | 3000 | 700 | 100 |

## MATERIALS AVAILABLE

| Stainless steel | Stainless steel / Nickel based alloys | Titanium | Carbon steel |
|---|---|---|---|
| 304L | 254 SMO | Titanium Gr1 | SA516 Gr60 |
| 316L | C276 | Titanium Gr2 | SA516 Gr70 |
| Duplex | 904L | | |
| Superduplex | Alloy 59 | | |

**Others materials are available upon request.**



# WELDED PLATE HEAT EXCHANGERS

ROBUSTNESS

COMPACTNESS

HIGH TURBULENT FLOW INDUCED BY OUR PLATES

HIGH PRESSURES & TEMPERATURES

HANDLE CORROSIVE, ERROSIVE AND FOULING MEDIAS

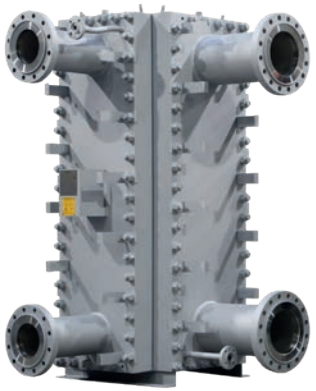
LOW MAINTENANCE COSTS

LOW OPERATING COSTS

CLOSE TEMPERATURE APPROACH

## GreenBox™ Type S

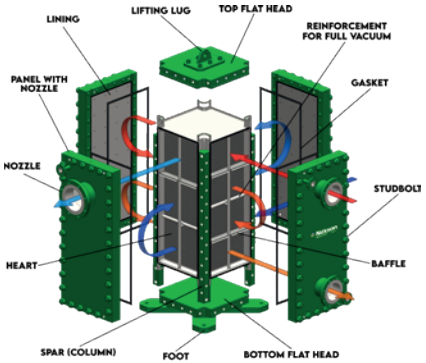
# Openable heat exchanger with removable side panels



Nexson GreenBox™ S is a compact welded plate heat exchanger, made of square plates welded together, forming the heat transferring plate pack heart of the heat exchanger. The heart is enclosed into a bolted frame, both hot & cold side channels are easy to access for inspection and cleaning.

There are no gaskets between the plates, instead strong welds makes it leak proof. Only the four removable side pressure panels require four gaskets for external sealing.

Nexson patented soft corners design makes the GreenBox™ S the most robust of its category. The mechanical reliability of the ingenious soft corner design is the ideal solution for operation in tough process duties with high pressures (**up to 50 barg**) and temperatures (**up to 400°C**) in liquid/liquid or biphasic applications.




| | WX20 | WX35 | WX50 | WX80 |
|---|---|---|---|---|
| Max Plates | 100 | 200 | 300 | 500 |
| Max Area ($m^2$) | 6,6 | 31,1 | 88,9 | 384 |
| Max Unit Height (mm) | 647 | 1475 | 1930 | 3750 |
| Connection sizes | 25-150 DN (1 - 6") | 25-300 DN (1 - 12") | 25-450 DN (1 - 18") | 25-700 DN (1 - 28") |

Welded plate heat exchangers - Liquid/Liquid | Biphasic

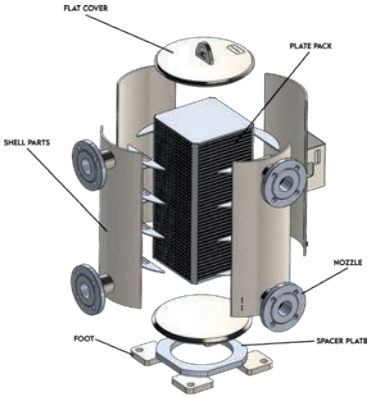
## GreenBox™ Type W

# Fully welded equipment

Nexson GreenBox™ W is a fully welded compact plate heat exchanger, made of square plates welded together, forming the heart of the heat exchanger, which is enclosed into a circular shell frame. The soft corner design patented by Nexson makes this heat exchanger very robust. Due to the fully welded construction, the mechanical internal access is not possible.

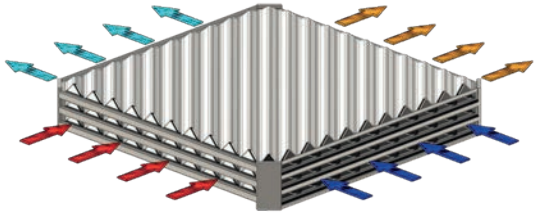
There are no gaskets between plates, instead strong welds makes it leakproof, designed for high pressures applications (**up to 130 barg**) and mainly clean media applications.

This Heat exchanger provides a concentration of thermal efficiency and compactness, making it very versatile and robust, offering in our fit for purposed approach to serve our customers.




| | WX20 | WX35 | WX50 | WX80 |
|---|---|---|---|---|
| Max Plates | 100 | 200 | 300 | 500 |
| Max Area ($m^2$) | 6,6 | 31,1 | 88,9 | 384 |
| Max Unit Height (mm) | 647 | 1475 | 1930 | 3750 |
| Connection sizes | 25-150 DN (1 - 6") | 25-300 DN (1 - 12") | 25-450 DN (1 - 18") | 25-700 DN (1 - 28") |

