



Aqualyzer™

Large-scale alkaline water electrolyzer system
for
producing hydrogen



Scan me!



Aqualyzer™

AsahiKASEI

Aqualyzer™

Global Solution Provider for Electrolyzer Systems

Capability and Experience electrolysis business

>45 years experience
supplying high reliability electrolyzer systems

Membrane supply
Aciplex™-F membranes are also supplied to Chlor-Alkali customers

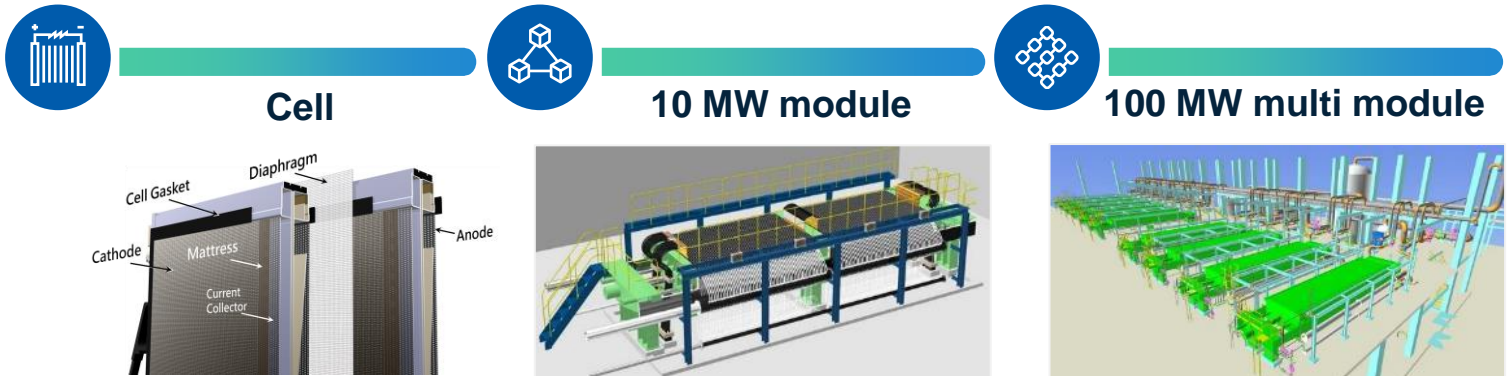
Worldwide
installations at 167 end user plants

