

Accelerating The Global Energy Transition with Green Hydrogen

- Industry
- Transport
- Energy



From the chairman's desk

Dear Friends,

Greetings from Waaree!

At Waaree, we are proud to be a global catalyst in the transition to **clean, sustainable energy**. Our mission is to enable a greener future by delivering **fully integrated renewable energy solutions** that empower industries, communities, and nations.

With a presence across the entire green energy value chain — from **Solar Ingots, Wafers, Cells, and globally recognized PV Modules**, to **Inverters, Energy Meters, Green Hydrogen, Battery Energy Storage, Transformers**, and **Turnkey EPC Solutions** — Waaree offers a **seamless path to energy transition**.

Our diverse portfolio includes **Utility-Scale and C&I Energy Storage, ~7.35 GW of Renewable EPC**, and **cutting-edge Green Hydrogen Infrastructure**, providing customers with **end-to-end, future-ready energy systems**.

We are expanding rapidly through a **global network of partners**, ensuring that clean energy solutions are **accessible, adaptable, and impactful** in every region we serve.

By embracing innovation and sustainability, Waaree is redefining the possibilities of renewable energy — not just as a product, but as a global movement.

Together, let us accelerate the transition to a cleaner planet and a brighter future for generations to come.

Accelerating Global Energy Transition



Dr. Hitesh Doshi

Chairman & Managing Director, Waaree Group

Vision

Our vision is to provide high quality and cost-effective solar power across emerging markets, reducing carbon footprints and paving the way for a more sustainable energy future, thereby improving the quality of human life.

Mission

By virtue of our commitment to our stakeholders, we strive for continual improvement in the quality of our products & services.

Core Values



Safety



Customer First



Integrity

Vertically Integrated Manufacturing Facility Globally

15.1GW

Solar Module
Manufacturing in India

1.6GW*

Solar Module
Manufacturing in US
*Additional 1.6 GW under expansion

10GW*

Ingot - Wafer - Cell
Manufacturing
*Expansion Plan

6GW*

Solar Module
Manufacturing
*Expansion Plan

5.4GW

Solar Cell
Manufacturing

20GWh*

Battery
Manufacturing
*Expansion Plan

4GW*

Inverter
Manufacturing
*Expansion Plan

1GW*

Electrolyser
Manufacturing Facility
*Expansion Plan

Scan to watch our
Corporate Film



Our Strengths



Exploration

We turn challenges into opportunities by exploring new technological solutions, in search of sustainable innovation.



Sustainability

Our solution integrates with renewable energy, ensuring clean regenerative energy.



Experience

With diversified experience we aim to ensure efficiency and satisfaction for all stakeholders. We excel in providing end to end solutions with hybrid setup.



Innovation

Innovation is our pride that drives the Waaree Group and is an indissoluble part of our DNA.



Affinity With The Customer

We provide the best solutions to our customers leveraging our versatile experience.



People's Wellbeing

We want to contribute building a sustainable future for new generations ensuring the well-being of people and the community.

Hydrogen



Hydrogen is the lightest and most abundant element in the universe. Compared to fossil fuels, it eliminates CO₂ emissions and associated adverse climatic/environmental problems. It has the highest calorific value for a fuel three times higher than petrol.

Our Technology

- Waaree CES offers Alkaline Water Electrolysers (AWE) consisting of two electrodes operating with an alkaline KOH electrolyte solution (30 % by weight) which enhances the conduction of electricity. These electrodes are separated by a diaphragm which separates hydrogen and oxygen gases.
- Key advantages: Scalability of single electrolysers from kW to MW sizes.
- Hydrogen gas purity up to 99.999 % (v/v).

Scan to Check Out Our
State-Of-The-Art
Electrolyser
Manufacturing Facility



Industries We Serve



Ammonia Manufacturing



Cement Manufacturing



Fertilizers Manufacturing



Glass Manufacturing



Chemical Manufacturing



Steel Manufacturing



Mobility



Refineries

Why Waaree?



Make In India

Waaree manufactures electrolyser stacks for green hydrogen at a state-of-the-art facility equipped with world-class technology, full automated and advanced machinery



High Efficiency

Lower power consumption and flexible operations (40% to 110% loading), gas production capacity of a single electrolyzer stack up to 2,000 Nm³/h (10 MW)



Highly Customizable

Containerized and skid-mounted solutions, "1-to-N" multi-module design, adaptable to different application requirements



High Safety Standards

HAZOP, SIL and LOPA analysis, interlock & controls, reliable & redundant designs, alarm and monitoring system to ensure human & machine safety



Proven & Reliable

With rugged material of construction and conservatively designed equipment, our products are designed for low maintenance and proven worldwide



Digitalized & Automated

A high level of digitization allows sites to be less-manned, including one-key start-stop, and remote monitoring using cloud end-to-end systems



Compliance

We work with our customers to ensure products meet their compliance needs, including ISO, ASME, IEC, and more.



