
stargate
hydrogen
Next generation electrolysers
to enable the industry of tomorrow
stargatehydrogen.com



A world where green hydrogen is a commodity

“Affordable green hydrogen is essential to decarbonising hard-to-abate sectors like steel, fertilisers, and chemicals. Stargate Hydrogen addresses this with breakthrough ceramic catalyst technology that **significantly increases Alkaline electrolysis efficiency**.

Our electrolysers lower hydrogen costs by combining high efficiency with low capital expenditure, **making large-scale adoption viable**.

Customers such as **Fortum, Utilitas, and ABB** and others already trust our solutions across Europe, Turkey, and India. We have also **proven the full hydrogen value chain** with a pilot in Tallinn, Estonia.

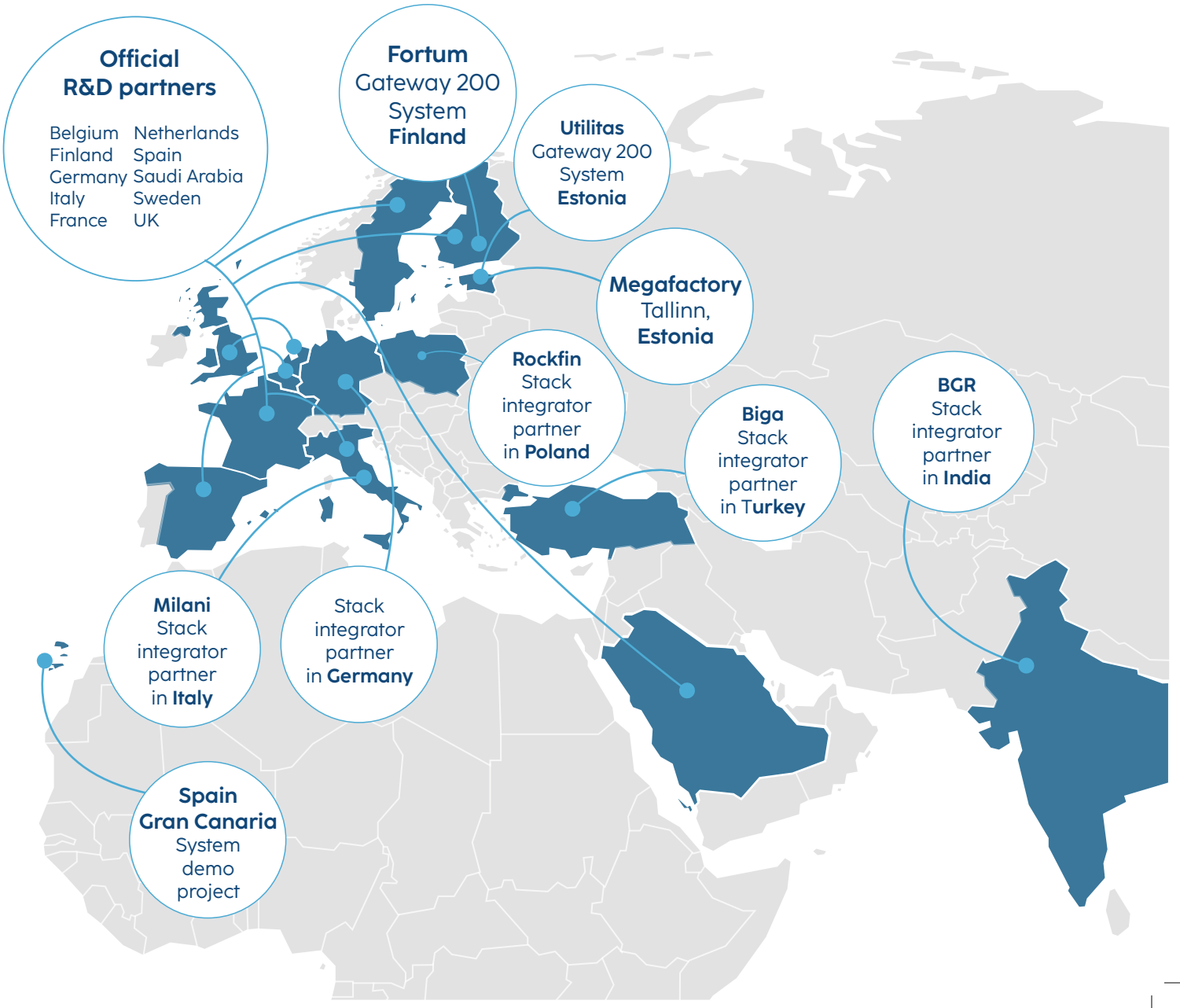
Backed by strong investors and IPCEI support, we are now scaling **from pilots to multi-megawatt projects**. Join our growing network of partners to build the industry of tomorrow.”



