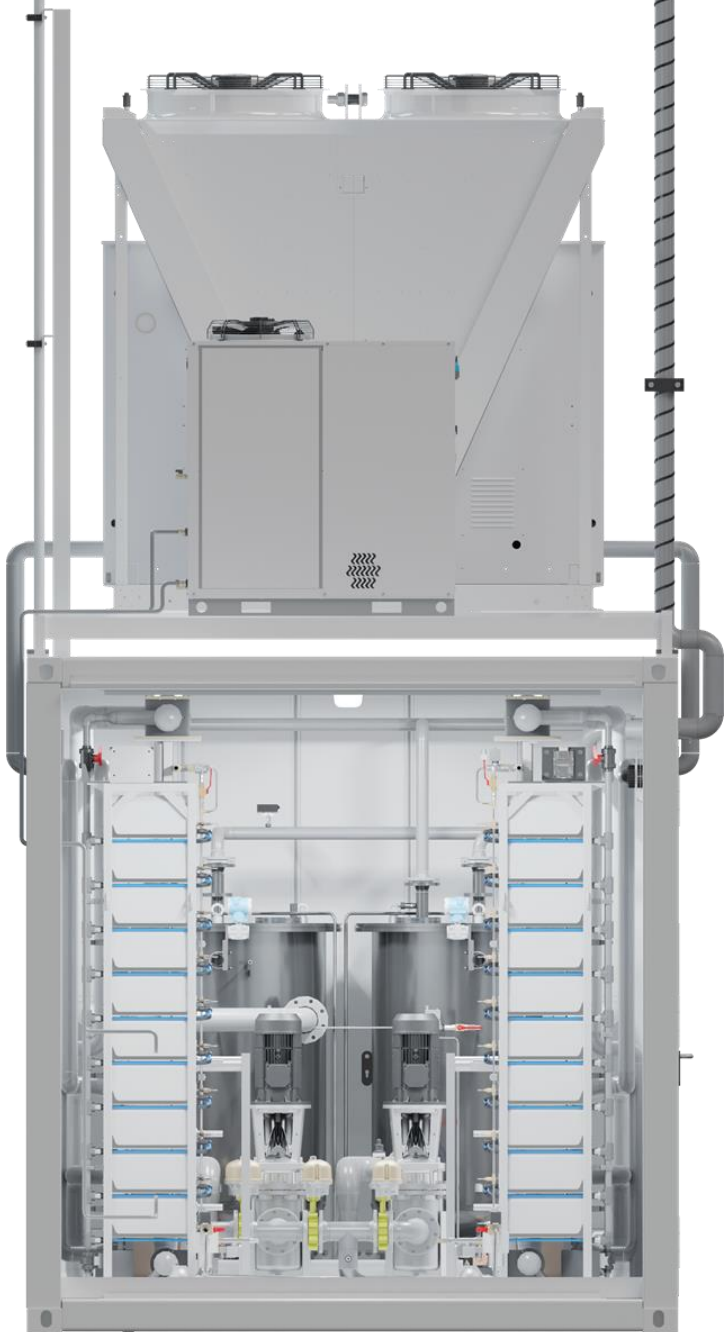
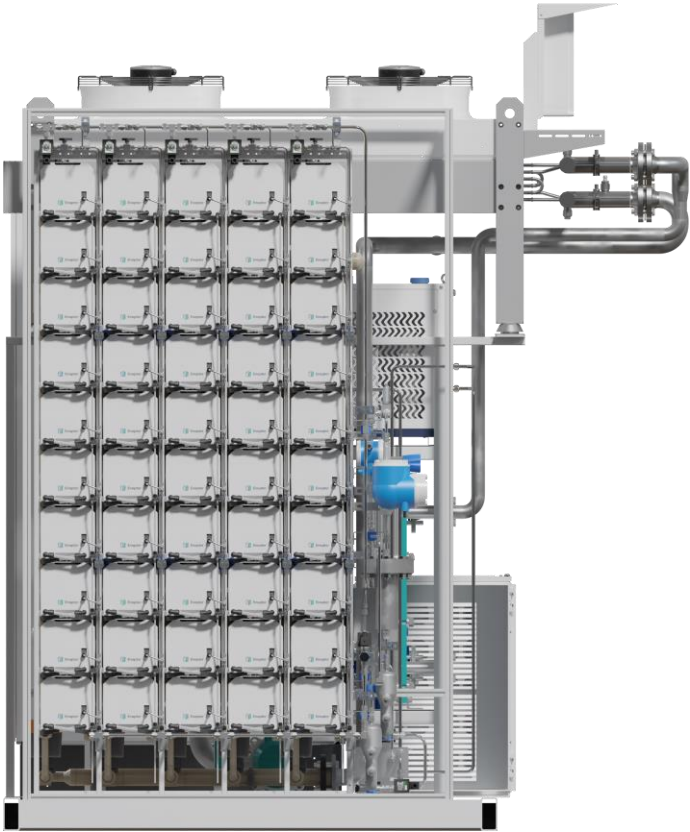
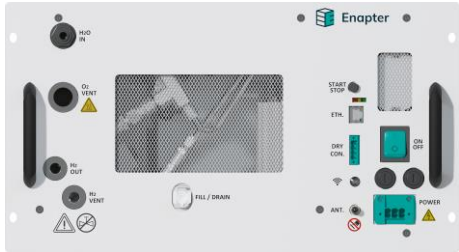


AEM Electrolysers

Efficient, Scalable, Iridium-free



Enapter



Our company

Enapter at a glance

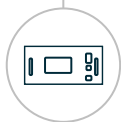


Started in 2017 in Italy

Builds on technology with a **>15-year track record**



Proprietary technology and commercial leader in AEM electrolysis



More than **15,000 AEM electrolyser** cores ordered by 375+ customers across 50+ countries



Focus towards in **Industrialised high-volume production**

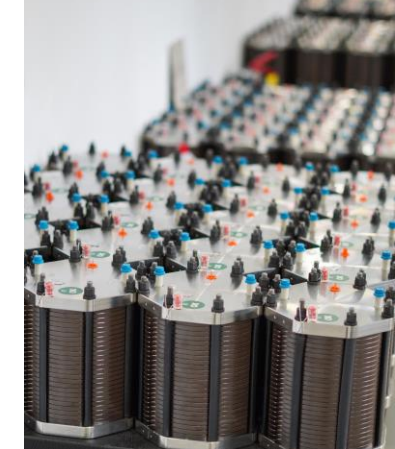
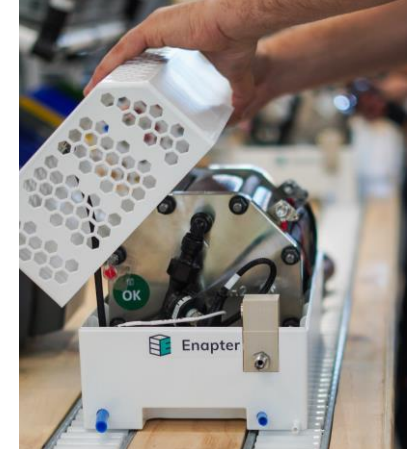


