



**Driver of the energy transition**

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**Our electrical solutions**

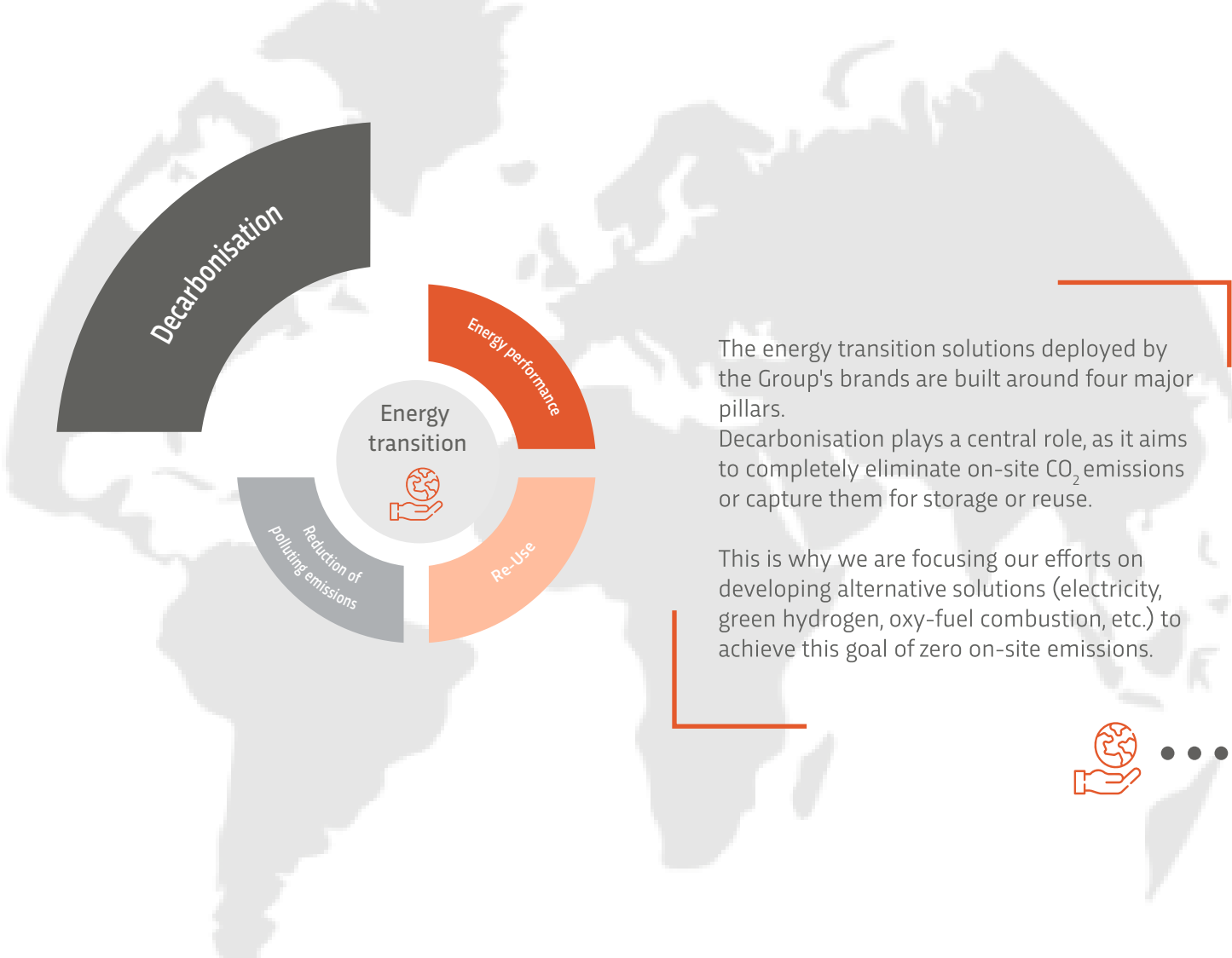
# Babcock Wanson Group

## Working together to build a sustainable industrial model for a better world

### “ A key partner for the energy transition ”

Babcock Wanson Group is a leader in the manufacture, installation and operation of industrial boiler rooms. With a presence in 14 European countries and beyond, the Group draws on seven strong brands, each bringing its own expertise and know-how, to provide manufacturers with the innovative solutions they need to embark on the road to energy transition.