>1GW of electrolyzer
with Chlor-Alkali business

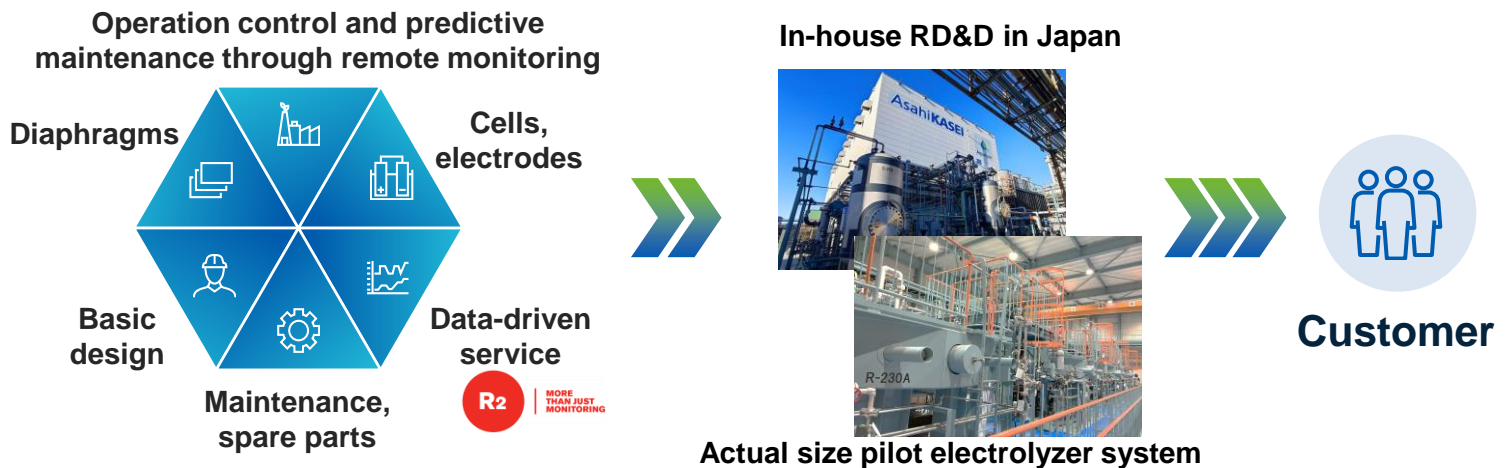


Acilyzer™ Chlor-Alkali Electrolyzer

Scalable module concept



Total Solution Provider



Asahi Kasei's Alkaline Water Electrolyzer System



2025

Commercialization



Large scale multi-module system development with partners

Asahi Kasei will develop a large-scale alkaline water electrolyzer system under the NEDO*1 /Green Innovation Fund*2.

Asahi Kasei is trying to develop several theme ;

- Technological development for scale-up and modularization of the alkaline water electrolyzer system
- Development of constituent technology for large alkaline water electrolyzers
- Feasibility study and technological demonstration of green chemical plants

Together with Gentari and JGC, demonstration in Malaysia using a 60 MW-scale alkaline water electrolysis plant to supply ≈8,000 t/y of hydrogen to chemical plant (2027–2030).

A pilot plant to demonstrate a multi module control system is under construction in Asahi Kasei's Kawasaki plant. It will be in operation by Spring 2024.



*1 New Energy and Industrial Technology Development Organization

*2 NEDO: Green Innovation Fund /Hydrogen Production through Water Electrolysis Using Power from Renewables /Large-scale Alkaline Water Electrolysis System Development and Green Chemical Plant Demonstration



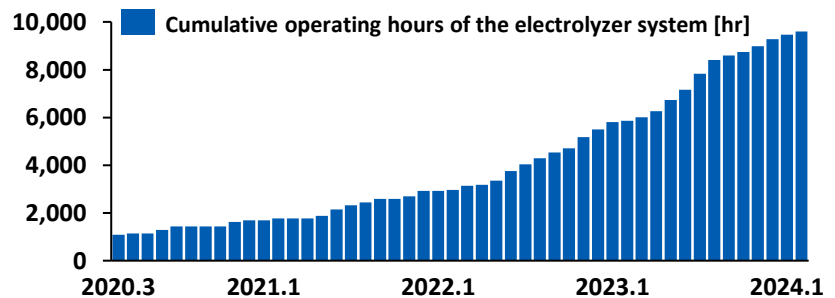
Experience of operating large AWE

Fukushima Hydrogen Energy Research Field (FH2R) in Fukushima, Japan, constructed with a renewable energy hydrogen production unit as a technology development project*3 by NEDO.

Asahi Kasei Group built the 10 MW-class large scale alkaline water electrolyzer system and started hydrogen production demonstration using renewable energy from March 2020.



*3 NEDO: Hydrogen social construction technical development project /Hydrogen energy system technical development /Technical development concerning business model construction and the large-scale actual proof of a re-energy use hydrogen system



Demonstration with European partners in Germany

Asahi Kasei Europe participated in the European multi-partner project ALIGN-CCUS, which started operation our electrolyzer from 2020.

ALIGN-CCUS took over the project into TAKE-OFF.

Hydrogen from Asahi Kasei's electrolyzer is combined with CO₂ captured from power plants to synthesize Sustainable Aviation Fuel (SAF).