>220 people and **EUR 31 m revenue** in 2023



Our company

Enapter at a glance



Hardware, electronics and software



Vertically integrated from Chemistry to Electrolysers



HQ, Manufacturing and R&D in **Italy**



System engineering and R&D in **Germany**



Global network of integration partners



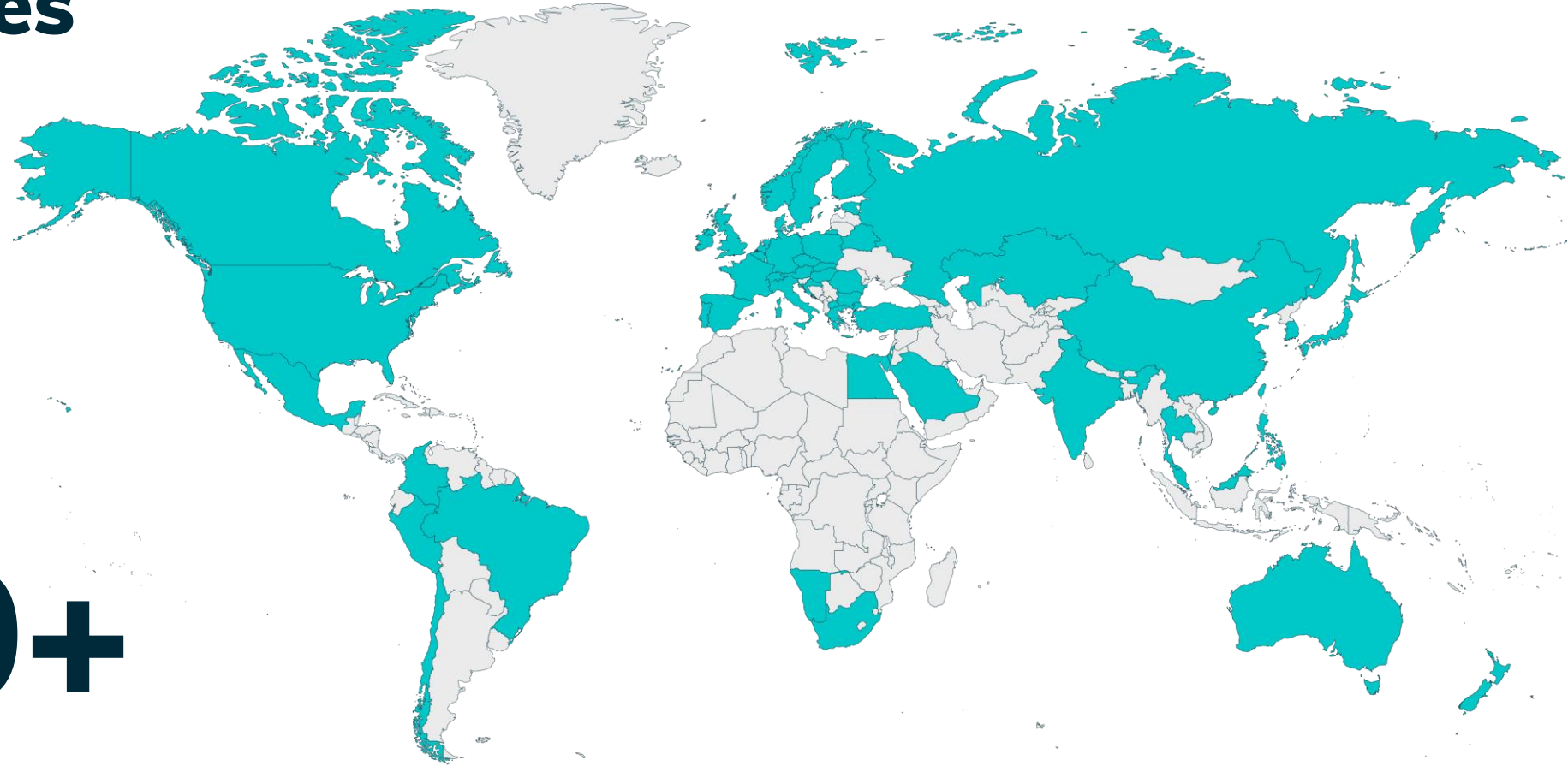
Enapter Pisa

100% powered by renewable energies



Global fleet

375+ customers
50+ countries



5,000+
AEM Electrolysers

Global fleet

Proven technology

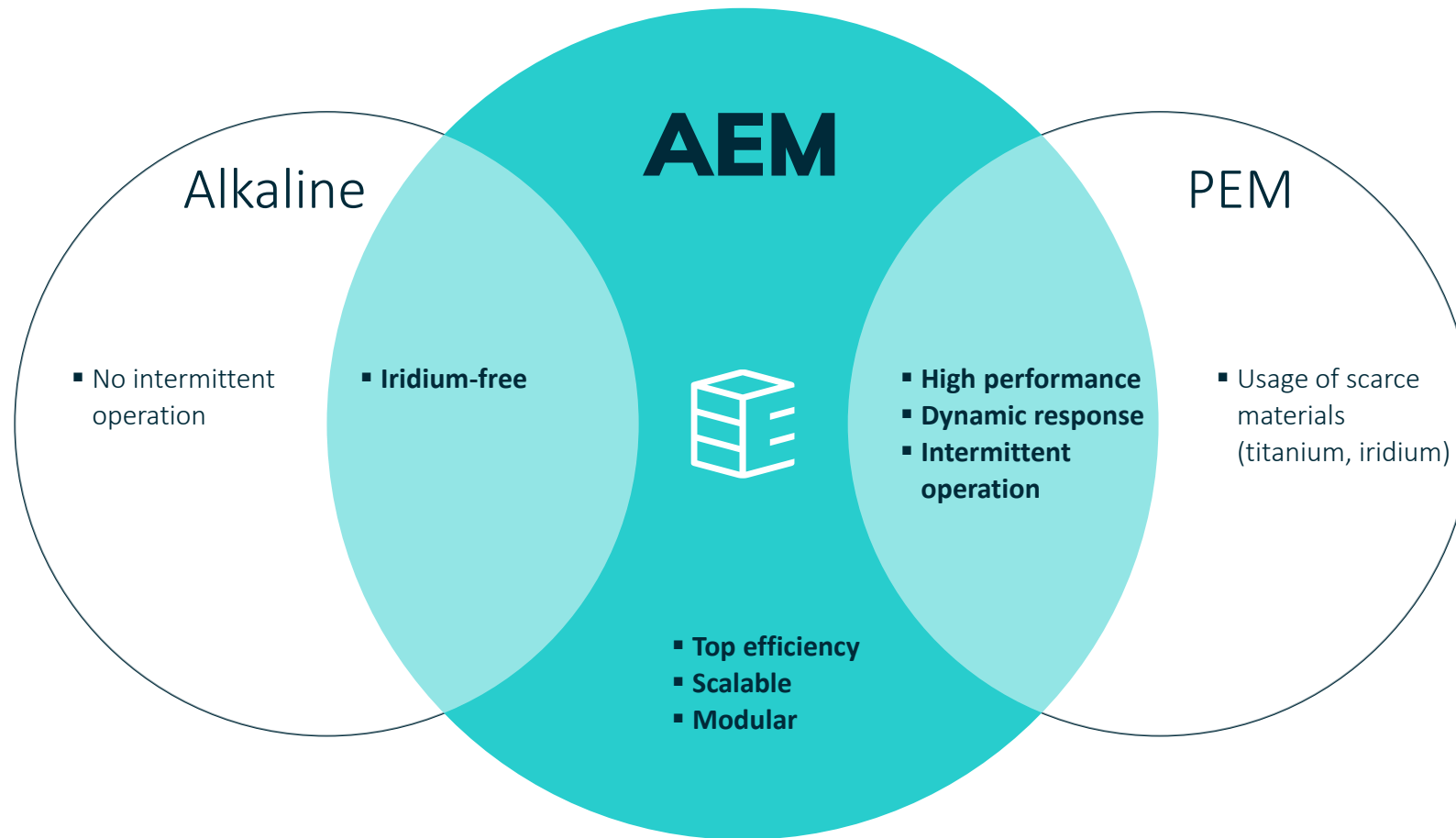


1,500,000

Total operational hours

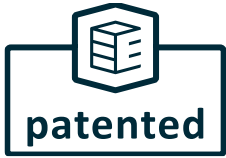


Patented AEM technology