### Decarbonisation: one of the key challenges of the energy transition



Example: Replacing a latest generation gas boiler with an electric boiler

savings equivalent electricity consumption



200 000 inhabitants<sup>2</sup>

<sup>1</sup> Boiler 10T/h - 6,000h - 60% load - <sup>2</sup> Electricity consumption/capita: 2MWh elec

### Industrial electric boilers, the key to sustainable industry?

At the heart of industrial processes, steam and hot water boilers have always been a major source of fossil fuel consumption and therefore CO<sub>2</sub> emissions.

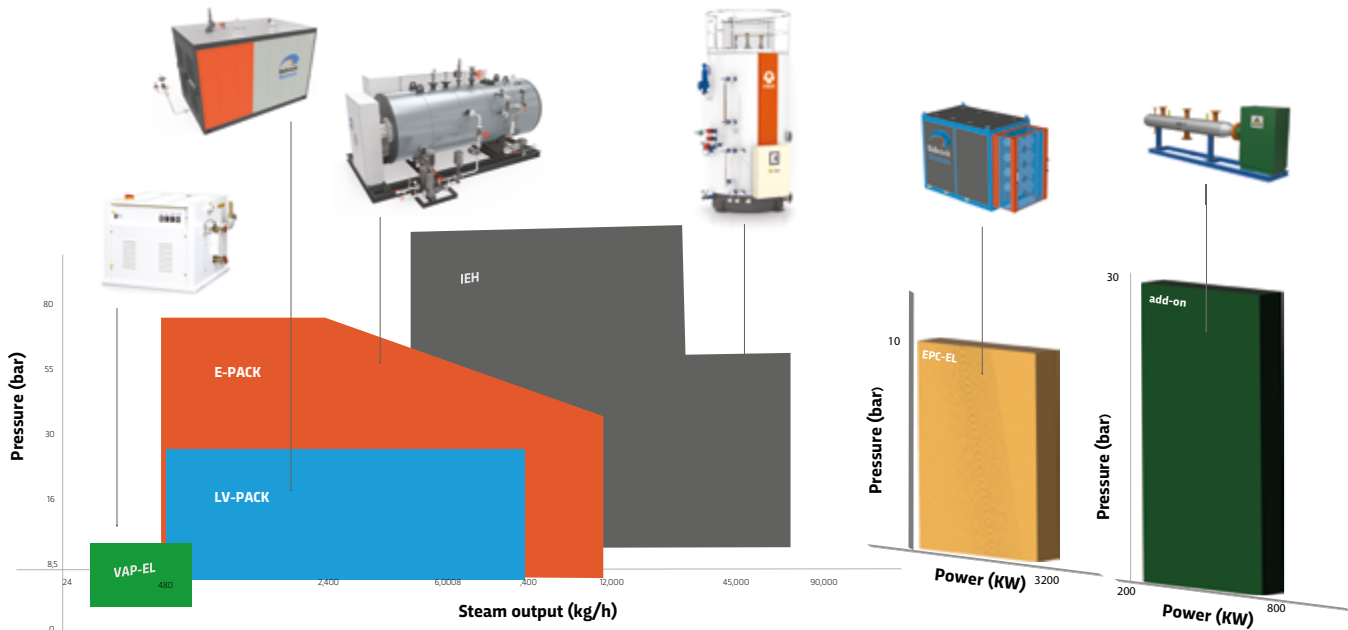
To date, as the energy mix for electricity production has significantly evolved, industrial electric boilers have become essential tools in addressing current challenges of energy optimisation and decarbonisation.

Industrial electric boilers also offer numerous strategic and economic advantages, and are a real competitive edge. They enable companies to reduce their dependence on fluctuating gas prices, give them access to public grants and funding, and are fully in line with CSR strategies.

### Our range of electric solutions

The fruit of the synergy between our brands, our range of electric boilers is designed to meet all needs and adapt to all technical configurations. They offer maximum energy efficiency, a high level of adaptability with precise temperature and pressure control, low maintenance costs and, above all, zero on-site emissions.

- Industrial heat production can be provided by our:
- High-voltage electric steam/hot water boilers with electrodes
  - Low-voltage electric steam/hot water boilers with immersion heaters
  - Low-voltage thermal fluid boilers with immersion heaters
  - Hybrid systems



# High-voltage electrode boilers

## A breakthrough technology serving decarbonisation

Electrode boilers have become, in just a few years, the leading electrothermal solution in the industrial world and a powerful lever for decarbonising the most energy-intensive processes. A pioneer in the design and manufacturing of this type of equipment, Parat now offers a state-of-the-art boiler, embodying over 30 years of experience and expertise.