stargate hydrogen

Marko Virkebau
CEO of Stargate Hydrogen

Stargate's Hydrogen presence



Stargate Hydrogen's product line

stellar
EDGE



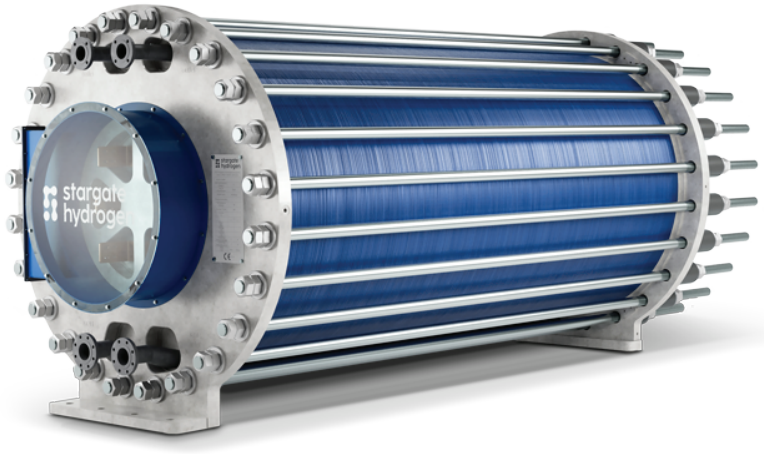
Up to 500 kW - **Next generation pressurised alkaline stacks**
for system integrators



gateway
SERIES

1 MW - **Containerised turn-key hydrogen production systems**
for project developers

stargate hydrogen



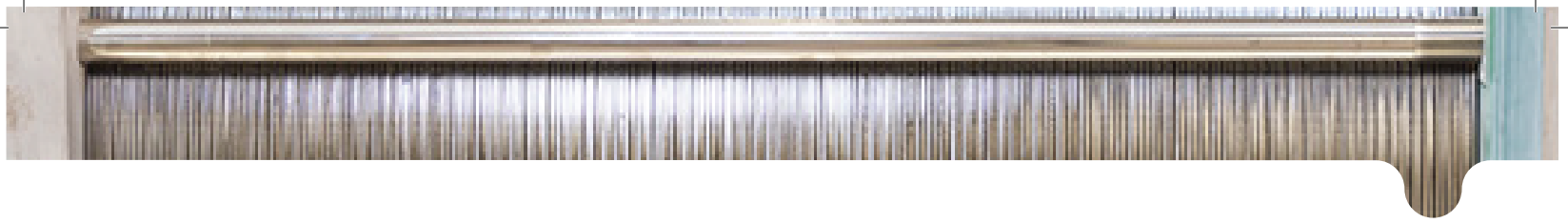
starbase
SERIES

5 MW - **Next generation pressurised alkaline stacks**
for system integrators

aurora
SERIES

10 MW - **Containerised turn-key hydrogen production systems**
for project developers





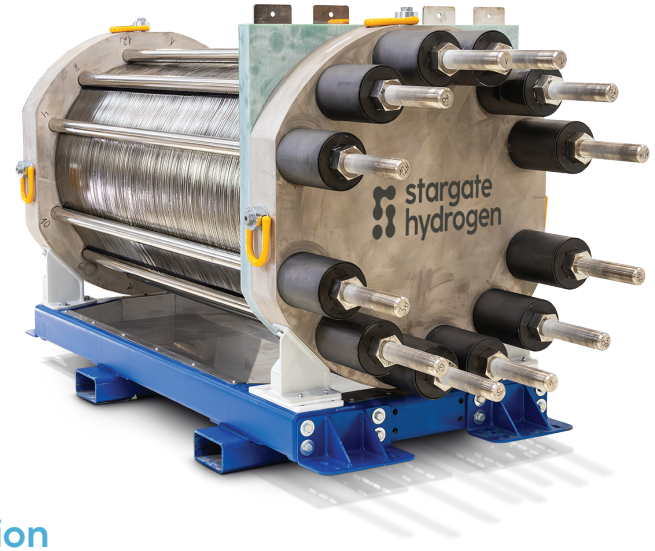
0.5 MW pressurised alkaline stacks

for system integrators

stellar
EDGE

This is the Stellar EDGE
manufactured in Europe and
is customisable to your project.

- Up to 500 kW
- Patented design
- Output up to 100 Nm³/h
- Pressurised operation up to 32 barg
- 2 stacks fit side-by-side into ISO container
- Full Integration support



Come and see the Stellar EDGE in action

The Stellar EDGE is in action at Stargate Hydrogen's first full value chain pilot project in Estonia, at Utilitas plant. There, a turn-key, containarised Electrolyser system packed with two 0.5 MW Stellar EDGE stacks is producting pure hydrogen for vehicles, and a waste heat recovery system for the district heating network.

