
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 for reducing carbon emissions in hard-to-abate sectors such as steelmaking, fertiliser and chemical industries.

Stargate’s breakthrough ceramic catalysts will increase the efficiency of the electrolysis process. Our electrolysers reduce the cost of green hydrogen thanks to efficiency at low capital cost.

Our electrode technology received positive test results from the German institute Fraunhofer, and our stacks successfully completed performance testing at ZSW.

Join our growing list of partners and embark on the journey of building the industry of tomorrow with Stargate Hydrogen.”

stargate hydrogen

Marko Virkebau
CEO of Stargate Hydrogen

Stargates Hydrogen's product line

gateway
SERIES

Containerised turn-key hydrogen production systems
for project developers

stellar
SERIES

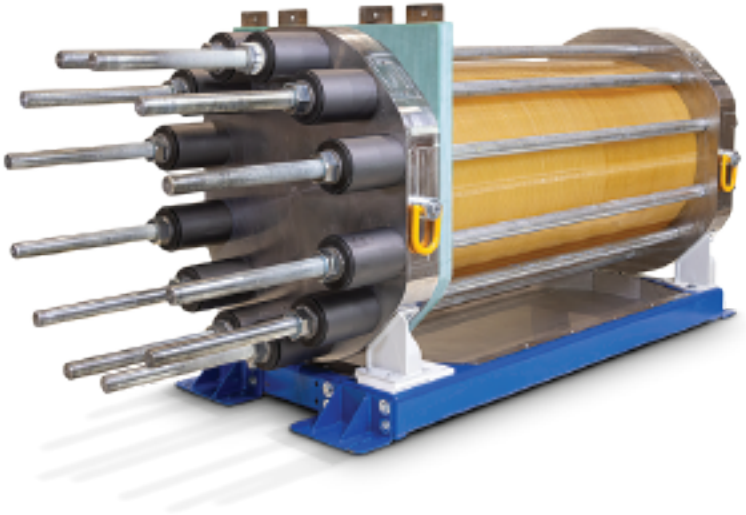
Next generation pressurised alkaline stacks
for system integrators

Next generation pressurised alkaline stacks for system integrators.

stellar
SERIES

The Stellar series is **manufactured in the European Union** and is offered in **different sizes.**

- Patent-pending design
- Max output 100 Nm^3/h
- Pressurised operation up to 32 bar
- Fits into an ISO container (2.3m width)
- Integration support



Tested by ZSW

Thomas Ottitsch, Manager of the Electrolysis test field (ElyLab) at ZSW commented: "It was a pleasure working together with Stargate Hydrogen's team to test their alkaline electrolyser stack technology at our test facility „ElyLab" in Stuttgart. Our independence and scientific approach ensures that the results obtained in these tests can be compared to other tests with high confidence. We measured the average cell voltage in the stack to be lower than 1.85V (at 0.5 A/cm^2, 15 barg, 70°C), corresponding to a stack-level efficiency of 80% (HHV)."