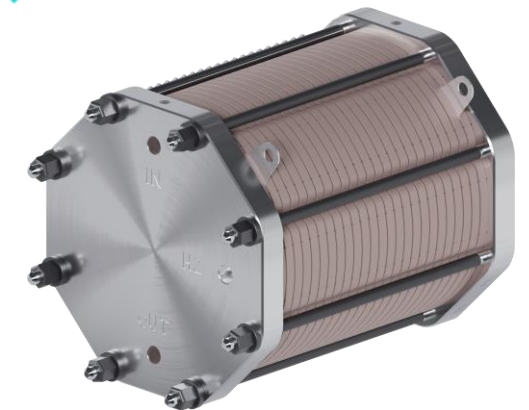
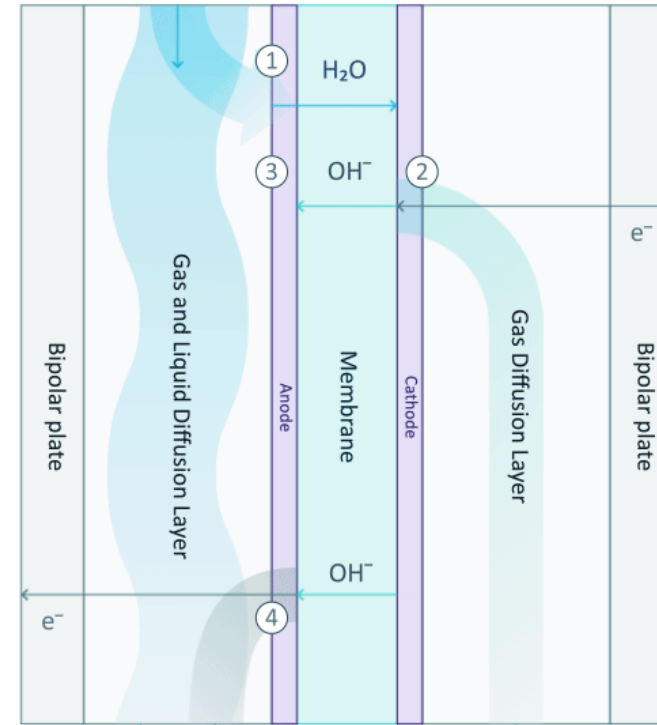


The strengths of AEM

Patented AEM technology



- Combining the best of Alkaline and PEM technology
- Modular and scalable
- Iridium-free
- Dynamic response to intermittent renewables
- Simple and scalable BoP
- Top efficiency
- Leading H₂ pressure and purity
- Strong patents granted



Our secret sauce

AEM's competitive advantage



Enapter's AEM technology avoids the use of iridium-based catalysts. This enables Enapter to achieve

- greater **price stability**
- lower **supply chain** vulnerability,
- without **performance** restrictions.

Iridium-free

Our unique selling proposition.