Performance guarantee

Full Integration support

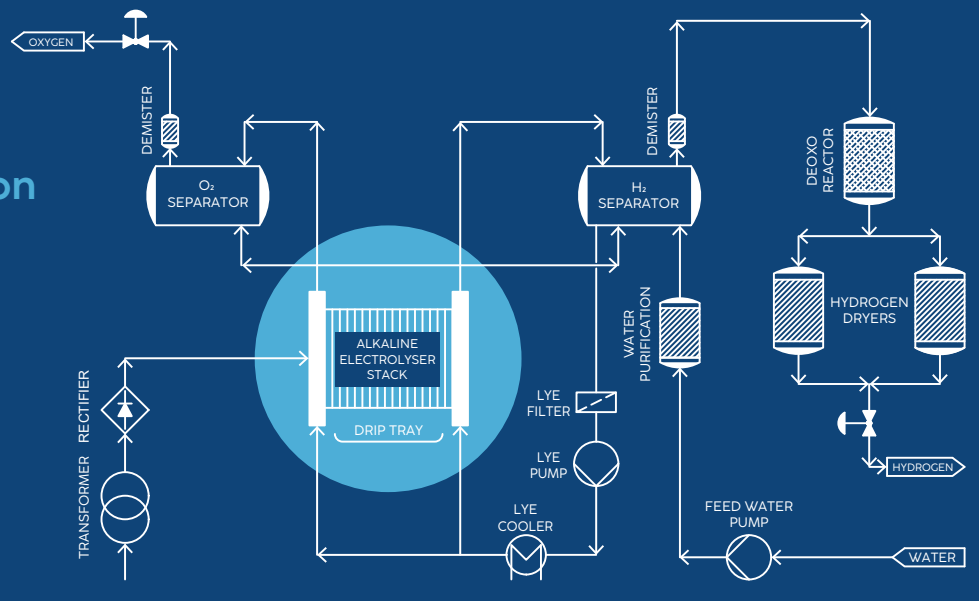
Fast delivery less than 6 months

Up to 100 Nm³/h

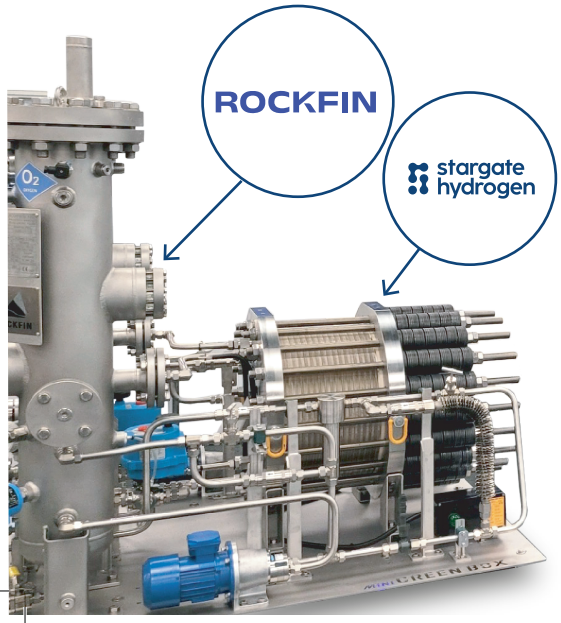
High Efficiency

Stargate Hydrogen enabling the industry of tomorrow

From stacks to seamless integration - we're with you every step of the way!



Stargate has delivered its pressurised alkaline stacks to **Rockfin** and several other engineering companies around the world.



Rockfin built customized hydrogen production systems based on Stargate's pressurised alkaline stacks.

"The passion for electrolyser stack technology and the determination of the Stargate team has been crucial to achieve this major milestone. We strongly believe in the long-term potential of hydrogen as a clean energy solution."

Michał Wróblewski, Rockfin CEO

ABB

VTT

MILANI SPA IMPIANTI ELETTRICI E TECNOLOGICI

Biga H_2

BGR TECH

NextHeat

Pressurised alkaline stacks

for system integrators

stellar
EDGE



Technical specifications

Hydrogen hourly production rate [Nm^3/h]	100
Hydrogen daily production rate [kg/day]	215
Hydrogen pressure [barg]	32
Hydrogen purity [%]	>98%
Oxygen purity [%] **	>98%
Stack Consumption [kWh/Nm^3]	4.59
Stack Consumption [kWh/kg]	51.07
Stack Operating temperature [°C]	80-90
Stack rated voltage - BOL [V]	227
Stack rated voltage - EOL [V]	264
Stack rated current [A]	2027
Stack minimum current [A]*	1150
Stack rated power - BOL [kW]	460
Stack rated power - EOL [kW]	535
Stack minimum operating point [%]*	40%
Stack efficiency (HHV) [%]	77.2%
Stack efficiency (LHV) [%]	65.2%

* Lower minimum load point on request.

** Crossover purity (wet) at stack outlet given that all operational conditions for the stack are maintained within their respective limits.
The final dry hydrogen purity depends on the separation and purification systems which are part of the Balance of Plant (not included).



1MW containerised turn-key alkaline hydrogen production systems

Each 40 ft container has an input power of up to 1 MW and an output of 200 Nm^3/h, pressurised to 30 bar as output. The systems can be ordered with a 12-month lead time and comes with an industry-leading performance guarantee. The electrolysers produce high purity hydrogen that is suitable for a wide range of applications such as chemical feedstock, process heat, blending and transport fuel.