Performance guarantee

Full Integration support

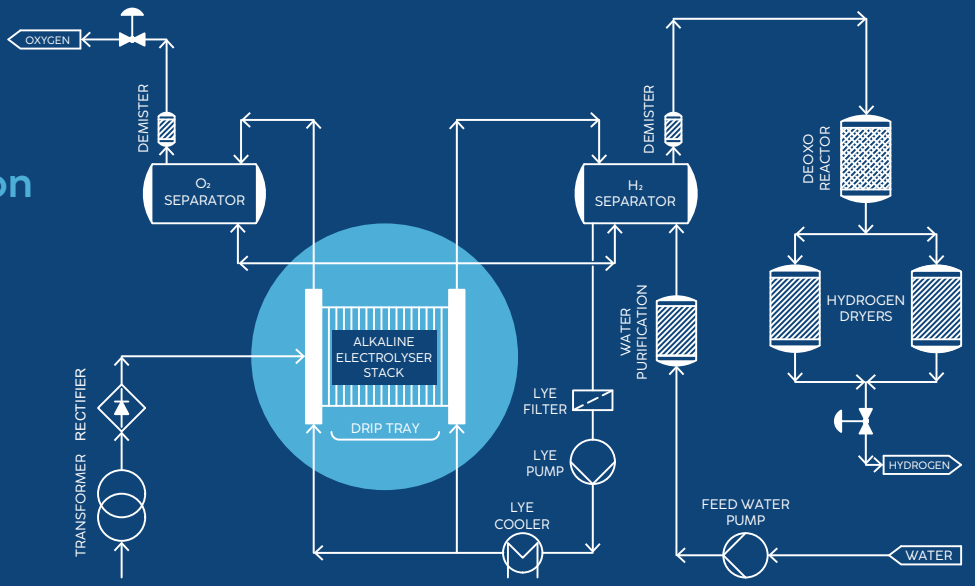
Fast delivery less than 6 months

Up to 100 Nm^3/h

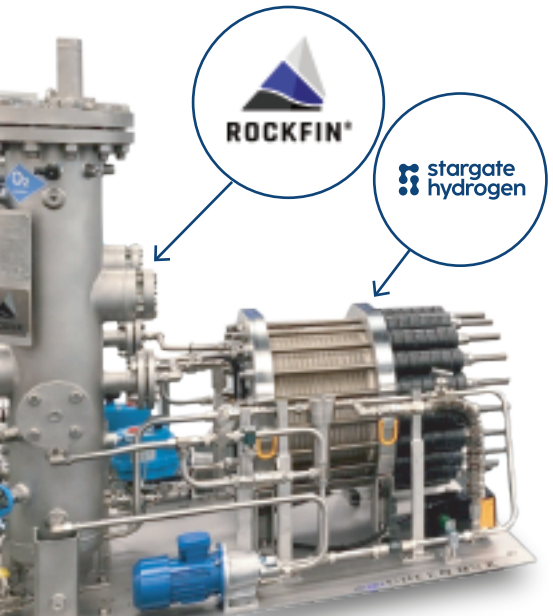
High Efficiency

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

Biga H_2

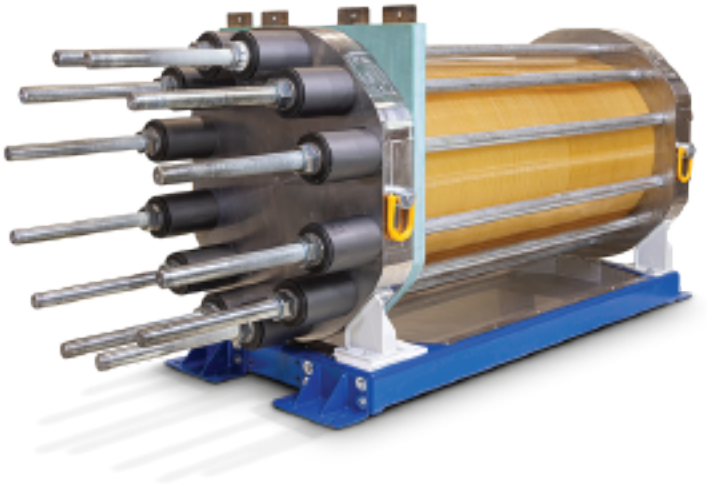
BGR TECH

NextHeat

Pressurised alkaline stacks

for system integrators

stellar
SERIES



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 [%]*	55%
Stack efficiency (HHV) [%]	77.2%
Stack efficiency (LHV) [%]	65.2%