At scale, standardised modules outcompete made-to-order plants

Modular systems scale faster



Computing in the past



Multi-core solution today



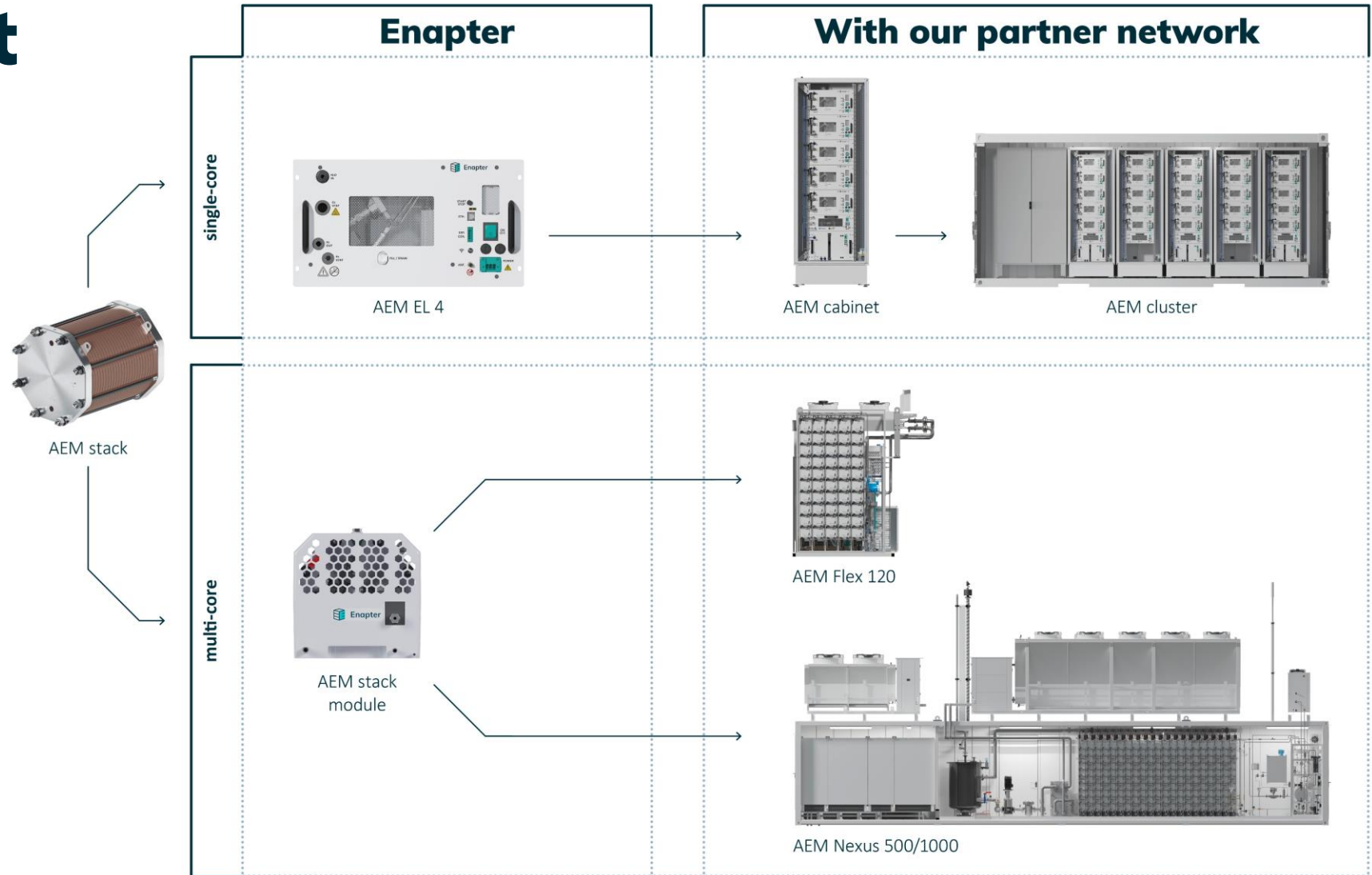
Electrolyser in the past



Multi-core solution today

Enapter's AEM scalability

Our product platform



Enapter Electrolysers

Single-core

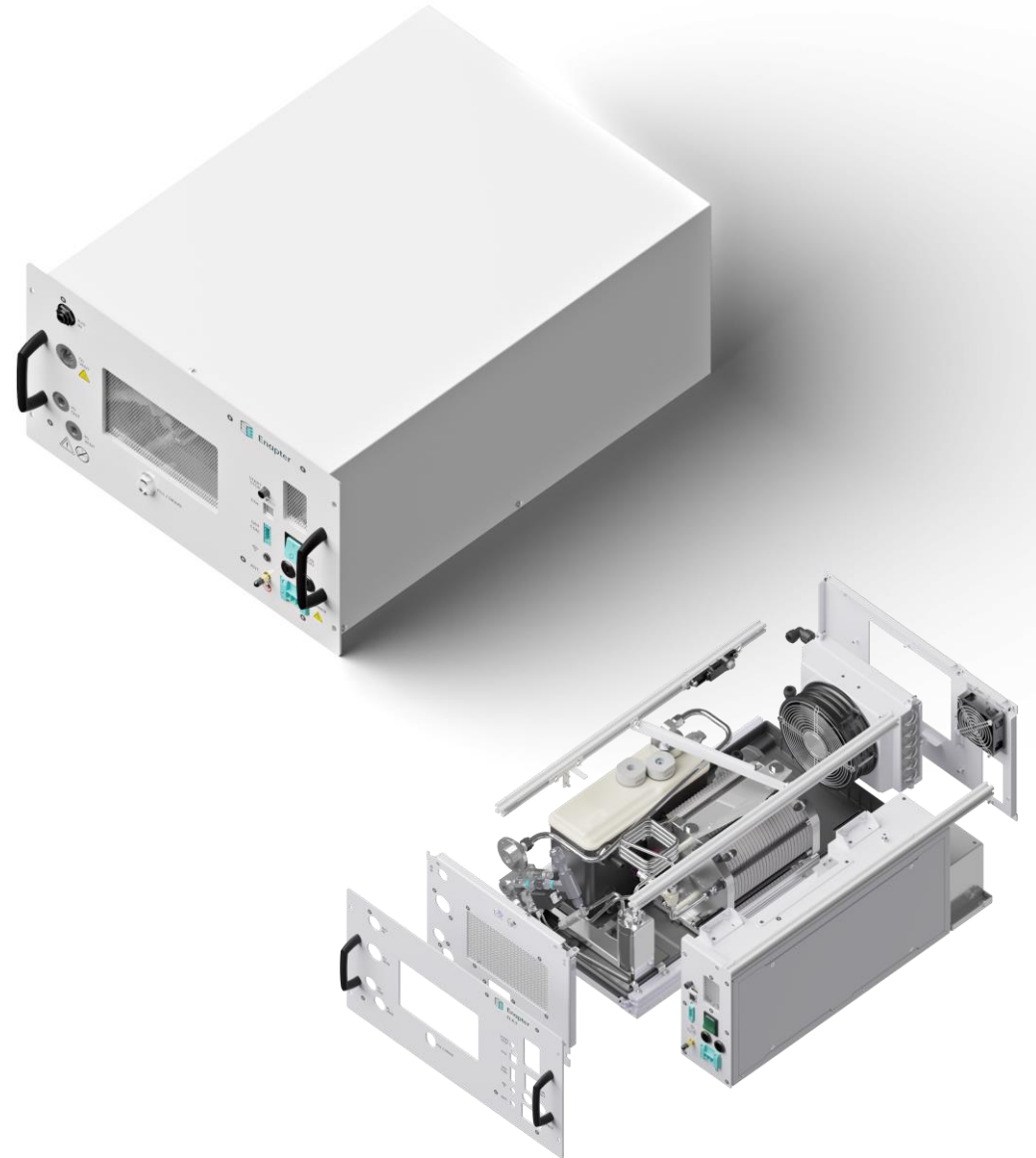


- Hydrogen production: 500 NL/hr or 0.5 Nm³/hr
- Power consumption: 2.4 kW
- Efficiency: 4.8 kWh/Nm³
- Hydrogen Purity: 99.9% or 99.999% (with optional dryer)
- Output pressure: 8 or 35 barg
- Modular and scalable

Datasheets:

- [EL 4 AC \(Air cooled / Liquid cooled\)](#)
- [EL 4 DC \(Air cooled / Liquid cooled\)](#)

AEM EL 4



Enapter Devices

Water Tank

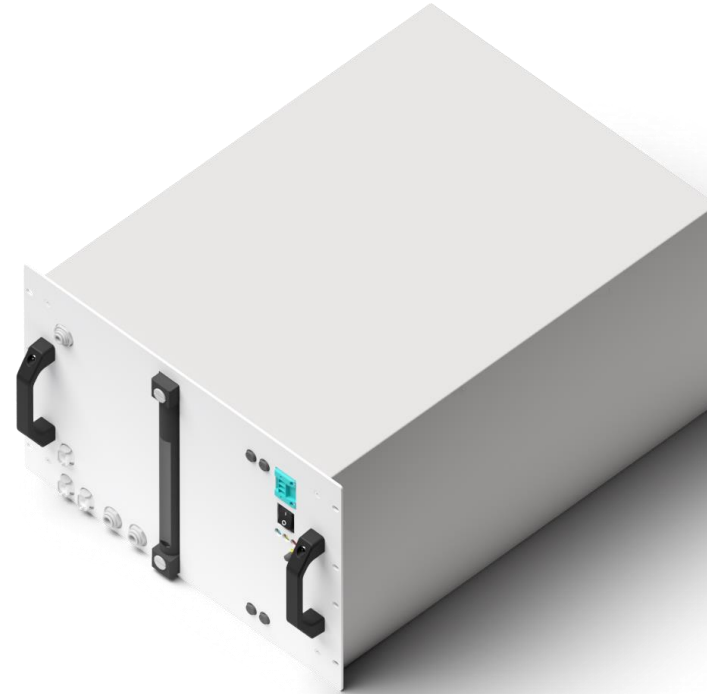


- Capacity: 38.5 L
- Output pressure: Up to 2.75 barg
- Operative power consumption: 35 W
- Power supply: AC 110 – 240 V, 50/60 Hz
- Ambient operative temperature range: 5 – 45 °C
- Control and monitoring: Fully automatic with Enapter's EMS
- Maximum water input conductivity: <math>< 5\mu\text{S}/\text{cm}</math> at 25 °C (at 77 °F)