2020

Aqualyzer™

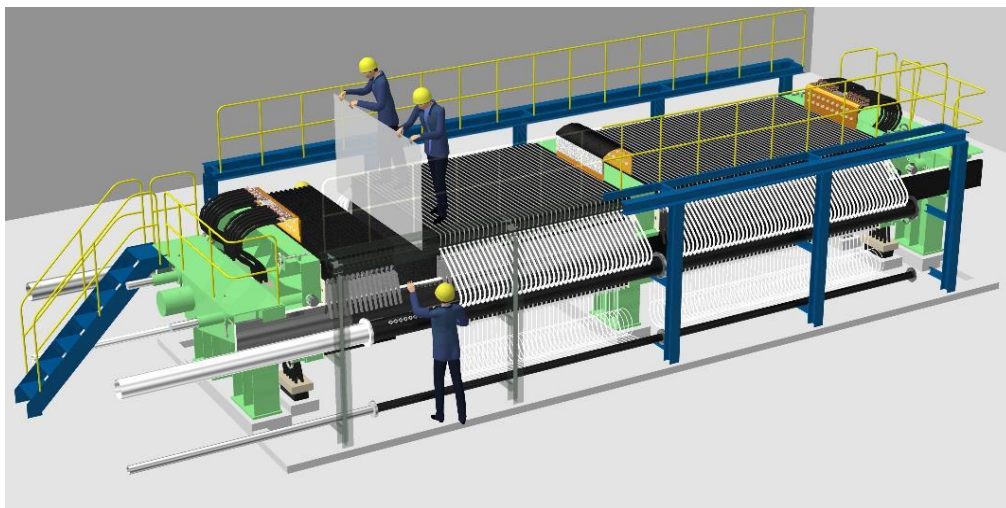
Features

Specifications of Alkaline Water Electrolyzer System (under developing)

	Aqualyzer 10	Aqualyzer 100
H ₂ production rate	2,000Nm ³ /h	20,000Nm ³ /h
Number of modules	1	10
H ₂ production ratio	15-100%	15-100%
Power Consumption	4.4 kWh/Nm ³ (DC)	4.4 kWh/Nm ³ (DC)
H ₂ pressure (stack discharge)	0.5barG	0.5barG
Deionized Water consumption	0.9L/Nm ³	0.9L/Nm ³
H ₂ purity(dry basis)	> 99.75%	> 99.75%
H ₂ purity (with optional purification)	up to 99.999%	up to 99.999%

Note: all figures above are to be understood as “expected values” and may vary depending operating conditions

Easy Replacement System for a safe and stable hydrogen production



Asahi Kasei's electrolyzer system provides:

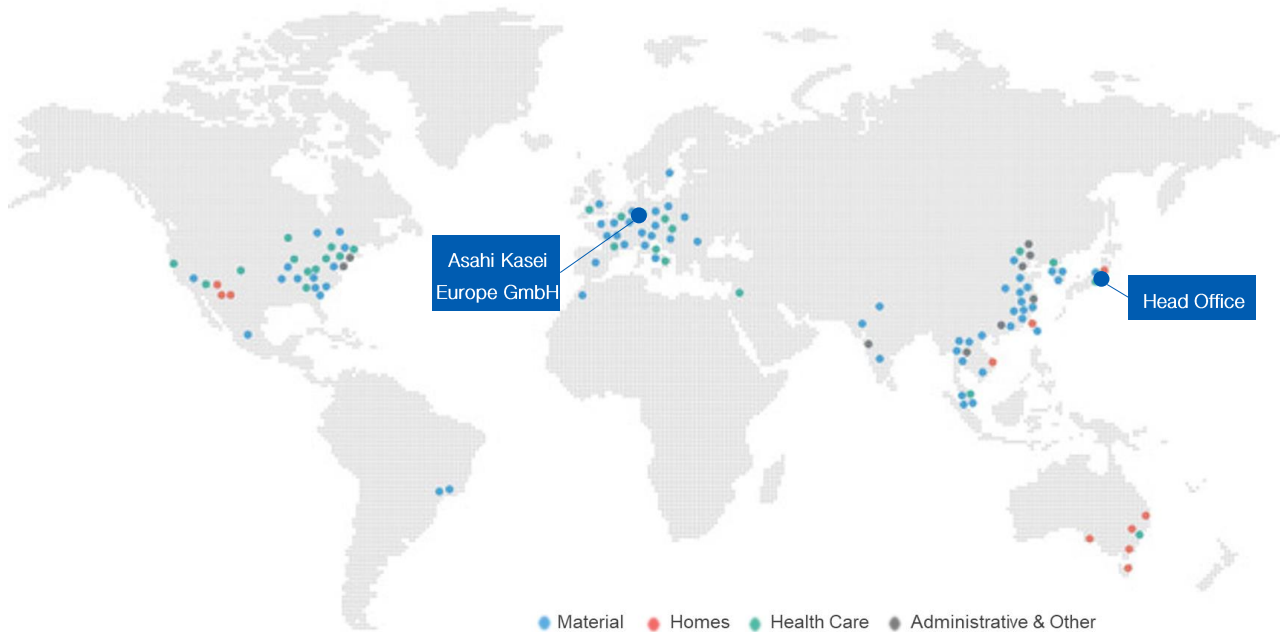
- / Efficient and high-volume hydrogen production
- / H₂ purity and pressure conditions adapted to customer needs by designing the entire system
- / Easy on-site replacement of membrane components