### Energy efficiency

- Zero on-site emissions (CO<sub>2</sub> - NOx- SOx)
- Efficiency greater than 99%
- Internal circulation system conveys water to the electrodes
- High modulation rate (4% - 100%)

### Zero load

- New process guarantees zero standby consumption
- No electricity consumption even when connected
- State-of-the-art solution for grid frequency control

### Combined hot water and steam

- Combined hot water and steam boilers in a single unit
- Automatic heating mode switching
- High flexibility

### No additional transformer required for main connections



## Much more than an industrial boiler...

### Grid control:

A real asset for our customers, our boilers meet the most demanding technical requirements in terms of responsiveness and power variation, making them perfectly suited to participation in Grid System Services\*, as well as arbitration on energy prices and carbon intensity.

\* Grid System Services (Primary Reserve and Secondary Reserve) ensure that electricity production and consumption are balanced at all times, and that grid frequencies remain stable.



# High-voltage electrode boilers

## IEH - The Leading Solution for High Voltage Electrode Boilers

The IEH electrode boiler is the most efficient solution for effectively decarbonising the most significant steam and hot water applications. Capable of delivering high-pressure steam, up to 85 barg, and with a maximum power output of 75 MW, the IEH boiler incorporates a concentration of technological innovations that make it, beyond just an industrial boiler, a groundbreaking and high-performing tool for the energy transition.

### Combined hot water and steam

In a single unit



### High-pressure steam

Up to 85 barg

### Fast start-up

From boiler stop to full load in less than 5 minutes  
30 seconds from minimum to full load

### Simplicity and reliability

- Internal circulation system
- No leakage current
- No electrode wear
- Minimal maintenance
- No additional transformer required



## IEH COMPACT - For carbon-free hot water production

Designed to meet hot water needs only, the compact version of the IEH boiler is a state-of-the-art solution that's quick and easy to install and operate.

**5 MW**

Max. power

**< 140°**

Superheated water



**12 barg**

Operating pressure

### Plug&Play

- Standardised solution
- Delivered on pre-assembled skid
- Quick installation and immediate operation

### Compact and practical

- Small footprint
- Compact, lightweight design
- Simplified maintenance



# Low-voltage electric boilers

## The choice for energy efficiency

Our electric immersion heater boilers are a reliable, high-performance solution for efficiently decarbonising industrial processes requiring low or medium power and moderate flow rates. They offer all the guarantees required for the smooth operation of a wide range of applications, and are capable of supplying steam, hot water or superheated water as required.

### Energy efficiency

- Zero on-site emissions (CO<sub>2</sub> - NO<sub>x</sub>- SO<sub>x</sub>)
- Direct liquid heating by immersion heaters
- Efficiency greater than 99%

### High performance

- High modulation (technical minimum: 50 kW)
- Precise temperature control
- High responsiveness to load variations
- High availability

### Simple installation and operation

- No need for chimneys, fuel supply networks or storage tanks
- Reduced and simplified maintenance
- Flexible, adaptable operating mode
- No periodic regulatory control of emissions.



Intelligent and connected, Navinergy is a unique system that enables our customers to monitor the correct operation of their boiler room from the interface on the boiler or from any device, computer or smartphone. Thanks to this system, Babcock Wanson Group is able to offer maintenance services with performance commitments.

# Low-voltage electric boilers

## LV-Pack - The standard model

With its 16 standardised models covering a wide range of current needs, its compact size and high level of performance, the LV-Pack is the most suitable solution for decarbonised steam or hot water production at low or moderate operating pressure.

### Steam production

- From 600 kg/h to 8.4 t/h

### Power

- From 400 kW to 5.6 MW

### Rated voltage

- 400V three-phase or 690V three-phase



< 18 bar

Design pressure



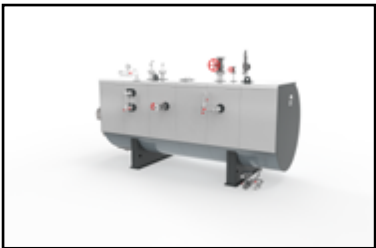
Commissioning simplified

## e-Pack - The tailor-made solution

Featuring a high level of technical sophistication and capable of covering the most specific requirements, the e-Pack is the on-site zero-emission boiler ideal for meeting steam demands in excess of 12 t/h and requiring a design pressure above 18 bar.

1 to 10

immersion heaters



< 55 bar

Design pressure

### Steam production

- From 300 kg/h to 12 t/h

### Power

- From 200 kW to 8 MW

### Rated voltage

- 400 V three-phase or 690 V three-phase



## Low Voltage

### EPC-EL - For thermal fluid applications

Thermal fluid boilers offer numerous advantages and are the ideal choice for many industrial applications such as pressing, baking or moulding. The EPC-EL boiler combines the advantages of electricity with those of thermal fluid to guarantee maximum efficiency and very high energy output.