Datasheet:

[Water Tank WT 2.1](#)

WT 2.1



Enapter Devices

Dryer



- Hydrogen output purity: > 99.999% in molar fraction
- Output pressure: Up to 35 barg
- Hydrogen drying rate: 2,500 NL/h
- Input pressure: 35 barg
- Average dewpoint and impurities: < -70 °C (-94 °F), compliant with ISO14687 (H₂O < 5 ppm, O₂ < 5 ppm)
- Operative power consumption: 200 W

Datasheet:

[Dryer DRY 2.1](#)

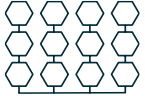


DRY 2.1

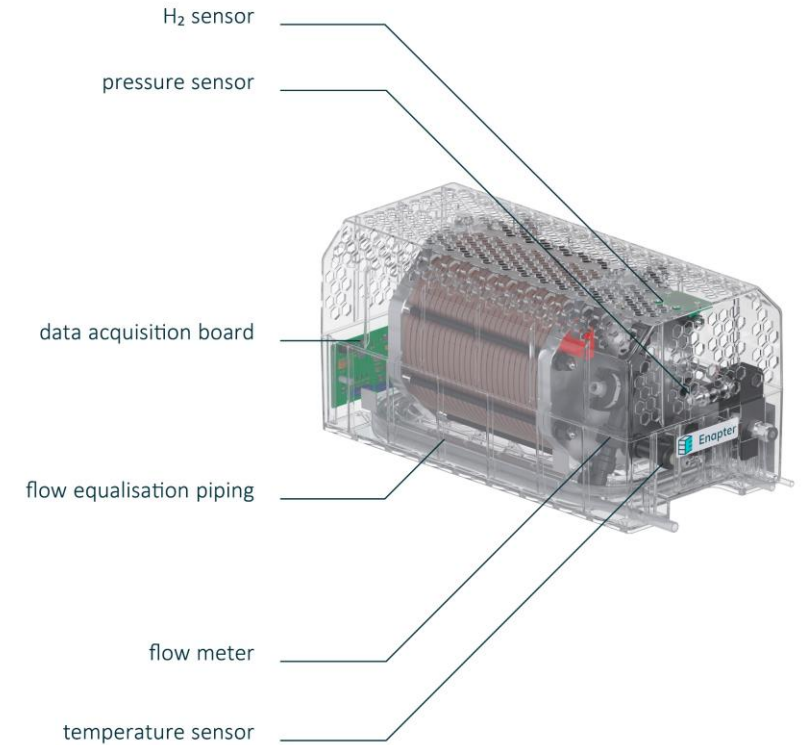
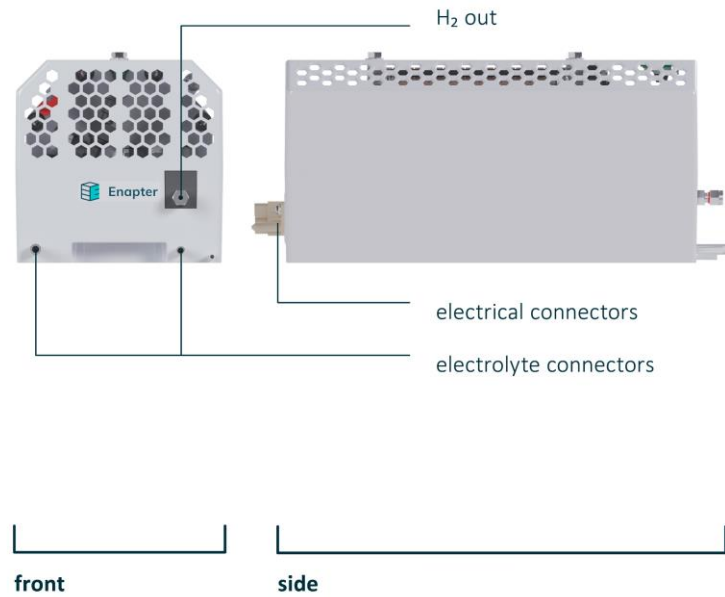


Enapter Electrolysers

Multi-core



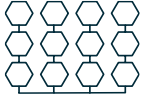
- Modular and easily replaceable
- H₂ & H₂O on the front
- Electricity and data on the back



Stack Module

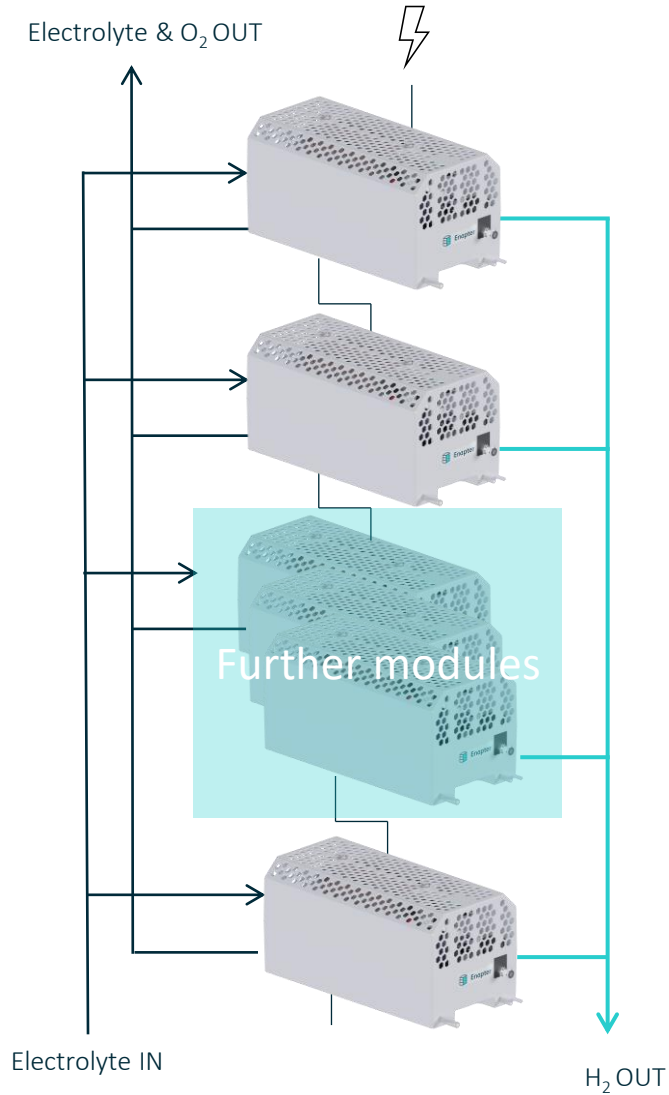
Enapter Electrolysers

Multi-core



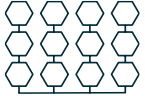
- 10 AEM stack modules connected in series
- Powered by a dedicated PSU
- Each String is controlled individually
- Produces 5 Nm³/h