# Corrugated plates
## Adapted to clean/semi-fouling medias



| Operating conditions | Advantages |
|---|---|
| · Temperature : -100°C to 400°C<br>· Max Temperature differences (HSI-CSI) : 200°C<br>· Pressure : from Vacuum up to 55 Barg at full differential conditions (except for soft material*)<br>· Max differential pressure on soft material : 18 barg | · Robust design (strong welds and patented soft corner design)<br>· High turbulent flow, High K values<br>· No retention area on the back side of the weld<br>· No minimum differential pressure needed in operation |

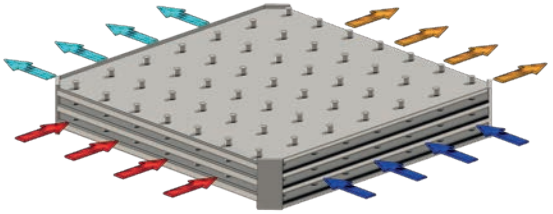
## Materials

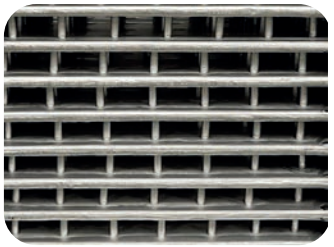
| Stainless steel | Stainless steel / Nickel based alloys | Titanium |
|---|---|---|
| 304L<br>316L<br>316Ti | 254 SMO<br>C276<br>904L*<br>Alloy 59<br>Nickel 200/201* | Titanium Gr1*<br>Titanium Gr11* |

**Others materials are available upon request.**

Welded plate heat exchangers - Plates options

# Studded plates
## Adapted to fouling medias





| Operating conditions | Advantages |
|---|---|
| · Temperature : -100°C to 400°C<br>· Max Temperature differences (HSI-CSI) : 250°C<br>· Pressure : from Vacuum up to 40 Barg at full differential conditions (except for soft material)<br>· Max differential pressure on soft material* : 15 barg | · Robust construction (strong welds and patented soft corner design)<br>· Easy for inspection and cleaning on both media side<br>· Can handle big particles (plate gap up to 30mm)<br>· Can handle long fibers (in a stud free configuration) |

## Materials

| Stainless steel | Stainless steel / Nickel based alloys | Titanium | Carbon steel |
|---|---|---|---|
| 304L<br>316L<br>Duplex<br>Superduplex | 254 SMO<br>C276<br>904L*<br>Alloy 59<br>Nickel 200/201* | Titanium Gr2*<br>Titanium Gr7* | SA516 Gr70N |

**Others materials are available upon request.**

# RECTANGULAR TUBE HEAT EXCHANGERS

# – ENVIRONMENT



## GreenTube™ RT

## Modular heat exchanger

The GREENTUBE™ RT is fully welded compact Heat Exchanger designed primarily for sludge to sludge heat recovery and biosolids treatment. This is a complementary type of heat exchanger to the GREENSPIRAL™ Heat Exchanger for solution with lower capacity.. The GREENTUBE™ range provides a concentration of thermal efficiency and compactness, it is the most robust of its category.

GREENTUBE™ RT are suitable for a wide variety of applications and are used for :

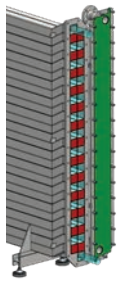
- Media containing large particules and others contaminants
- Media with suspended matter such as fibers
- High viscosity fluids like sludges
- Aggresive media
- Dirty effluent
- etc.

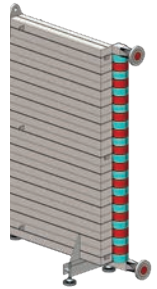
### OPENABLE

- Fully openable version for fluids suspected of clogging or coagulation (struvite, fat from industrial waste, large particle etc.)
- Hinges make it easy to open the channel without the need for lifting equipment
- No loss of capacity over the years

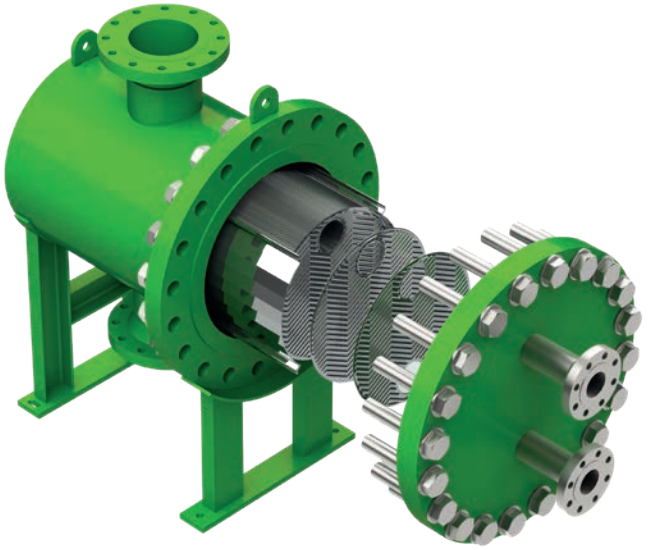
### FULLY WELDED EQUIPMENT

- Simple, robust and compact design
- Optimized turn-around area thanks to rounded shape to reduce load losses and deposits
- No risk of leakage or alteration over time





# PLATE AND SHELL HEAT EXCHANGERS - ALL INDUSTRIES



ROBUSTNESS

COMPACT DESIGN

HIGH TURBULENT FLOW INDUCED BY OUR CORRUGATED PLATES

HIGH PRESSURES & TEMPERATURES

HANDLE CORROSIVE/ EROSIVE FOULING MEDIAS

LOW MAINTENANCE COSTS

LOW OPERATING COSTS

CLOSE TEMPERATURE APPROACH

## GreenP&S Type W

# Plate & Shell fully welded

Plate and shell fully welded heat exchangers are suitable for various industrial fields, with advantages such as efficiency, safety, and compactness. They can be customized according to customer specific process conditions, and are resistant to high temperature, high pressure, and corrosion according to the resistance of selected materials.