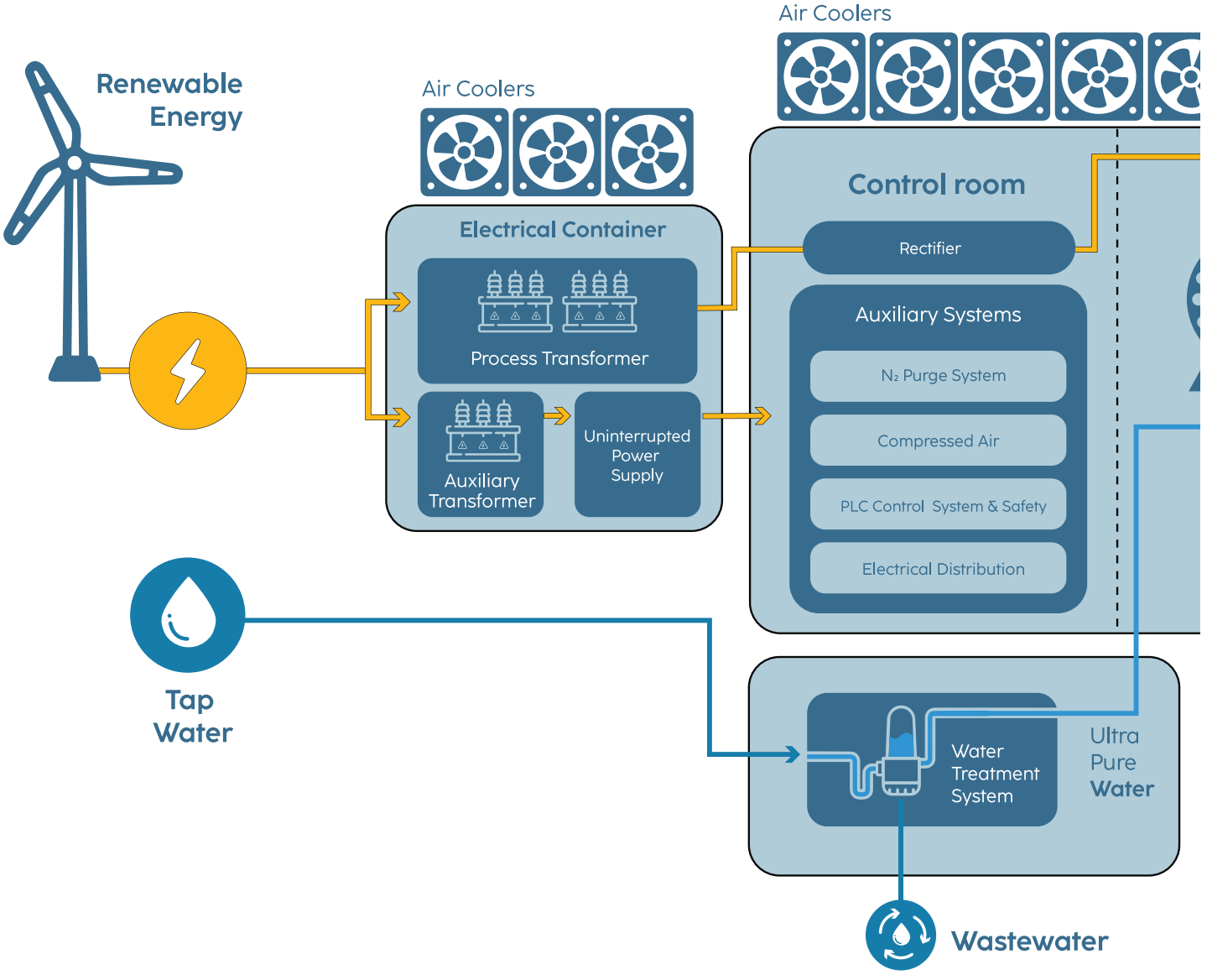
gateway SERIES

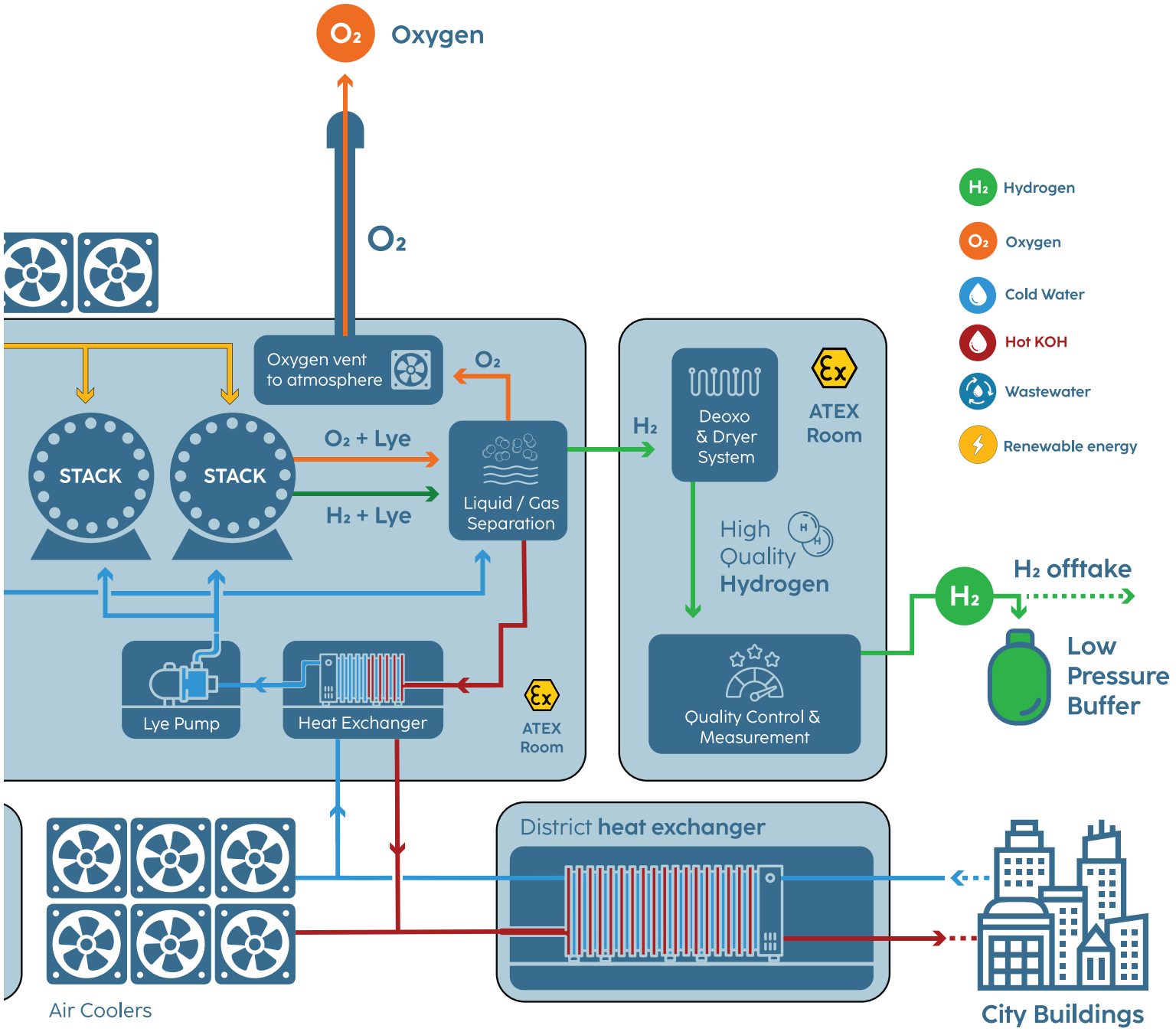
- **High purity hydrogen**
- **High efficiency**
- **Leading performance**
- **Maintenance support**
- **Low CAPEX**

MADE IN EUROPE



gateway
SERIES




O₂ Oxygen
O₂
Oxygen vent to atmosphere
O₂
STACK
STACK
O₂ + Lye
H₂ + Lye
Liquid / Gas Separation
H₂
Deoxo & Dryer System
ATEX Room
High Quality Hydrogen
H₂ offtake
H₂
Low Pressure Buffer
Quality Control & Measurement
Lye Pump
Heat Exchanger
ATEX Room
District heat exchanger
Air Coolers
City Buildings
H₂ Hydrogen
O₂ Oxygen
Cold Water
Hot KOH
Wastewater
Renewable energy

Turn-key alkaline electrolysis system

for project developers

Technical specifications

Product	Gateway 200
Hydrogen hourly production rate [Nm³/h]	200
Hydrogen daily production rate [kg/day]	432
Hydrogen pressure [barg]	30
Hydrogen purity [%] *	> 99.999%
Installed electrical power [MVA]	1.2
Stack consumption [kWh/Nm³]	4.59
System efficiency (HHV) [%]	69.4%
System efficiency (LHV) [%]	58.7%
Operating range [%]	20-100%
Electrolyte	KOH
Electrical interface	Low-Voltage substation
Tap water requirement [L/h]	328
System installation location	Outdoors (containerized)
Equipment footprint incl. maintenance zones [m²]	155
Ambient temperature range [°C] **	-20 to +40
Communication interface	OPC UA