Asahi Kasei Group

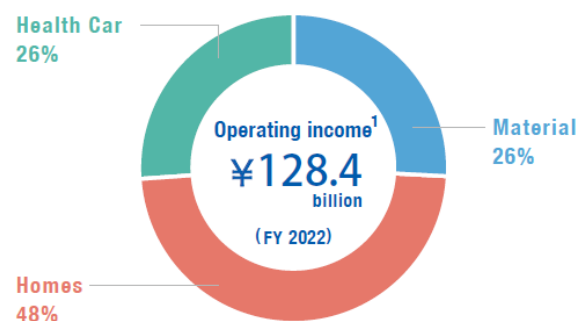
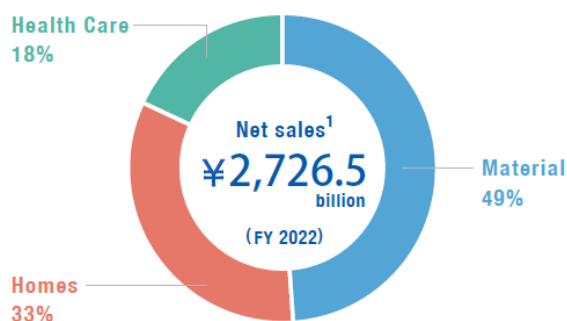
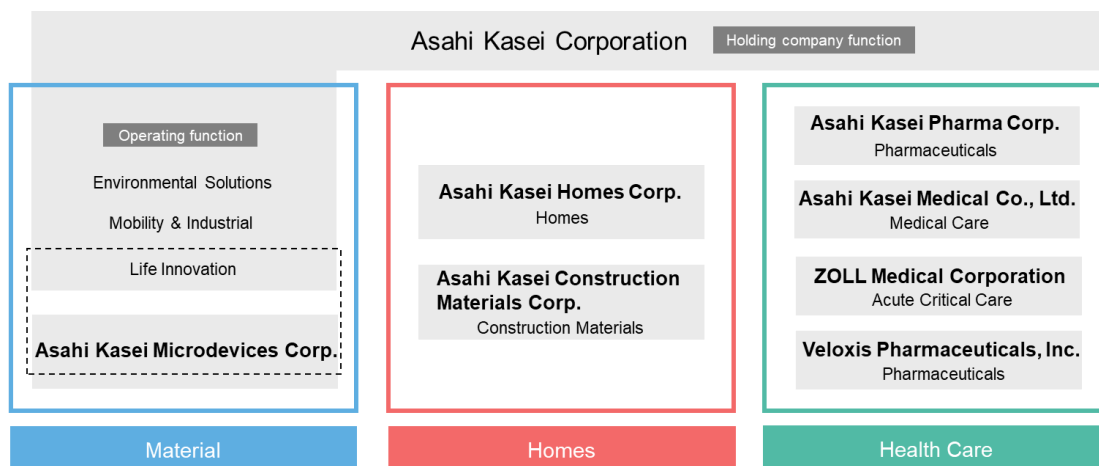
– Global reach, Corporate configuration



We, the Asahi Kasei Group, contribute to life and living for people around the world.



Diversified chemical company with three business sectors.



¹Excluding "Others" category and "corporate expenses and eliminations."

AsahiKASEI

Creating for Tomorrow

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