The core component of Nexson GreenP&S Type W is a set of circular corrugated plates welded together, which achieve sealing between channels through connected welding.

The welded plate core is filled and fixed in the circular shell, and there are no sealing gaskets between the plates. The heat exchanger can be used in corrosive, high-temperature, and high-pressure environments according to the selected materials.

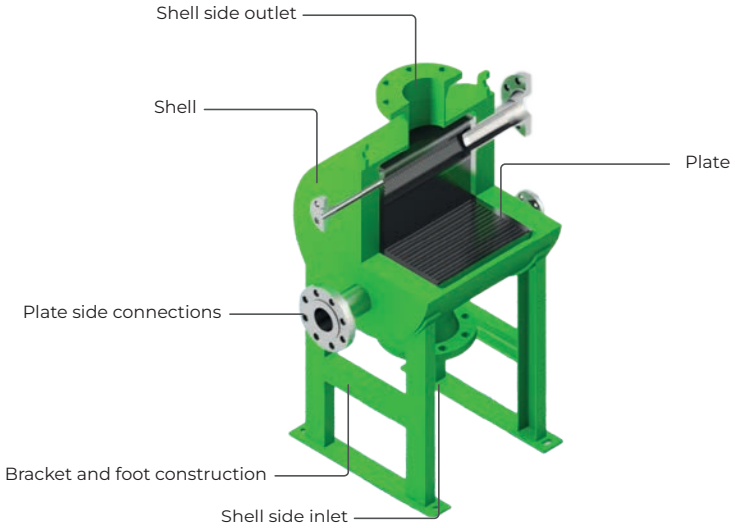



Plate and Shell heat exchangers - Liquid/Liquid | Biphasic

## GreenP&S TYPE O

# Plate & Shell openable

Plate and shell openable heat exchangers are suitable for various industrial fields, with advantages such as efficiency, safety, and compactness. They can be customized according to customer specific process conditions, and are resistant to high temperature, high pressure, and corrosion according to the resistance of selected materials.

The core component of Nexson GreenP&S Type O is a set of circular corrugated plates welded together, which achieve sealing between channels through alternating welding.

The welded plate core is filled and fixed in the circular shell, and there are no sealing gaskets between the plates. It can be applied according to the selected materials in corrosive, high-temperature, and high-pressure environments. The panel is removable, allowing easy access to the shell side of the plate pack for inspection and/or mechanical cleaning.

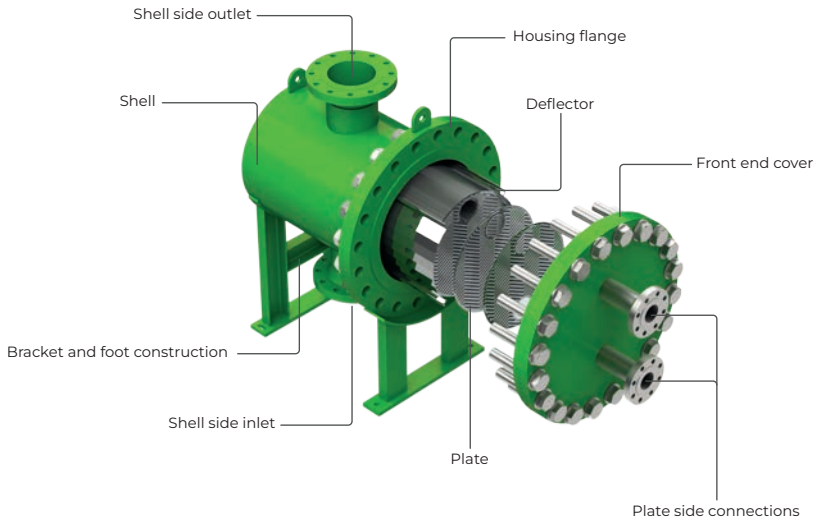


Plate and Shell heat exchangers - Liquid/Liquid | Biphasic

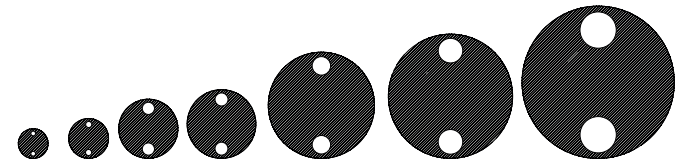
## GreenP&S Type K
# Kettle Reboiler

GreenP&S type K, Kettle Reboiler is suitable for various industrial fields, with advantages such as efficiency, safety, and compactness. They can be customized according to customer specific process conditions, and are resistant to high temperature, high pressure, and corrosion according to the resistance of selected materials.

GreenP&S Type K is known as a flooded evaporator. This heat exchanger operates by maintaining a liquid refrigerant level inside the evaporator, ensuring that the heat transfer surfaces are continuously submerged in liquid refrigerant.

This heat exchanger is used to evaporate media (like ammonia) with a hot stream. This solution is widely used in refrigeration, heat pump and ORC cycles. The flow of heat (in the plates) boils the cold bath (in the shell) in counter-current. The manifold ensures good gravitational phase separation. The manifold design limits the size of the shell and therefore the thickness of the shell, as well as the amount of fluid to be evaporate (this results in savings on operating costs).