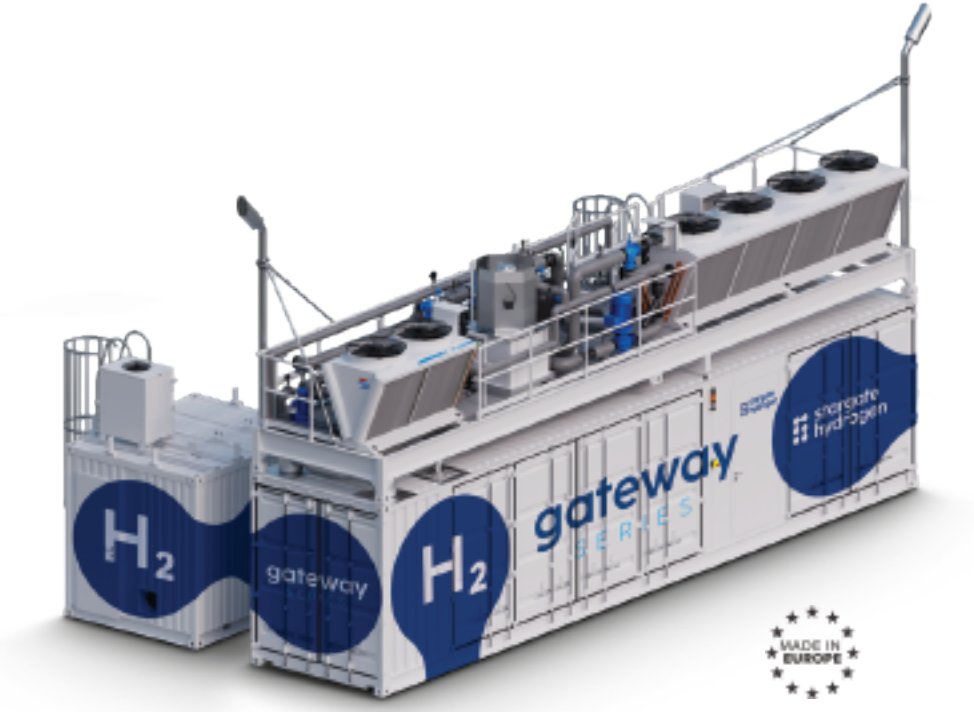
* Lower minimum load point on request.

Containerised turn-key alkaline hydrogen production systems

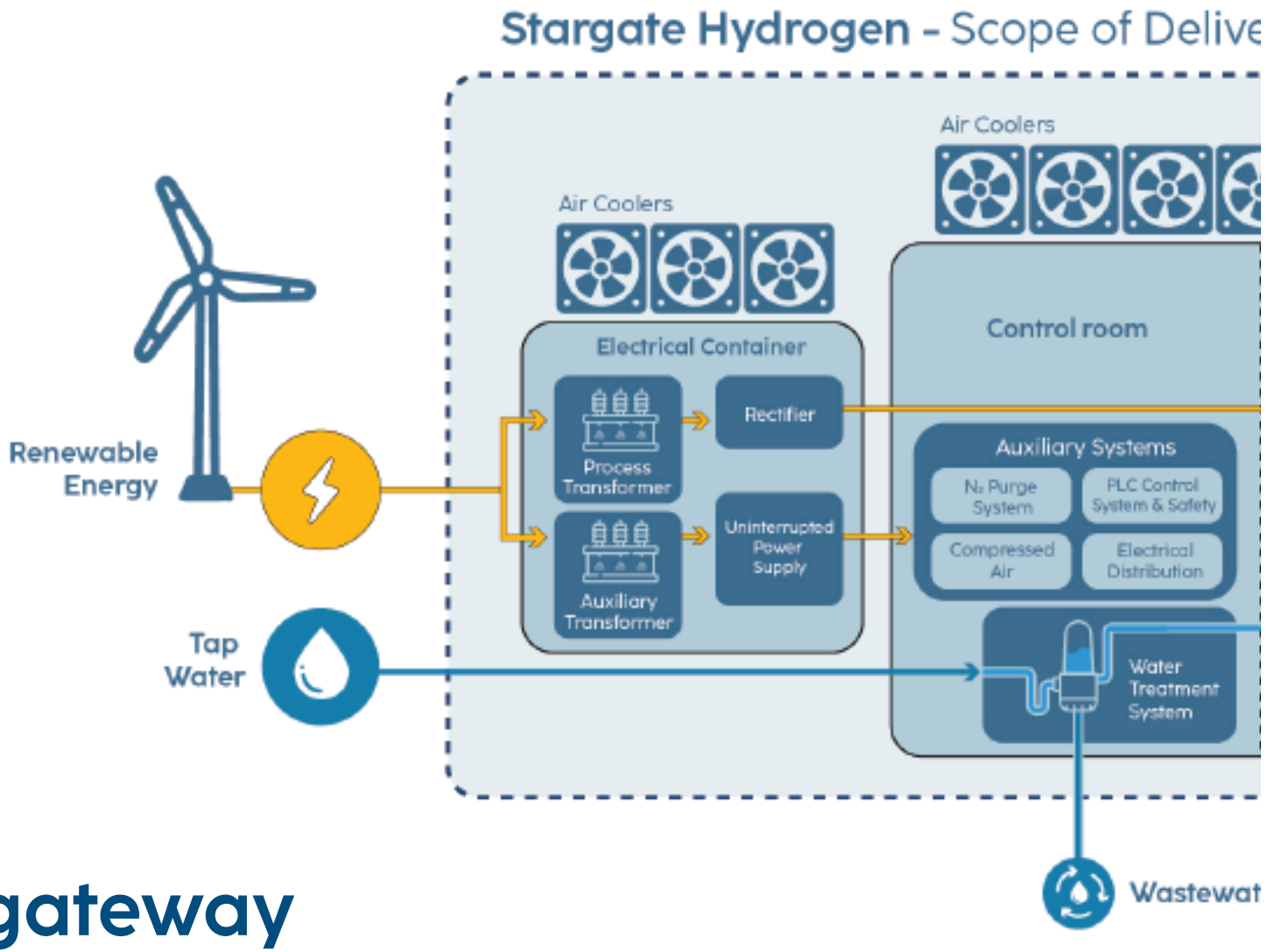
Each 40 ft container has an input power of up to 1 MW and an output of 200 Nm^3/h, pressurised to 30 bar as output. The systems can be ordered with a 12-month lead time and come with an industry-leading performance guarantee. The electrolysers produce high purity hydrogen that is suitable for a wide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