gateway SERIES



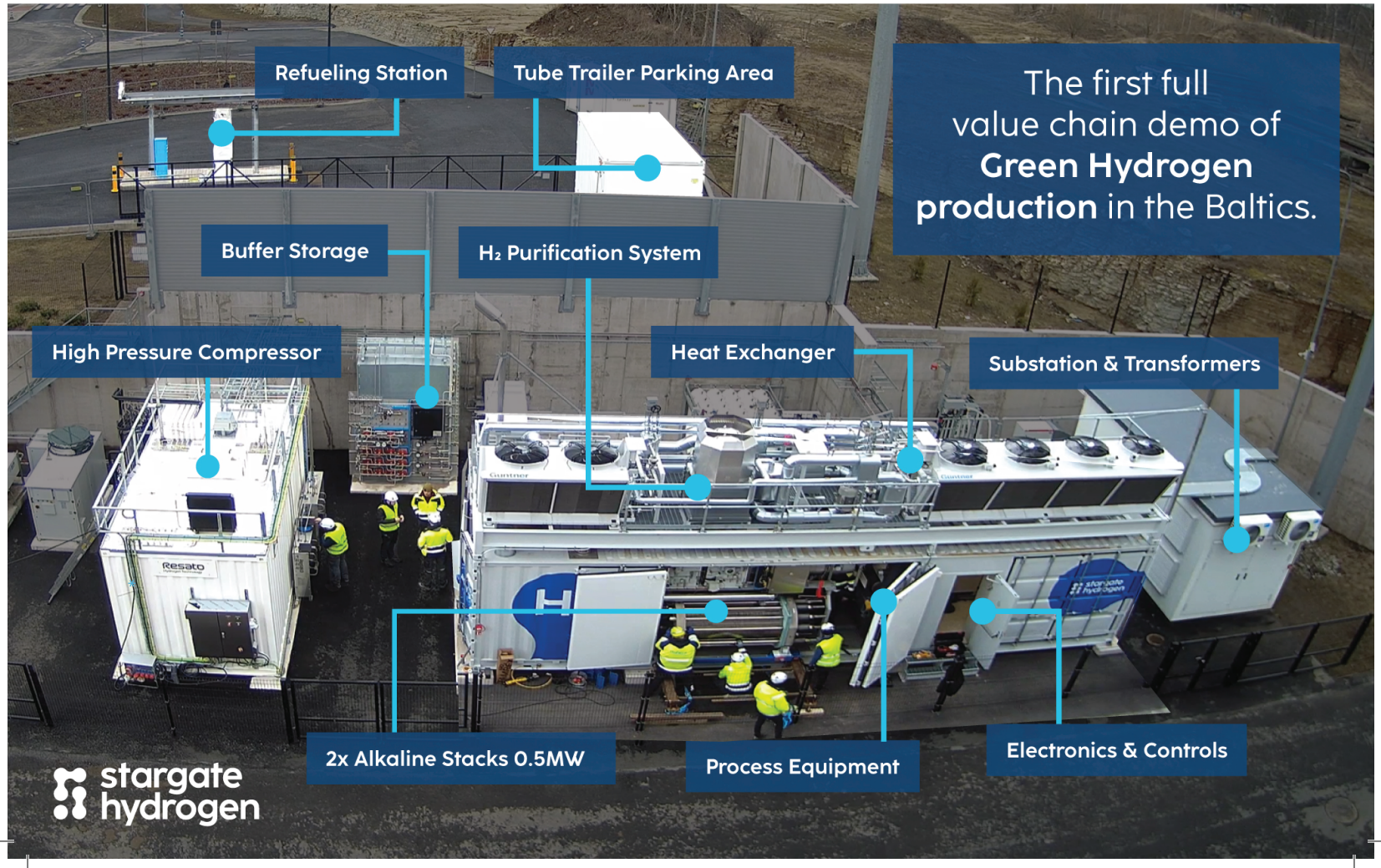
* Target purity achievable with optional purification system

** Target temperature range available with optional extra package - Standard: +5 to +40 °C

Full value chain demonstration
of green hydrogen production

UTILITAS

The first Gateway 200 electrolyser packs two Stellar EDGE Stacks and is operating in Tallinn, at **Utilitas** plant where there two hydrogen refueling stations and a waste heat recovery system for the district heating network.

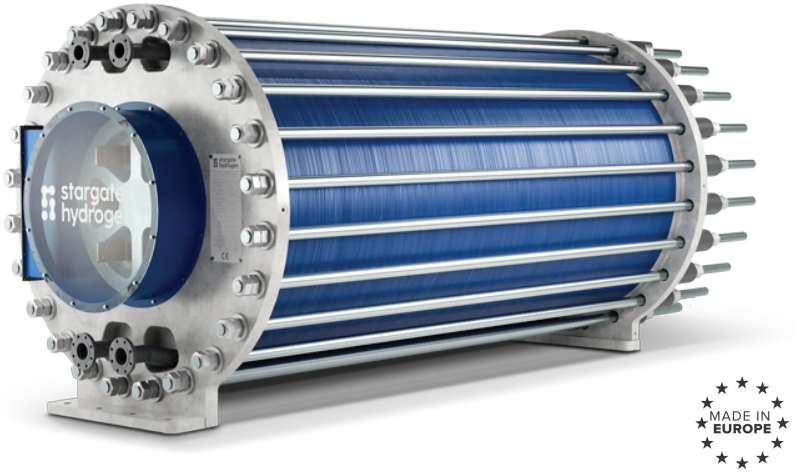


5MW **Next generation pressurised alkaline stacks** for system integrators

The Starbase Electrolyser Stack for green hydrogen production is Stargate Hydrogen's biggest Stack. A a skid-mounted **5MW** pressurised alkaline stack that combines reliability with innovation to deliver a high efficiency solution. Designed and made in Europe, Starbase comes with a complete balance-of-stack, clear documentation and full integration support. Starbase is the perfect solution for engineering companies with system integration capabilities.

starbase
SERIES

- **PGM-Free Electrodes**
- **High efficiency**
- **Pressurised**
- **On-site serviceability**
- **Low CAPEX**





10MW **Containerised turn-key hydrogen production systems** for project developers

The Aurora Electrolyser system is Stargate Hydrogen's biggest module. Based on proven alkaline technology, it combines reliability with innovation to deliver a pressurized, compact system with 10MW consumption, offering the lowest m²/MW ratio in the market. Comes with clear documentation, full engineering support, and maintenance training by experienced technicians, Aurora simplifies ownership while maximizing uptime and efficiency.