String

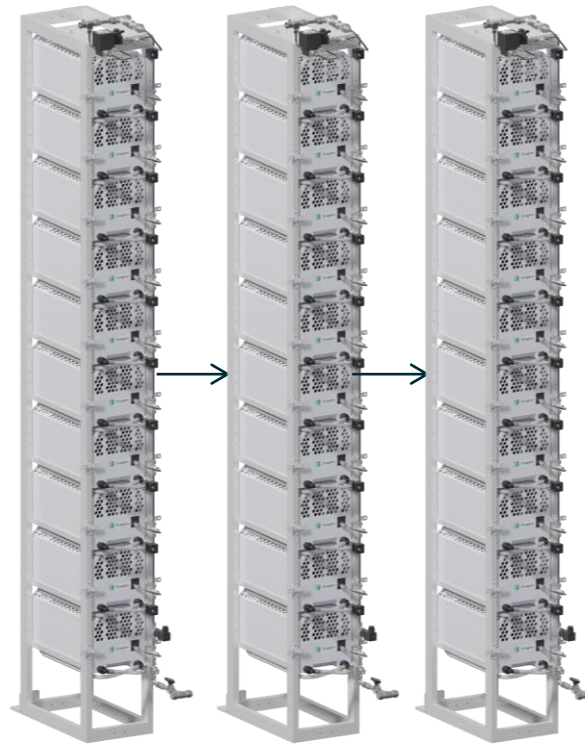


Enapter Electrolysers

Multi-core



- Each string has a dedicated PSU
- Group of strings share the BoP:
 - Electrolyte tank
 - Electrolyte cooling
 - Electrolyte pumps



Enapter Electrolysers



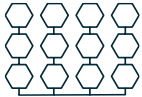
AEM NEXUS 1000

- 42 × AEM Strings (multi-core)
- 453 kg/24 h of green hydrogen



Enapter Electrolysers

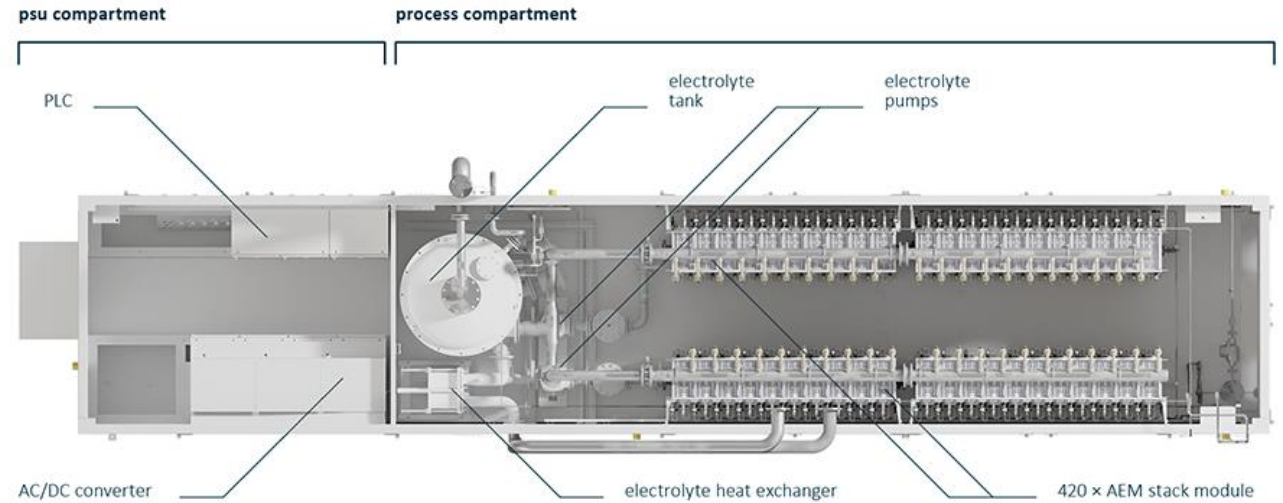
Multi-core



- Hydrogen production: 210 Nm³/h or 453 kg/d
- Power consumption: 1 MW
- System efficiency: **4.8 kWh/Nm³**
- Hydrogen purity: 99.95% or 99.999%
- Production flexibility: **3-100%**
- Swift reactions: <1 sec load variation
- Output pressure: Up to 35 barg

Datasheet:

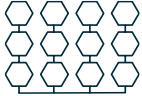
[AEM Nexus](#)



AEM NEXUS

Enapter Electrolysers

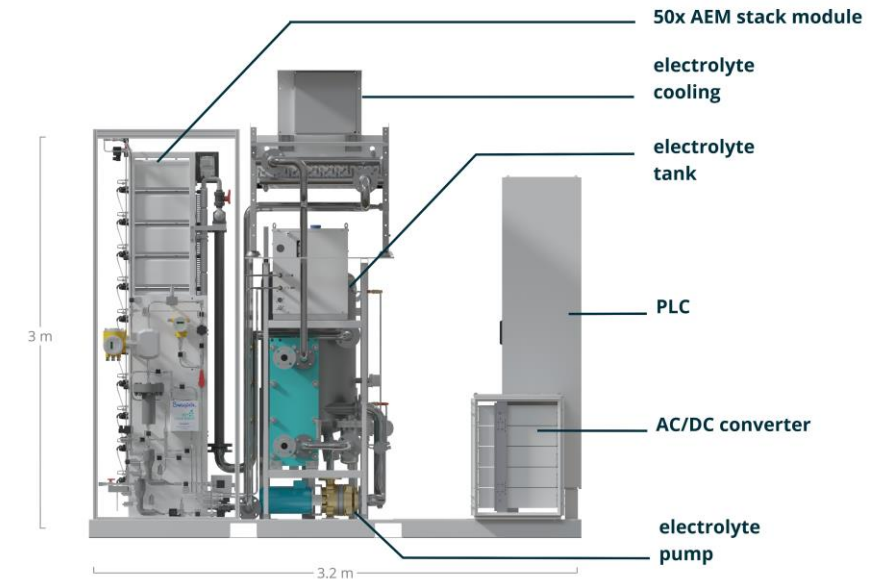
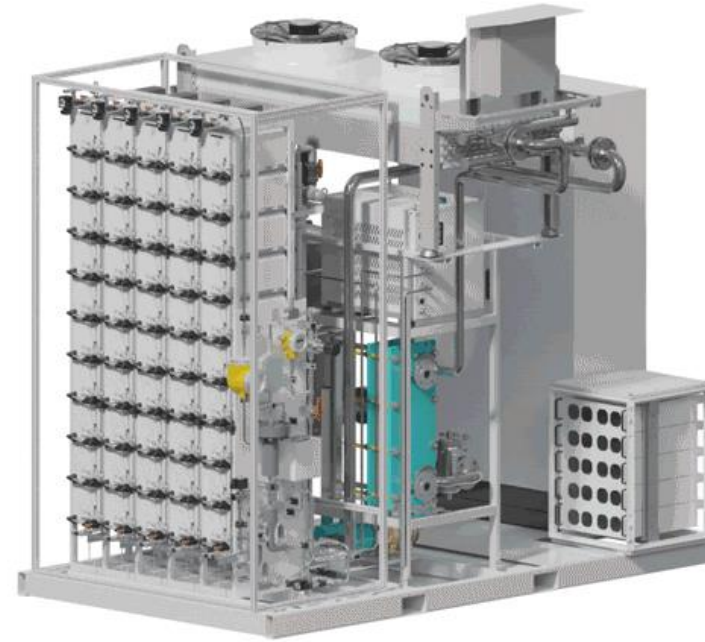
Multi-core