Hydrogen production system diagram



gateway
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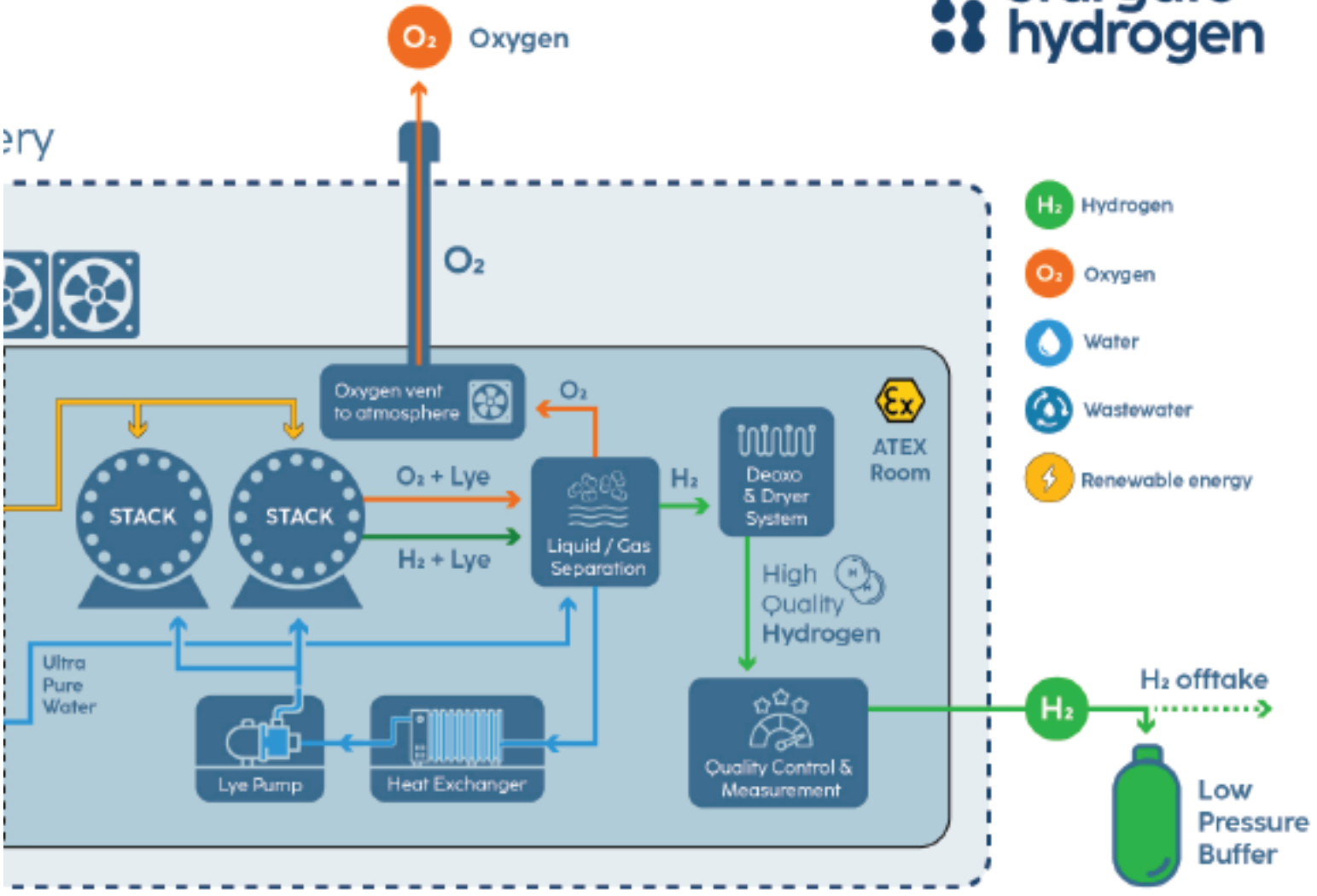
stargate hydrogen