#### Power ratings

- from 400 kW to 1.6 MW  
(up to 3,2 MW on demand)

#### Nominal voltage

- 400 or 690 V three-phase

#### Max. fluid temperature

- 300° C



**< 300° C**

Higher temperature  
on request



**100%**

Thyristor power control

### VAP-EL - The compact, economical solution

The VAP-EL operates at low operating pressure and offers precise steam pressure control. Delivered on a skid integrating water treatment and auxiliary equipment, it's the most compact and economical solution to meet even the most demanding one-off or day-to-day requirements.

**< 8,5 bar**

Steam pressure



#### Steam production

- From 20 to 480 kg/h

#### Power

- From 15 kW to 360 kW

#### Rated voltage

- 400 V three-phase



Can be operated in parallel

### GEC - Hot water generator

Electric generator dedicated to carbon-free production of hot water for industrial processes.

#### Efficiency and immediate profitability:

- Not subject to PED
- Outdoor installation possible
- Compatibility with cooling water circuit
- 50 to 400 kW
- <110 °C



**100%  
Inox**



R & D

## Our hybrid solutions

### The agile solution to adapt to the evolution of energy supply

Hybridising new or existing fire-tube boilers is an effective way of optimising their performance and reducing CO<sub>2</sub> emissions.

Whether electrifying a complete boiler or adding a back-up system, our hybridisation solutions offer all the flexibility needed to choose the most suitable available energy source at any time.

#### Technical flexibility

- Steam or hot water
- Solution adaptable to existing equipment
- Possibility of switching from conventional fuel to electricity during operation
- Ensures continuity of service in the event of breakdown or interruption

#### Environmental performance

- Efficiency close to 100%
- Reduced use of fossil fuels
- Reduced emissions for the electrical part
- Allows operation to be adapted to environmental constraints

#### Economic profitability

- Reduced costs by adapting to variations in energy prices
- Ensures steam or hot water provision to process
- Eligible for environmental aid and incentives
- Complies with environmental and CSR objectives



### Optimisation of CAPEX and OPEX costs

Embarking on the path of energy transition provides access to operational optimisation schemes for plant operation.

In Europe, many countries offer direct aid and subsidies for decarbonisation. In addition to CAPEX subsidies, there are direct grants to reward energy efficiency over time. In addition, as the electricity market evolves, new schemes are emerging to reward the management of electricity offtake flexibility, including reserve mechanisms for grid regulation.

Condor Hybrid

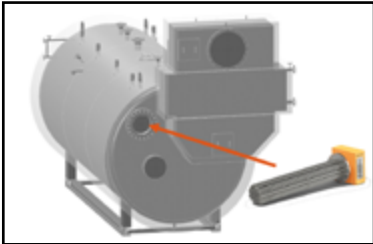
VKK Condor flue-tube boilers can be fitted with an electric auxiliary heating system either at the point of order or as a retrofit. This is an ideal solution for optimising energy costs and moving toward decarbonisation at your own pace.

Flexibility

Can be installed on all CONDOR boilers  
Provides hot water boiler temperature maintenance  
Control software based on electricity and gas prices

+/- 20 %

Electrical add-on  
by flanged heating  
elements



Modular design

Electrical heating with built-in heating elements (1 to 2 per boiler)  
Progressive regulation of the electrical part  
VKK Condor boilers can be prepared for retrofiting.

Electrical output  
(per element)

from 250 kW  
to 5,5 MW

690 V

Nominal voltage



Hybrid add-on

The hybrid add-on heating system developed by Standard Fasel can be easily installed on any existing conventional boiler, whether new or revamping, and allows you to choose the best available energy source at any time.

400 V

Nominal voltage



Steam production

From 250 kg/h to 1 t/h

Power

From 200 to 800 kW



Easy  
installation

Reliable and Efficient

Increased modulation range  
Maintains boiler temperature /  
pressure  
Controllable for flexibility and reduced  
emissions



The Babcock Wanson Group's strength lies in its brands.

With their strong history and complementary added values, coming from different backgrounds, our brands enable the Group to offer unique expertise to its customers and markets across the entire value chain. Structured in this way, our group can accompany its customers on the road to energy transition, offering them effective solutions for the electrification of their heat production.



www.babcock-wanson.com



www.parat.no



www.vkkstandardkessel.de



www.standardfasel.nl



www.pbspe.cz



www.thermigas.eu



www.donaucarbon-technologies.com



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