- Hydrogen production: 25 Nm³/h or 53.9 kg/d
- Power consumption: 120 kW
- System efficiency: **4.8 kWh/Nm³**
- Hydrogen purity: 99.95% or 99.999%
- Production flexibility: **12-100%**
- Swift reactions: <1 sec load variation
- Smart and fully automatic operation

Datasheet:

[AEM Flex 120](#)



AEM FLEX 120

Enapter's AEM multi-core electrolyzers

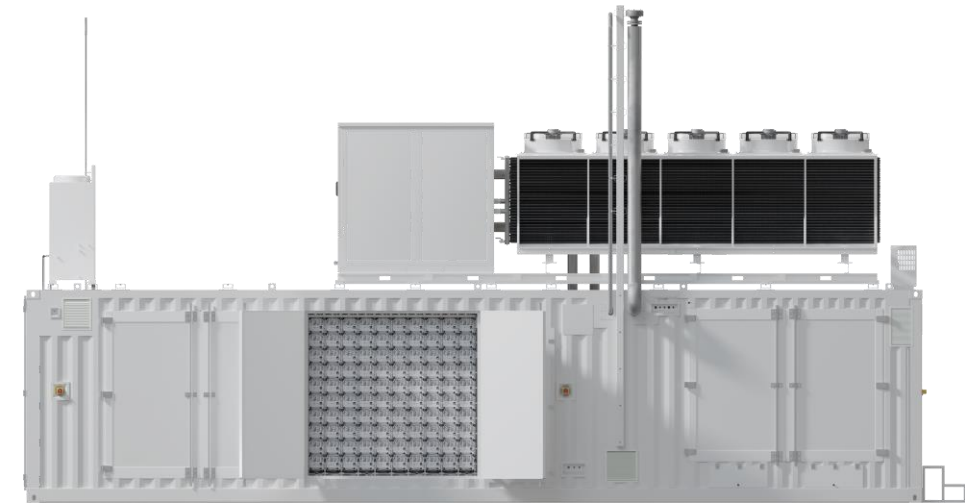
Merits of the multi-core solutions

- High efficiency
- Built-in redundancy and hot-swapping capability
- Rapid reaction to intermittent renewable energy supply
- Cheaper than similarly sized PEM electrolyzers

50 to 420 stacks



AEM Flex 120
50 cores | 120 kW



AEM Nexus 1000
420 cores | 1 MW

Enabling the AEM Electrolyser

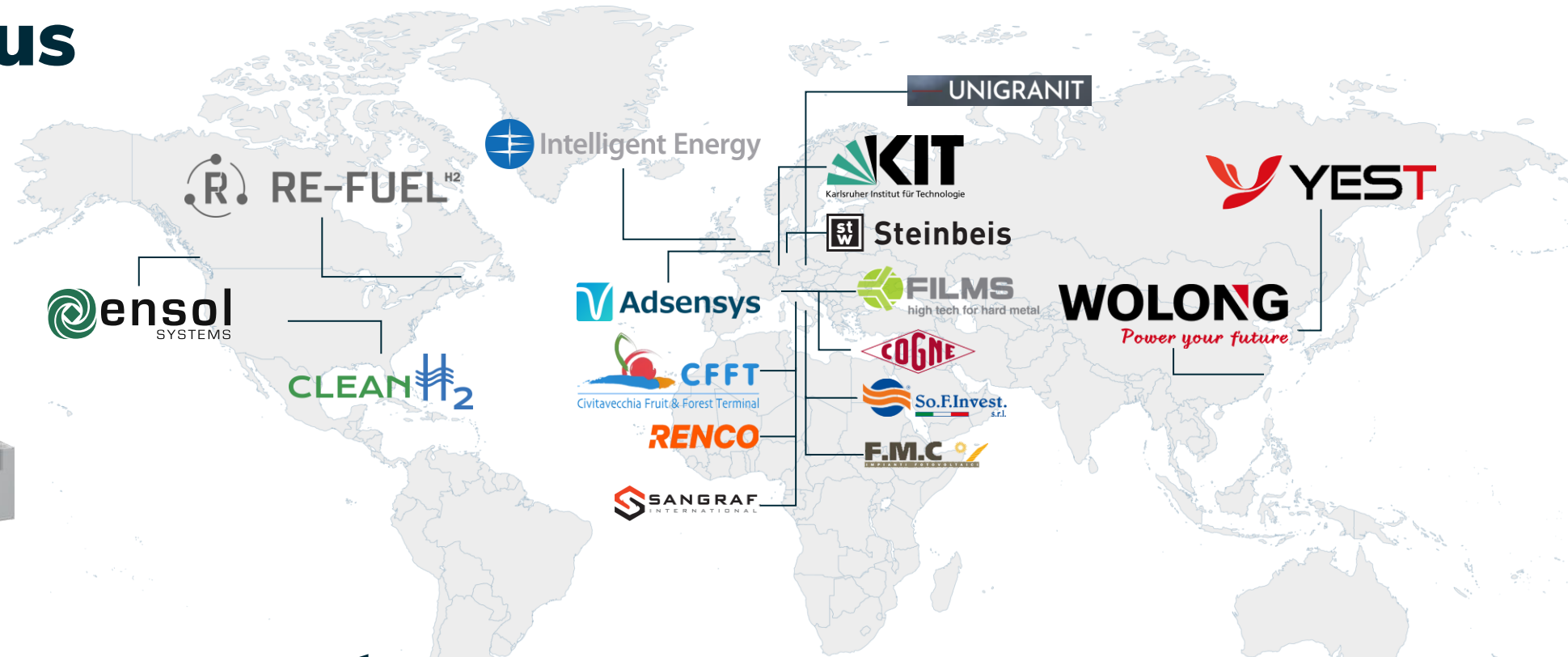
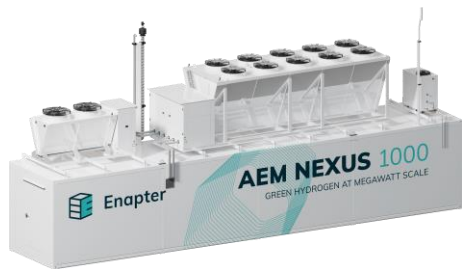
Energy Monitoring and Management