er

Turn-key alkaline electrolysis system

for project developers

gateway
SERIES

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

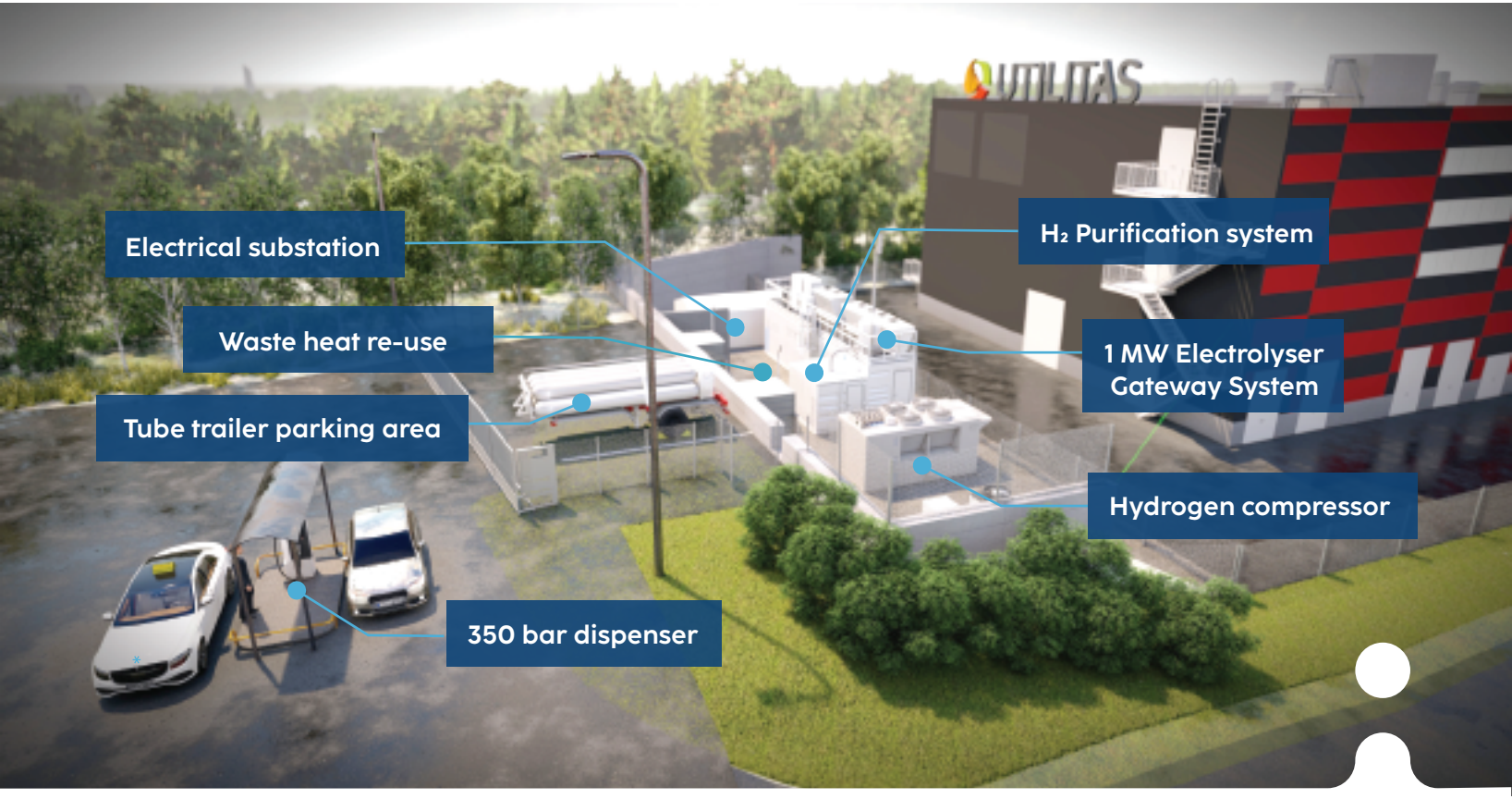
* Target purity achievable with optional purification system