Experienced Technology Partner Backing

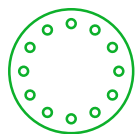
17+ years of electrolyser experience, Electrolyser R&D, design, engineering and manufacturing with 60+ patents and 2GW + Manufacturing Capacity



Customer Centricity

Waaree CES experienced team provides quality support through the entire journey, from project conceptualization, technology selection, procurement, erection & commissioning, operations, ongoing maintenance and spare parts supplies.

Our Offerings



Alkaline Electrolyzers from 250 (50 nm³/hr) KW to 10 MW (2000 nm³/hr) single stack with customized BOP



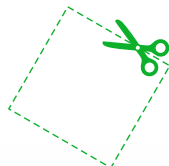
Large Scale Customised Green Hydrogen Projects For Refineries, Steel Plants And Fertilizer Industries



Comprehensive O&m Packages, Locally Available Spares And Stack Refurbishment Services



Sale Of Green Hydrogen Molecules And Derivatives On Built Own And Operate As Well As Sale Of Equipment



Customized Solutions (stack Plus BOP) As Per Required Purity And Least Cost For Hydrogen Generation














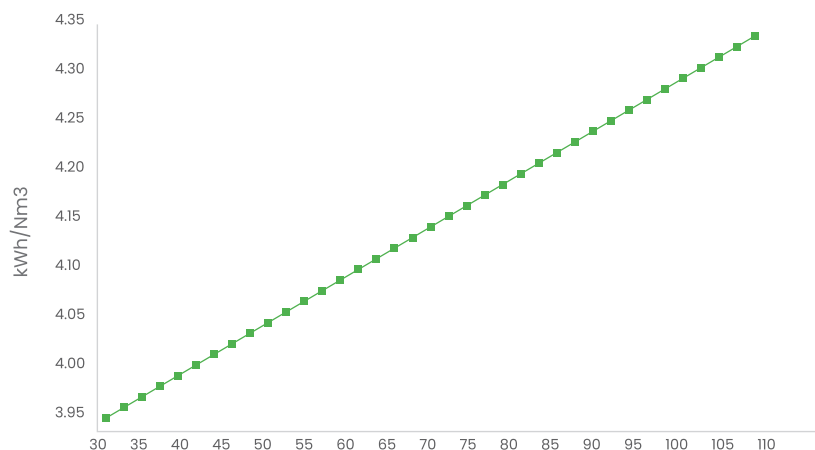
AL- Series

Alkaline Technology

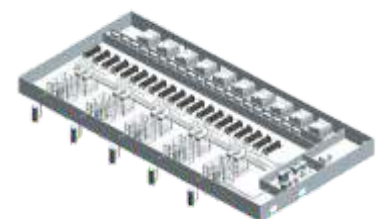
Pressure Raised System - Skid Mounted / Containerized for large-scale green Hydrogen production

- | | | |
|---|---|---|
|  High Efficiency |  High Safety Standards |  Low Maintenance |
|  Proven and Reliable |  Flexibility in Operations |  Customizable Configurations |
|  Quality Control |  Research & Development |  Certification & Compliance |

DC Consumption VS Hydrogen Production Rate



100 MW Solution
(10 x 10 MW Electrolyser Stacks)



100 MW Solution
(20 x 5 MW Electrolyser Stacks)

AL- Series

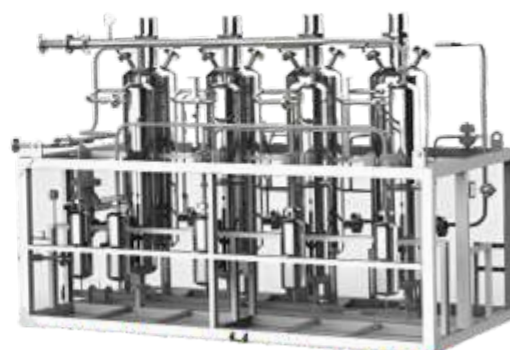
Alkaline Technology

Pressure Raised System – Skid Mounted / Containerized for large-scale green Hydrogen production