## GreenP&S - Plates range
# Plate & Shell heat exchanger



| Type | NR025 | NR050 | NR080 | NR100 | NR150 | NR200 | NR300 |
|---|---|---|---|---|---|---|---|
| Port diameter (DN) | DN25 | DN50 | DN80 | DN100 | DN150 | DN200 | DN300 |
| Plate diameter (mm) | ~200 | ~300 | ~450 | ~600 | ~900 | ~1000 | ~1200 |

| | | GREENBOX | | GREENTUBE | GREEN P&S | | |
|---|---|---|---|---|---|---|---|
| | | TYPE S | TYPE W | RT | TYPE W | TYPE O | TYPE K |
| **APPLICATIONS** | | | | | | | |
| ENERGY | OIL & GAS / REFINERY | ✓ | | | ✓ | ✓ | |
| | CHEMICAL | ✓ | ✓ | | ✓ | ✓ | |
| | HEAVY INDUSTRIES | ✓ | | | ✓ | ✓ | |
| | PULP & PAPER | ✓ | | | ✓ | ✓ | |
| | POWER | ✓ | ✓ | | ✓ | ✓ | |
| | HVAC | | ✓ | | ✓ | ✓ | |
| FOOD | FOOD RAW MATERIAL | ✓ | ✓ | | ✓ | ✓ | |
| | PHARMACEUTICAL | ✓ | | | ✓ | ✓ | |
| | REFRIGERATION | | ✓ | | ✓ | ✓ | ✓ |
| | FOOD PRODUCTION | ✓ | ✓ | | ✓ | ✓ | |
| ENVIRONMENT | WATER TREATMENT | | | ✓ | | | |
| | CARBON CAPTURE | ✓ | ✓ | | ✓ | ✓ | |
| | CLEAN ENERGY | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | MARINE | | ✓ | | ✓ | ✓ | |
| **TECHNICAL DATA** | | | | | | | |
| Min temperature (°C) | | -100 | -200 | | -196 | -196 | -196 |
| Max temperature (°C) | | 400 | 400 | 150 | 500 | 500 | 500 |
| Max pressure (Bar) | | 50 | 130 | 8 | 150 | 120 | 120 |

## MATERIALS AVAILABLE

| Stainless steel | Stainless steel / Nickel based alloys | Titanium | Carbon steel |
|---|---|---|---|
| 304/304L | 254 SMO | Titanium Gr1 | SA516 Gr70N |
| 316/316L | C276 | Titanium Gr2* | |
| 316 Ti | 904L | Titanium Gr11 | |
| Duplex* | Alloy 59 | Titanium Gr7* | |
| Superduplex* | Alloy 201 | | |

**Others materials are available upon request.**

* studded plates

# Printed Circuit Heat Exchanger - PCHE
## Ultra-compact & high performance

Printed Circuit Heat Exchangers (PCHEs) are a class of compact, high-performance heat exchangers fabricated using photochemical etching and diffusion bonding techniques. Flow channels, typically 0.1–2 mm in diameter, are chemically etched onto metal plates in a parallel or zigzag arrangement, enabling high heat transfer surface area per unit volume. These plates are then stacked and diffusion bonded under high temperature and pressure to form a monolithic core without welding, resulting in superior mechanical integrity.

PCHEs are capable of operating at pressures exceeding 1000 bar and temperatures over 1000°C, with heat transfer coefficients significantly higher than conventional shell-and-tube exchangers. Their high surface area density (up to 6000 $m^2/m^3$) and counterflow design enable exceptional thermal efficiency in a compact footprint. They are particularly suited for applications involving supercritical fluids, high-pressure gas processing, and advanced nuclear and hydrogen energy systems.

**HIGH COMPACTNESS**

Small size
light weight
6000m2/m3,
channel size 0.1~2mm

**HIGH PRESSURES**

The design pressure can reach up to 100MPa, and the welding strength is equal to the strength of the base material

**HIGH TEMPERATURES**

The design temperature allows -253°C to about 1000°C

**MATERIALS**

Titanium alloy, stainless steel, duplex steel, high temperature alloy ...

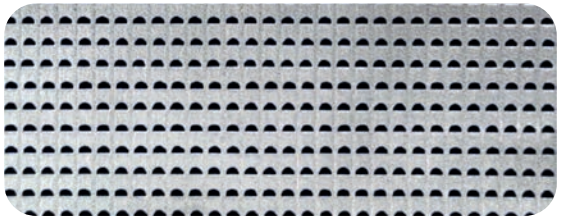
**HIGH EFFICIENCY**

Very high heat transfer coefficient

**WIDE RANGE OF MEDIA**

Natural gas, sea water, hydrogen, antifreeze, etc.

Max unit size :
3000x600x600mm





# GreenTube™ - CWHE
## Coil wound heat exchanger

Coil wound heat exchangers are one of the most advanced, efficient and energy-saving heat exchange equipment in the world for such size of heat exchanger. The coil wound heat exchanger is made of one or more groups of spirally wound tubes placed in a shell. The heat exchange tubes has enhanced heat transfer elements such as smooth tubes, corrugated tubes and internal thread external bellows, which are arranged in the shell at different spiral angles.

Due to the spiral design of the tubes, the fluid has to change direction continuously, thus facilitating turbulent flow. This increases heat transfer efficiency and reduces the heat exchange surface area. Compared with ordinary shell and tube heat exchangers, its heat transfer coefficient can be increased by 6 times.