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

Full value chain demonstration

of green hydrogen production

The first Gateway 200 electrolyser will operate in Tallinn, at Utilitas plant where there will be two hydrogen refueling stations for vehicles and a waste heat recovery system for the district heating network.



gateway SERIES

UTILITAS

stargate hydrogen

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

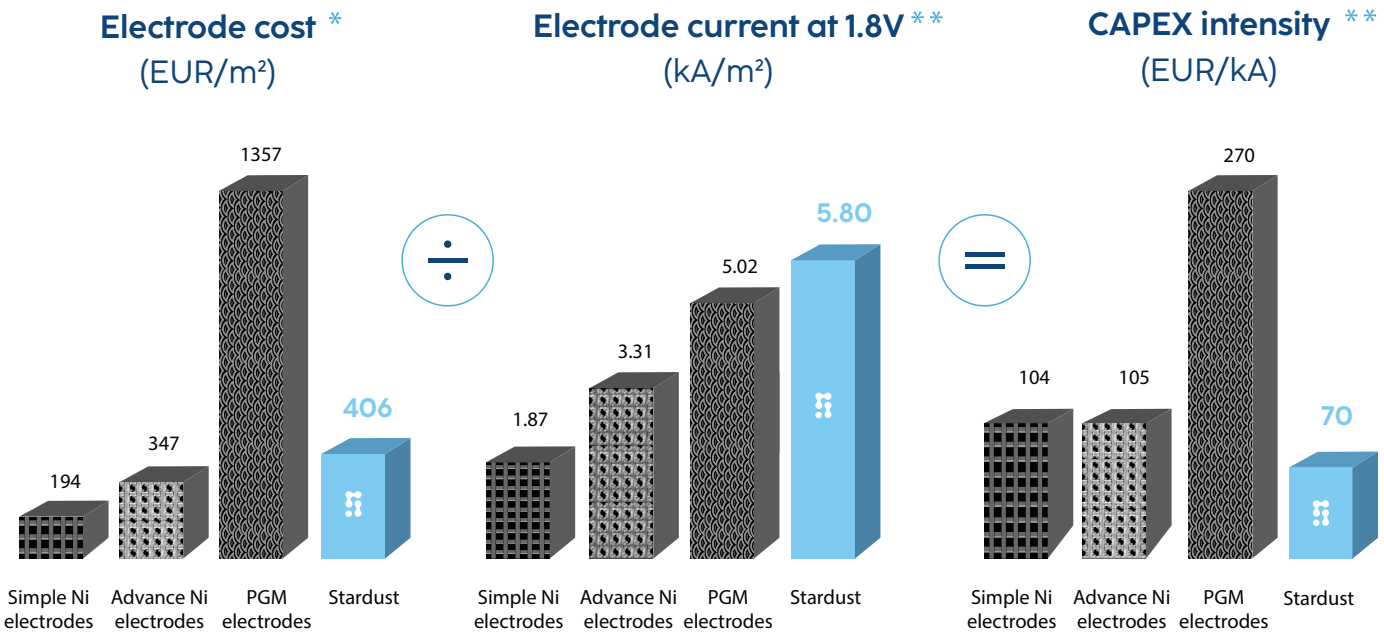
Stargate IPCEI

Stargate´s patent portfolio covers materials, stacks and electrolysis systems.