Wide range of applications

aurora
SERIES

- **Renewables Projects**
- **Transport Fuel**
- **Fertiliser Industry**
- **Steel Factory**
- **Oil refinery**



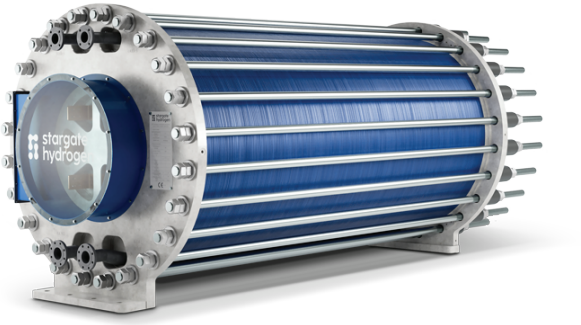
MADE IN EUROPE

Technical specifications

Starbase 5 MW Stack

Hydrogen hourly production rate [Nm³/h]	1000
Hydrogen daily production rate [kg/h]	90
Hydrogen pressure [barg]	16
Hydrogen purity [%] *	>98%
Oxygen purity [%] *	>98%
Stack consumption [kWh/Nm ³]	4.3
Stack consumption [kWh/kg]	49
Stack operating temperature [°C]	70-90
Stack nominal rated current [A]	10400
Stack rated nominal power - [kW]	4400
Stack minimum operating point [%] **	20% to 110%

starbase
SERIES



Aurora 10 MW System

Hydrogen hourly production rate [Nm³/h]	2000
Hydrogen daily production rate [kg/h]	180
Hydrogen pressure [barg]	12
Hydrogen purity [%]	>99.8%
Oxygen purity [%]	>98%
Energy consumption [kWh/kg] ***	51
Rated nominal power - [kW]	10500
System minimum operating point [%] **	20% to 110%