**COMPACTNESS**

Compact & Smaller than conventional Shell & Tube heat exchangers

**HIGH PRESSURES**

Up to 300 barg (shell side)
Up to 1400 barg (tube side)

**HIGH TEMPERATURES**

-250°C to 650°C

**HIGH EFFICIENCY**

Very high heat transfer coefficient

**MATERIALS**

Stainless steel, Special steel alloys, carbon steel, aluminium, copper ...

**EASY TO ACHIEVE LARGE SCALE**

Up to 25 000 $m^2$

**CONDENSATION**

The tube side medium stays in the heat exchange tube bundle for a longer time, and the condensation is more complete

**IMPLEMENT VARIETY OF MEDIAS**

Up to 8 different medias simultaneously

thermowave

Brand of Nexson Group


thermowave GmbH is a leading manufacturer of plate heat exchangers configured according to customer specifications in a wide range of materials, frame designs and sizes. Its head office is in Berga halfway between Göttingen and Leipzig.

The product portfolio covers everything from standard heat exchangers for HVAC applications to highly specialised apparatuses for industrial refrigeration, the food and beverages industry, the chemical and process industry, and the energy sector.

**5000** sqm
Production area

**3000**
Units per years

**30+**
**YEARS EXPERIENCE**

**Reliable quality, specialized skills and performance for key components.**

## Rapid expansion of product portfolio and equipment

The product portfolio was already undergoing expansion as a laser-welding machine now complemented the machine park, making it possible to also offer welded modules.

The product range as well as the technical equipment of the production facilities also continued to grow continuously in the subsequent period. Three product lines leading to the company's decision to build a second production hall for even more sophisticated plate heat exchangers.

## Quality experience

Qualified and motivated staff ensure a consistently high level of quality across all products to the benefit of their customers. thermowave's experience in the industrial transfer of heat allow them to develop new innovative products to launch onto the market.


# PLATE HEAT EXCHANGERS RANGE

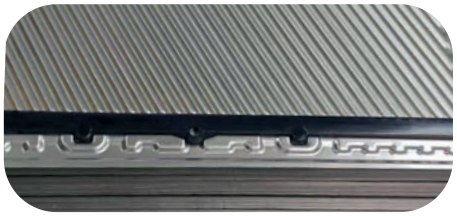
## Plates type

Gasketed

Semi-welded

Double wall

## Gasket connections - Snap on

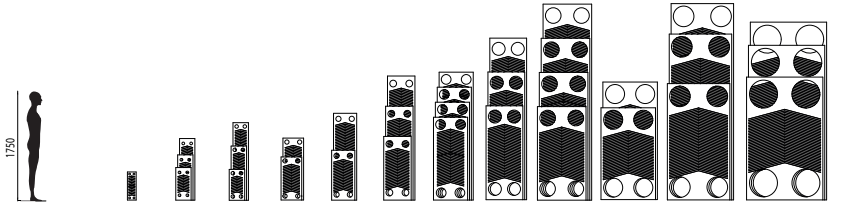


## Materials

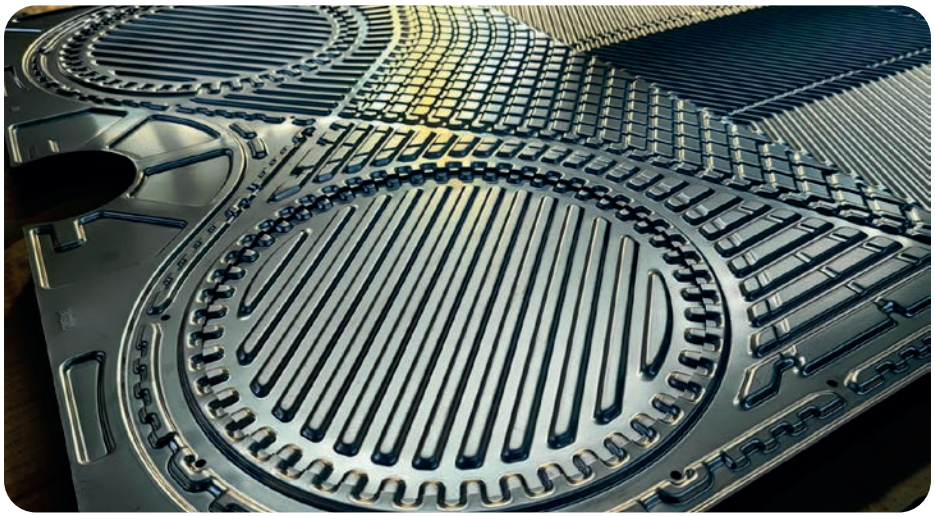
| Plates | | | Gaskets |
|---|---|---|---|
| **Stainless steel** | **Stainless steel / Nickel based alloys** | **Titanium** | |
| | | Titanium Gr1 | NBR |
| 304L | 254 SMO | Titanium Gr11 | EPDM |
| 316L | C276 | | HNBR |
| | 904L | | FKM |
| | Alloy 59 | | FEPM |
| | Nickel 200/201 | | VITON A |
| | | | VITON G |
| | | | HY01 |

**Others materials are available upon request.**

## Plates range




| Port diameter (DN) | 25 | 40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 450 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length max. (mm) | 449 | 981 | 1236 | 986 | 1383 | 1976 | 2094 | 2573 | 3122 | 1872 | 3126 | 2831 |
| Width max. (mm) | 140 | 244 | 246 | 329 | 369 | 437 | 546 | 586 | 774 | 868 | 995 | 1215 |
| Length / Width | 3.21 | 4.02 | 5.02 | 2.99 | 3.74 | 4.52 | 3.84 | 4.39 | 4.03 | 2.15 | 3.14 | 2.33 |