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

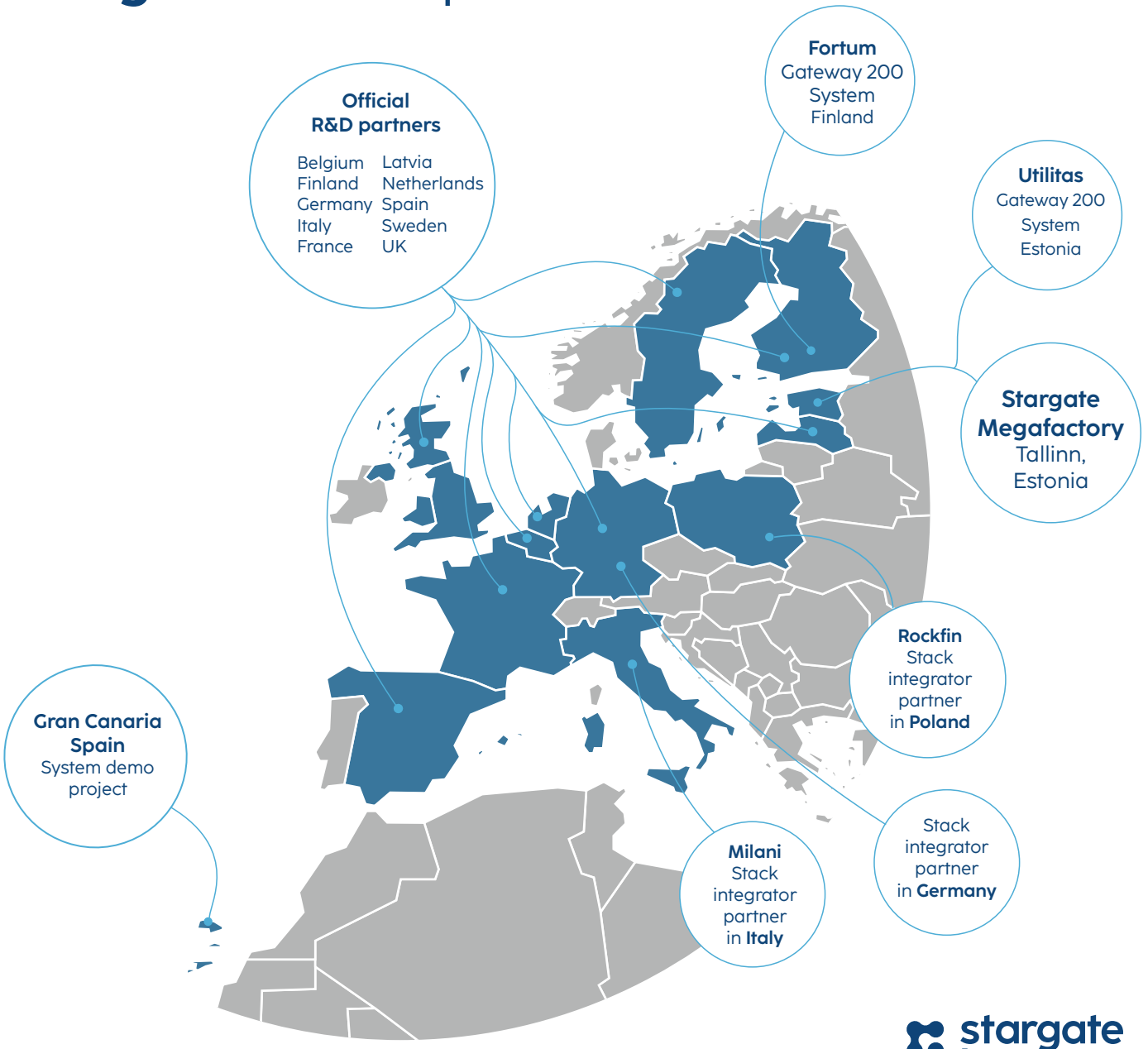


* Based on commercial quotations for 4000 cm² electrodes

** 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

Stargate in Europe



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Moving to the **megafactory!**

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