aurora
SERIES

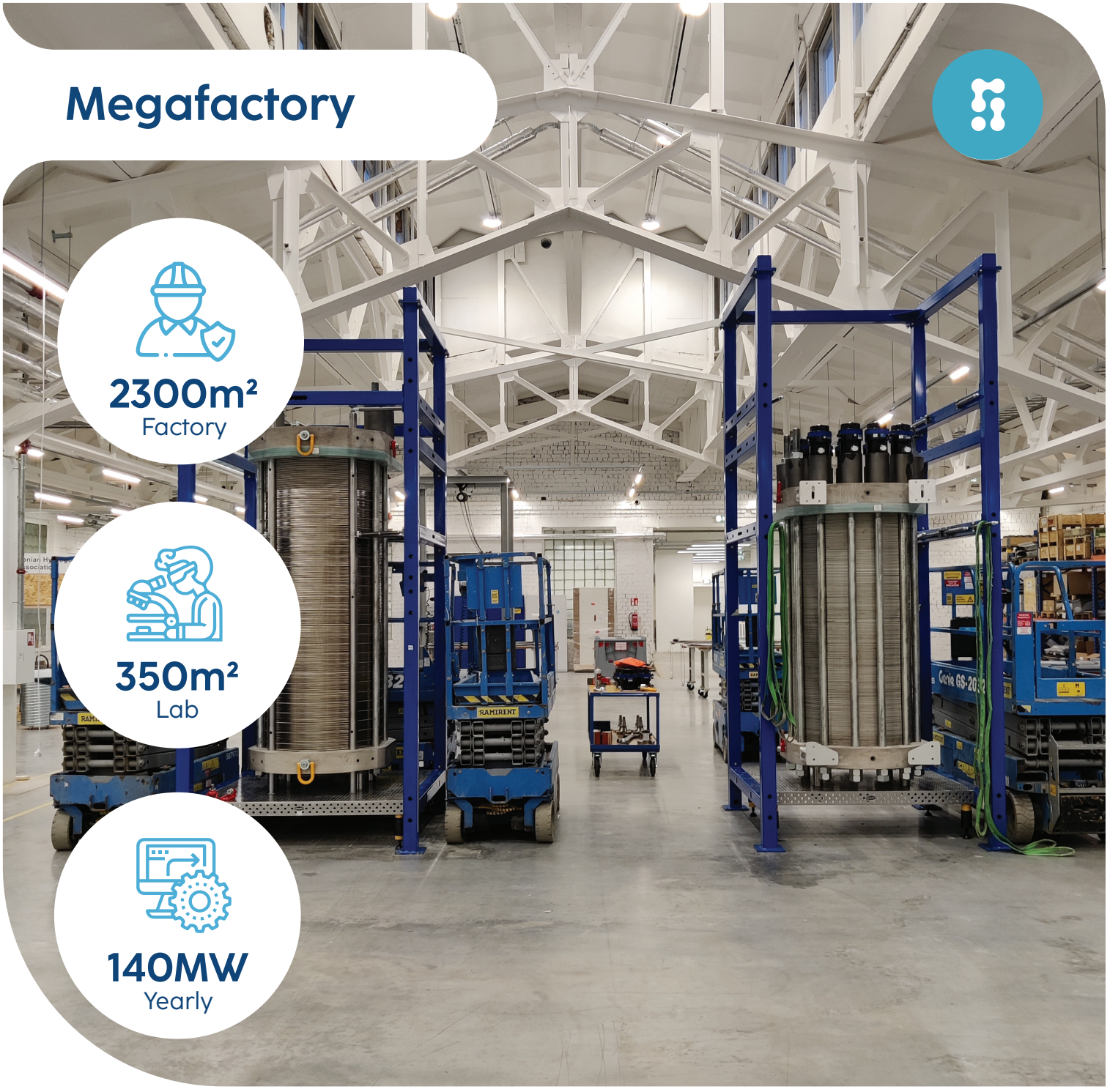


* Crossover purity (wet) at stack outlet given that all operational conditions for the stack are maintained within their respective limits. The final dry hydrogen purity depends on the separation and purification systems which are part of the optional Balance of Plant (not included).

** The system and the stack can operate at 110% for sustained time if needed.

*** Final energy consumption depends on system configuration, site location and project specifications.

Megafactory



2300m²
Factory

350m²
Lab

140MW
Yearly

Fundamental innovation on material level

Stargate develops electrolysers with novel catalysts, called Stardust, highlighted by the European Commission as an IPCEI*

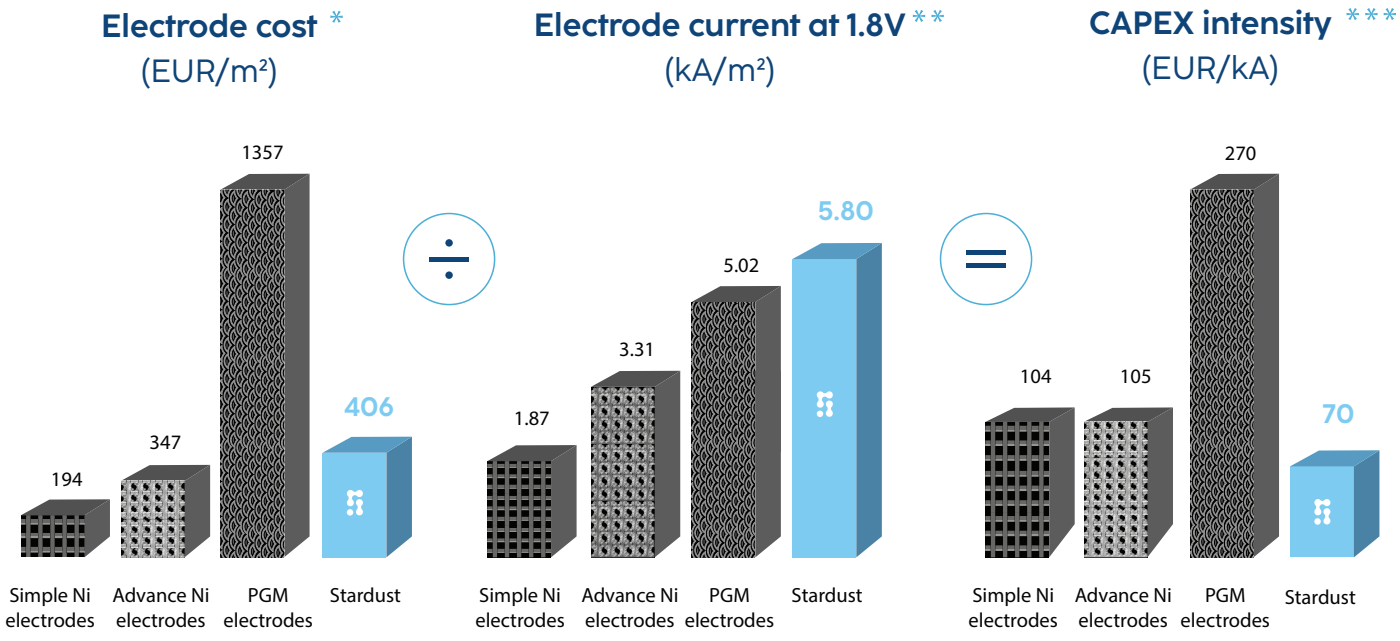
* IPCEI - Important Project of Common European Interest



Stardust electrode technology

Stargate's innovative catalyst material **- Stardust -** increases the current density of the electrodes used for green hydrogen production without additional investment.

Higher current densities allow to reduce stack size and CAPEX



* Based on commercial quotations for 4000 cm² electrodes

** Electrode current is directly proportional to H_2 production. Measured at 5 barg, 80°C, 30% KOH, Zirfon diaphragm, Simple Ni as cathode. 1.8 V/cell = 47.9 kWh/kg H_2.

*** How much investment is needed at fixed H_2 production rate



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