**Makes life fresh**

Expert of Plate Heat Exchangers

## thermolineECO™

Gasketed & Double wall

## thermolineVARIO™

Gasketed, Semi-welded
& Double wall

## thermolinePLUS™

Gasketed, Semi-welded
& Double wall

## thermolinePURE™

Gasketed, Semi-welded
& Double wall

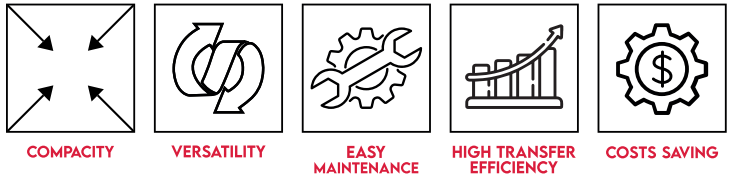
Gasketed Plate Heat Exchangers

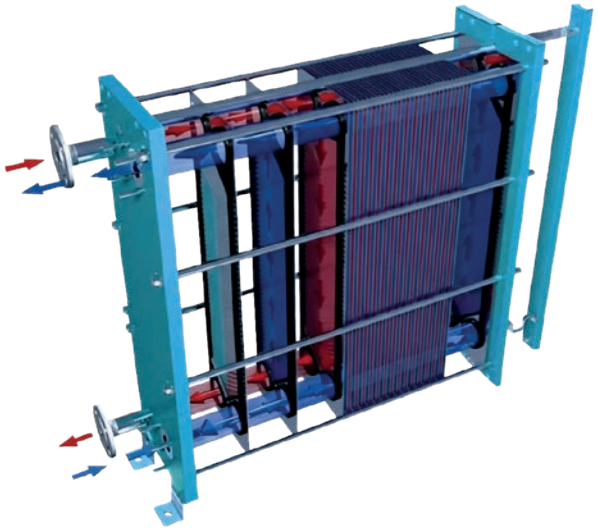
# thermolineECO, VARIO, PLUS & PURE
# Flexible and high efficient solution

thermowave products versatile are designed to optimize heat exchange between fluids, offering unmatched performance and reliability.

The gasketed plate heat exchangers are engineered with precision, featuring individually stamped heat transfer plates with gaskets around each plate. This innovative design ensures a tight seal, preventing leaks and maximizing heat transfer efficiency.

Investing in gasketed plate heat exchangers can lead to significant cost savings over time.



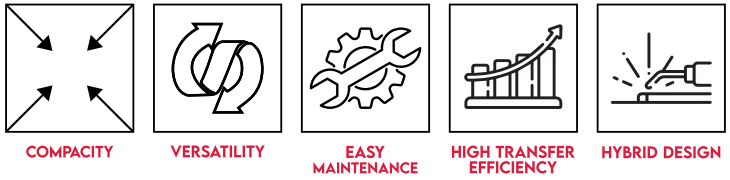



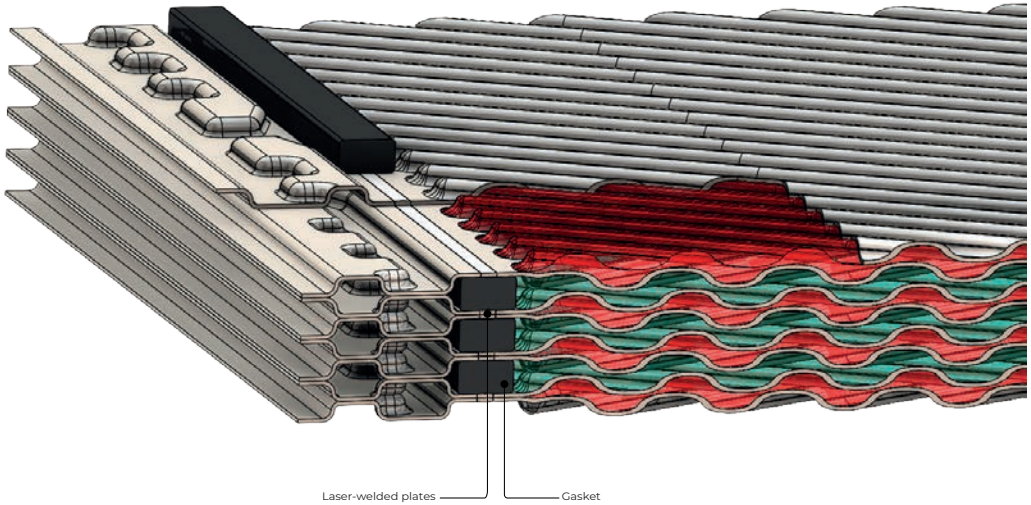
## Semi-welded Plate Heat Exchangers

# thermolineVARIO, PLUS & PURE
# Hybrid design

thermowave products semi-welded plate heat exchangers combine the reliability of welded construction with the versatility of gasketed plates, offering unparalleled performance in a variety of applications.

Semi-welded plate heat exchangers feature a unique design that incorporates both welded and gasketed plates. This hybrid construction provides a secure seal for one fluid stream while allowing for easy disassembly and maintenance of the other. The result is a durable and efficient heat exchanger that can withstand demanding operating conditions.