- Remote Monitoring
- Preventive Maintenance
- Integration with Renewable Power



Strong market positioning

AEM Nexus



MW systems

Confirmed multi-core projects

Power-to-X | Starfire Energy, USA



Ammonia production

- 21 × Electrolyser AEM EL 2.1 (single-core)
- 21 kg/24 h of green hydrogen



Electricity storage | Wilo, Germany



H2POWERPLANT for backup energy & self-sufficiency

- 95 × Electrolyser AEM EL 2.1 (single-core)
- 95 kg/24 h of green hydrogen

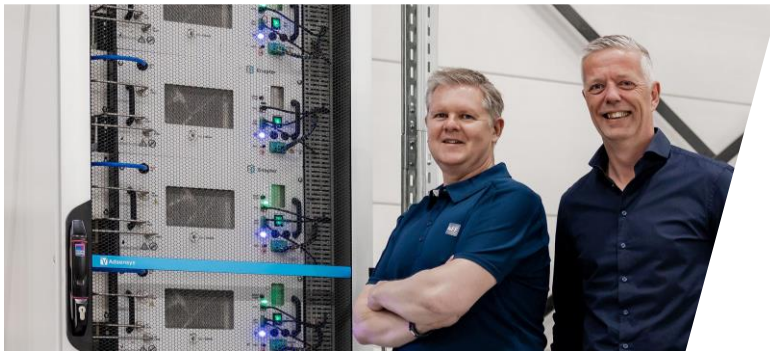


Industrial solution | Roto-Art, Netherlands



Replacing natural gas with green hydrogen for industrial ovens

- 7 × Electrolyser AEM EL 4.0 (single-core)
- 7 kg/24 h of green hydrogen



Industrial solution | Yanmar, Japan



Industrial H₂ pilots at Yanmar Clean Energy Site

- 14 × Electrolyser AEM EL 2.1 (single-core)
- 14 × Electrolyser AEM EL 4.0 (single-core)
- 28 kg/24 h of green hydrogen

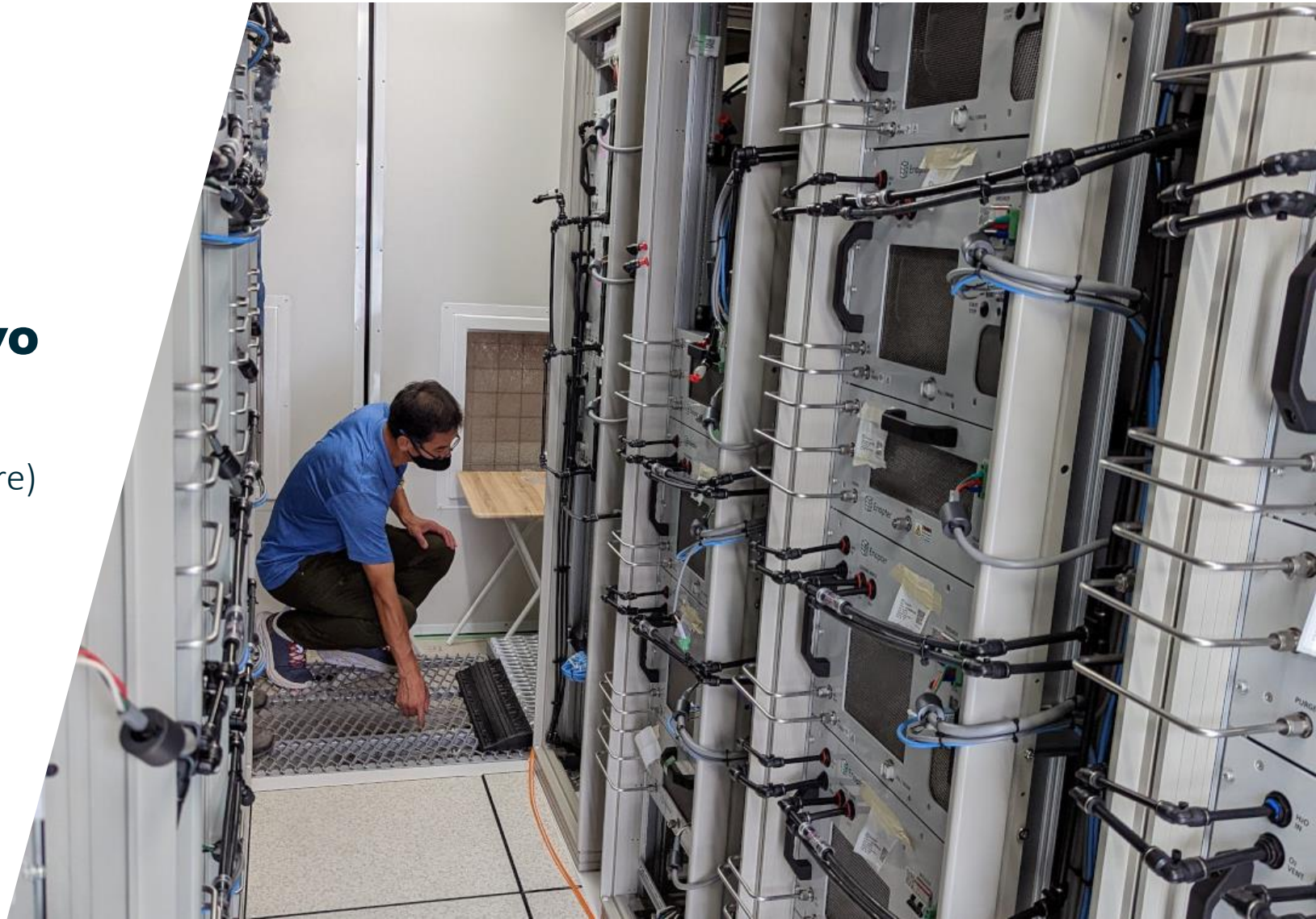


Mobility | Tokyo Gas, Japan



Commercial hydrogen refuelling station in Tokyo

- 30 × Electrolyser AEM EL 2.1 (single-core)
- 30 kg/24 h of green hydrogen



Mobility | ZeroAvia, UK



Mobile refuelling for hydrogen aircrafts

- 10 × Electrolyser AEM EL 2.1 (single-core)
- 10 kg/24 h of green hydrogen



Mobility | Baglietto, Italy



Green hydrogen production for the naval sector

- 10 × Electrolyser AEM EL 4.0 (single-core)
- 10 kg/24 h of green hydrogen



Electricity storage | Hylife Innovations, Netherlands



District-wide energy storage on a Dutch island

- 30 × Electrolyser AEM EL 2.1 (single-core)
- 30 kg/24 h of green hydrogen



Power-to-heat | DNVGL, Netherlands



Residential heating with hydrogen

- 8 × Electrolyser AEM EL 2.1 (single-core)
- 8 kg/24 h of green hydrogen



Research | Industrial Technology Research Institute,
Taiwan



Hydrogen R&D for Taiwan's renewable energy goals

- 20 × Electrolyser AEM EL 4 (single-core)
- 20 kg/24 h of green hydrogen



Smart.
Simple.
Scalable.



Enapter

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 youtube.com/enapter

www.enapter.com