Model Name	AL 1000	AL 2000
Electrolysis technology	Alkaline	Alkaline
Hydrogen production rate (Nm ³ / hour)	1000	2000
Oxygen production rate (Nm ³ / hour)	500	1000
Hydrogen pressure at stack outlet (barg)	16	16
Hydrogen purity at stack outlet (w/o purification)	>99.80%	>99.80%
Oxygen purity at stack outlet (w/o purification)	>98.50%	>98.50%
Stack power consumption (kWh/ Nm ³)	4.6	4.7
Stack power consumption (kWh/ kg)	51.52	52.64
Stack degradation (YoY increase in power consumption)	~ 1%	~ 1%
Stack operating temperature (°C)	85±5	85±5
Dynamic operating capacity range (%)	40-110	40-110
DM water consumption (litre/ hour)	900	1800
Stack design life (hours)	80,000	80,000
Cold start-up time (minutes)	45-55	45-55
Hot start-up time (minutes)	15-25	15-25
Electrolyte	~30% KOH aqueous solution	~30% KOH aqueous solution
Hydrogen purity after purification unit (%)	99.999%	99.999%
Standards	ISO 22734, ASME Section VIII, ASME 31.12, ANSI B73.1, IEC 61131, IEC 60079	



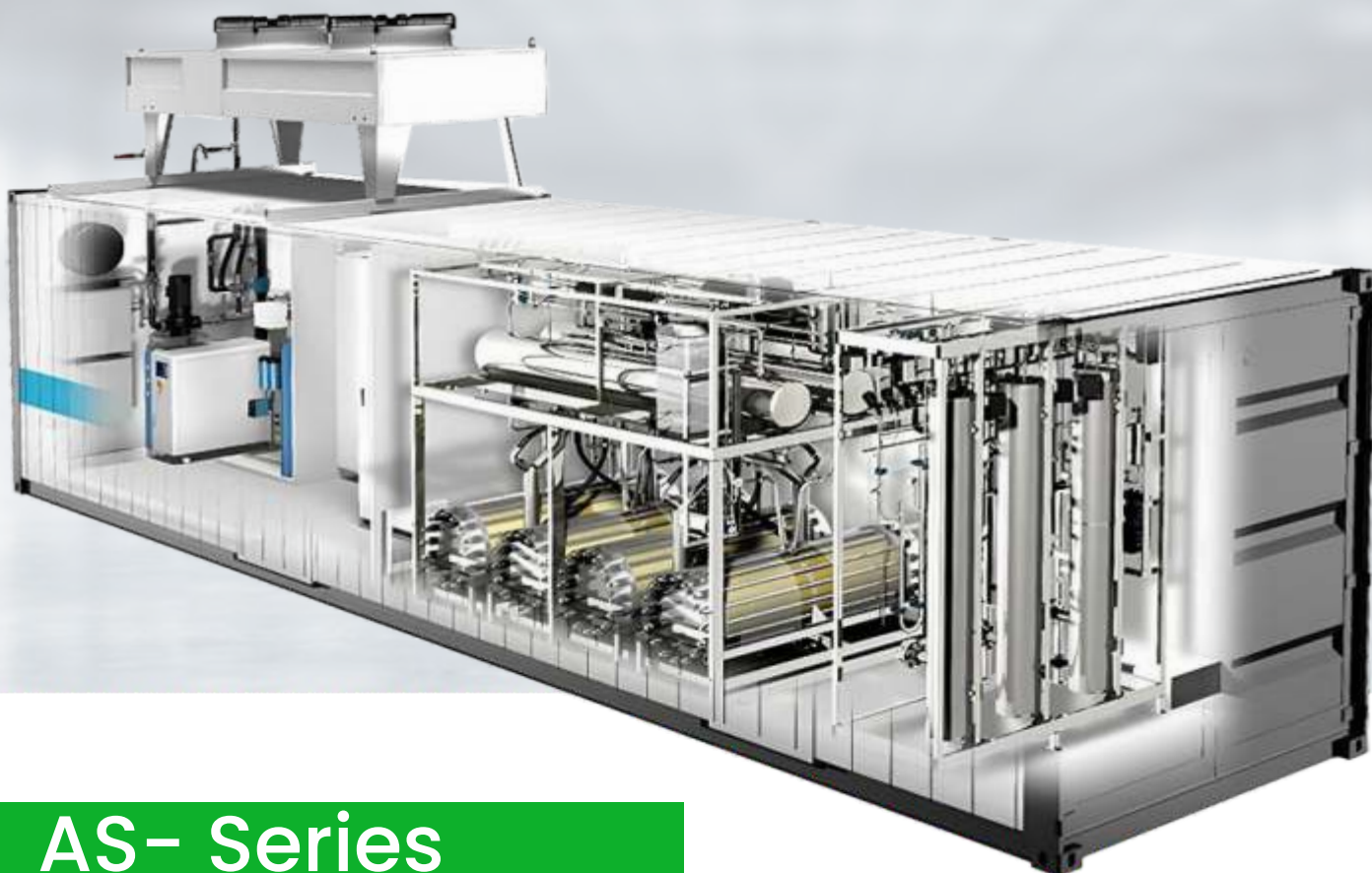
Separation unit



Purification Unit

Disclaimer:










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AS- Series

Alkaline Technology

Skid Mounted / Containerized for Small-scale green Hydrogen production

- | | | |
|---|---|---|
|  High Efficiency |  High Safety Standards |  Low Maintenance |
|  Proven and Reliable |  Flexibility in Operations |  Customizable Configurations |
|  Quality Control |  Research & Development |  Certification & Compliance |



Stack



Single stack skid mounted unit
with separate power module



Single stack containerized unit
with separate power module

Talk to us today,

- Waaree Clean Energy Solutions Pvt Limited (Waaree CES) understand the complexities of green hydrogen production systems and aim to provide cost effective, reliable and safe solutions in the market.
- Contact Waaree CES expertise in tailored solutions and expert consultations for seamless hydrogen system integration.

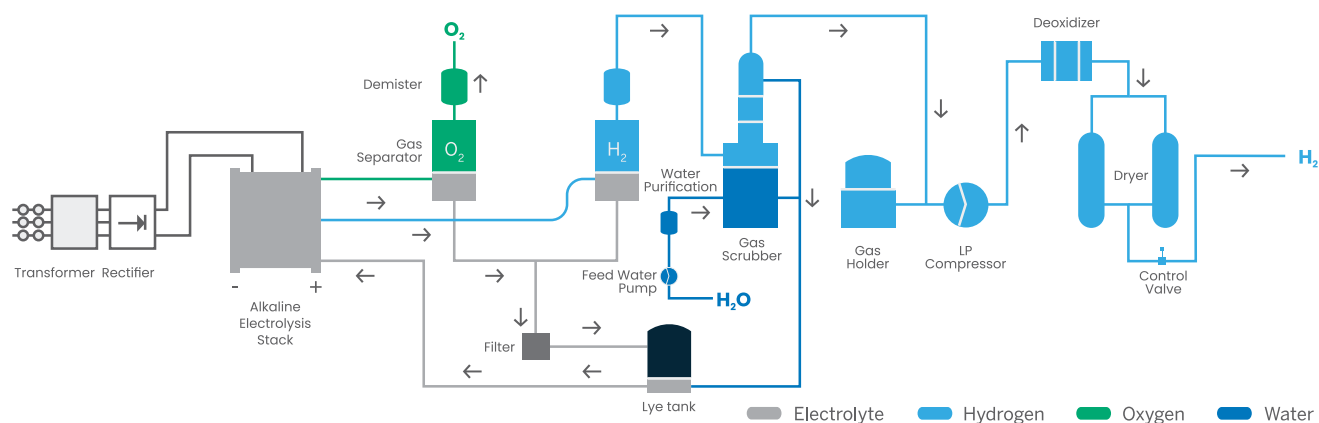
AS- Series

Alkaline Technology

Skid Mounted / Containerized for Small-scale green Hydrogen production

Model Name	AS 50	AS 100	AS 200	AS 400	AS 500	AS 800
Hydrogen production rate (Nm ³ / hour)	50	100	200	400	500	800
Hydrogen production rate (kg/ day)	107	214	429	857	1071	1714
Oxygen production rate (Nm ³ / hour)	25	50	100	200	250	400
Hydrogen purity at stack outlet (%)	> 99.80%					
O ₂ Purity at stack outlet (%)	> 98.50%					
Hydrogen pressure at stack outlet (barg)	16	16	16	16	16	16
DM water consumption (litres/ hour)	50	100	200	400	500	800
Dynamic operating capacity range	40% -110% of flow range					
Stack power consumption (kWh/ Nm ³)	4.6					
Stack power consumption (kWh/ kg)	51.152					
Stack degradation (YoY increase in power consumption)	~ 1%					
Stack operating temperature (°C)	85±5					
Stack design life (hours)	80000					
Ramp-up/ Ramp-down rates (% per second)	0.5 %					
Cold start-up time (minutes)	45-55					
Hot start-up time (minutes)	15-25					
Electrolyte	~30% KOH Aqueous Solution					
Hydrogen purity after purification unit (%)	99.999%					
Standards	ISO 22734, ASME Section VIII, ASME 31.12, ANSI B73.1, IEC 61131, IEC 60079					

The Gas Liquid Circuit



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The information provided in this datasheet is for general guidance only. Actual product specifications and features may vary without prior notice and can differ from model to model. Waaree reserves the right to make modifications or improvements to the product as per requirements.

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