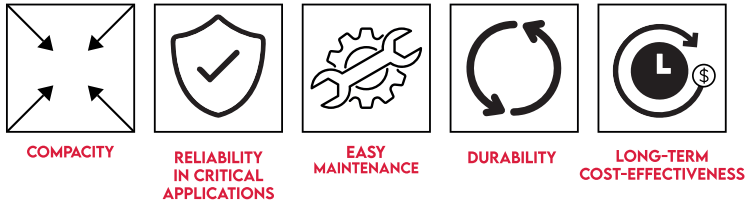



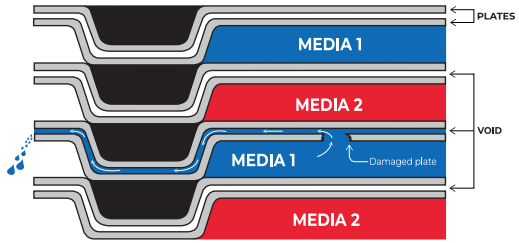

## Double Wall Plate Heat Exchangers

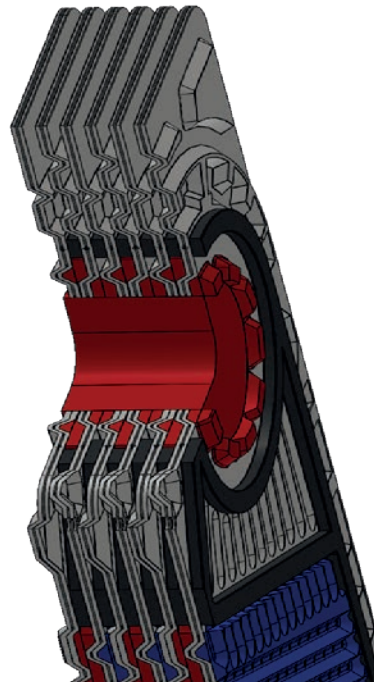
# thermolineECO, VARIO, PLUS & PURE
# Ultimate solution for fluid safety

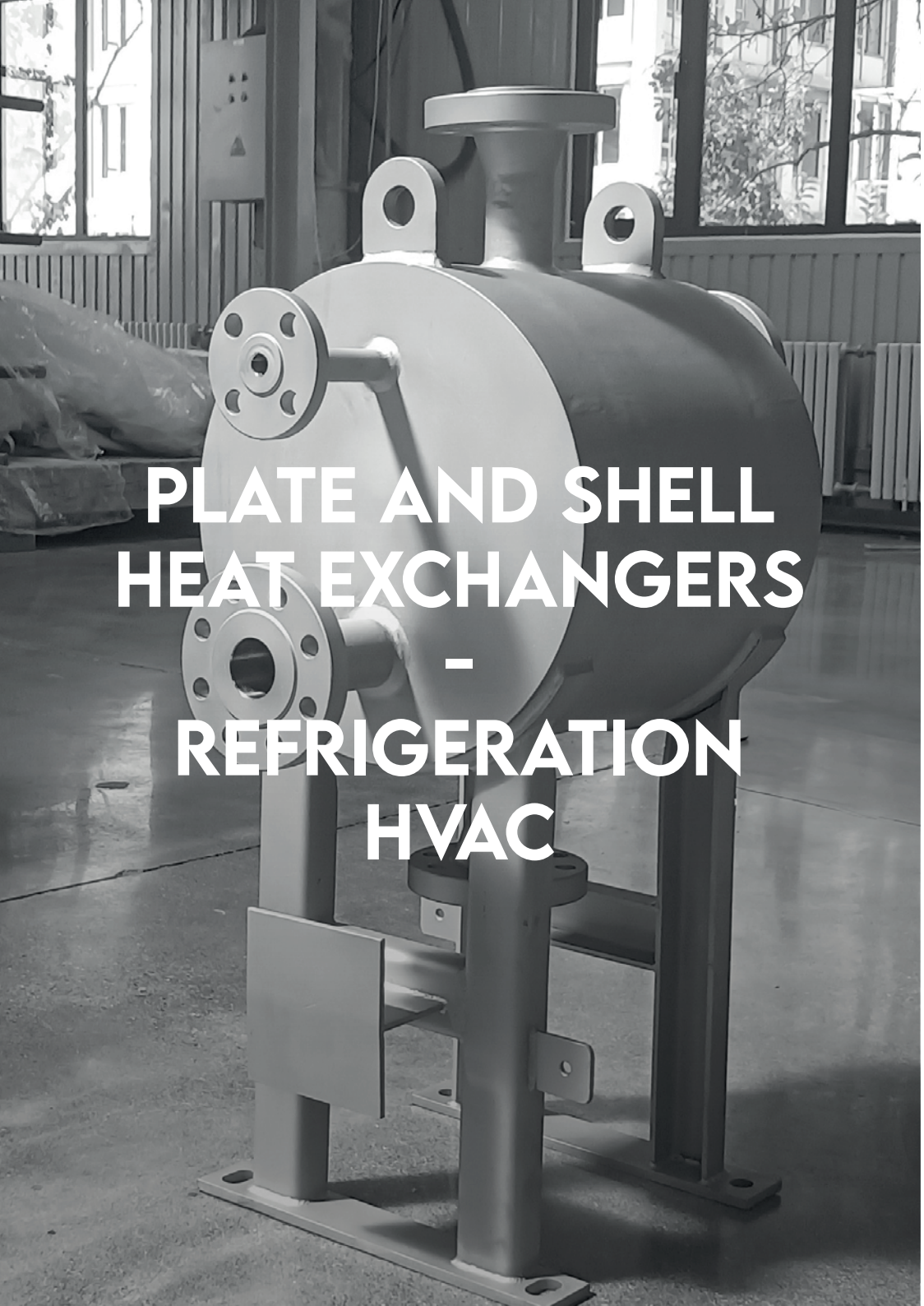
thermowave products double wall plate heat exchangers are a vital innovation for industries that demand flawless fluid separation and efficient heat transfer. Whether used in food and beverage production, pharmaceutical manufacturing, or chemical processing, our exchangers ensure superior safety and unmatched reliability.

Our double wall plate heat exchangers feature two layers of plates between the hot and cold fluids, creating an extra barrier that prevents cross-contamination. This design allows for visible leak detection if one layer is compromised, ensuring safety. The unique construction guarantees optimal performance while prioritizing the integrity of the fluids.



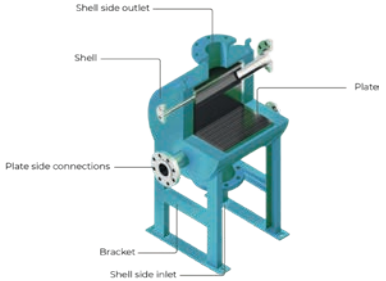





# PLATE AND SHELL HEAT EXCHANGERS - REFRIGERATION HVAC

## Plate and Shell heat exchangers - Liquid/Liquid | Biphasic

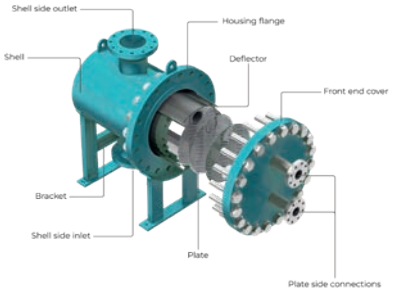
### Plate & Shell Type W
**Plate & Shell fully welded**




The core component of GreenP&S Type W is a set of circular corrugated plates welded together, which achieve sealing between channels through alternating welding.

The welded plate core is filled and fixed in the circular shell in a fully welded construction, and there are no sealing gaskets between the plates. It can be applied as per selected materials in corrosive, high-temperature, and high-pressure environments.

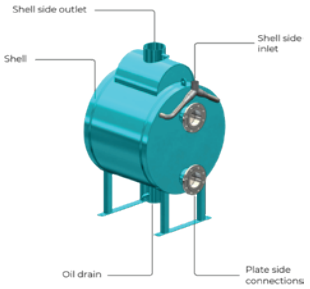
### Plate & Shell Type O
**Plate & Shell Openable**




GreenP&S Type O is a set of circular corrugated plates welded together, which achieve sealing between channels through alternating welding.

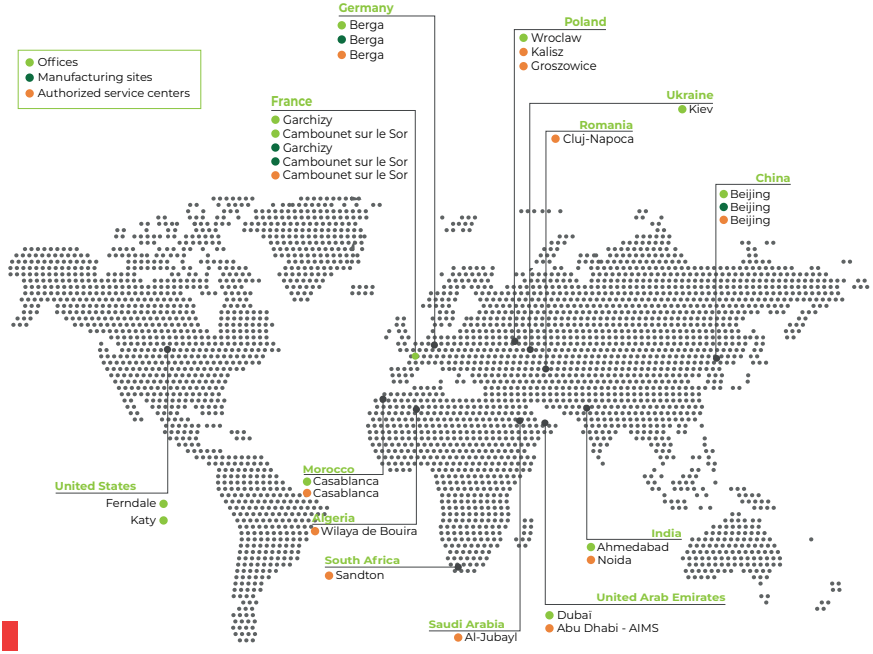
The welded plate pack core is welded on the pressure vessel cover and inserted in the circular shell, and there are no gaskets between the plates. This heat exchanger can be applied in corrosive, high-temperature, and high-pressure environments. The Flanged pressure panel with the attached plate pack is removable, allowing the easy access to the shell side of the plate pack for inspection and/or mechanical cleaning.

### Plate & Shell Type K
**Kettle Reboiler**




GreenP&S Type K is use to evaporate media (like ammonia) with a hot stream. This solution is widely used in refrigeration, heat pump and ORC cycles. T

The flow of heat (in the plates) boils the cold bath (in the shell) in counter-current. The manifold ensures good gravitational phase separation. The manifold design limits the size of the shell and therefore the thickness of the shell, as well as the amount of fluid to be evaporate (savings on operating costs).

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## Nexson Group Brand