



HAW ENGINEERING

BOCKENEM · GERMANY · SINCE 1899

EPC FOR GREEN HYDROGEN · 2026

WE ENGINEER IT, BUILD IT, LINE IT AND COMMISSION IT.

The stack is a fifth of the plant. We deliver the rest, as one contract.

ENGINEERING

PROCUREMENT

FABRICATION

CONSTRUCTION

COMMISSIONING

120,000 ^{m²} **1899**
BOCKENEM WORKS ON THE SAME SITE

300 ^t
SINGLE PIECE

40+
COUNTRIES SUPPLIED

MOST OF A HYDROGEN PLANT IS PIPEWORK, VESSELS AND STEEL.

Every German project reaching FID through 2027 has picked its stack vendor. We sell what comes after that choice.

Separator vessels, KOH circulation skids, demineralisation packages, coolers, dryers, buffer storage, pipe spools and racks. Much of it is Category III and IV pressure equipment. Most of it needs corrosion protection that survives hot caustic.

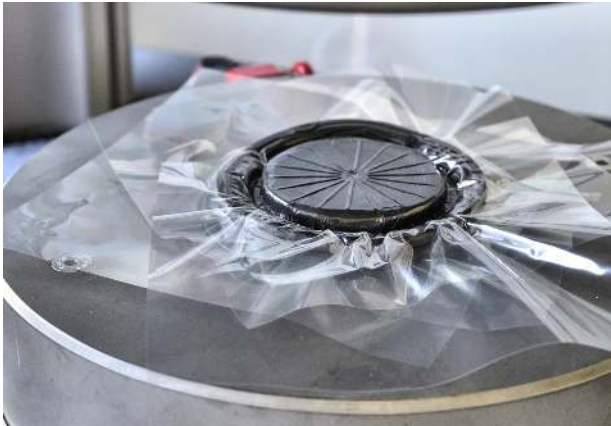
GERMANY, AUGUST 2026	
10 GW	Electrolysis targeted for 2030
~1.3 GW	At FID or under construction
~164 MW	Operating today
9,040 km	Kernnetz approved, €18.9 bn

RENEWABLE POWER	WATER TREATMENT	ELECTROLYSER STACK	GAS-LYE SEPARATION	COOLING & DRYING	PURIFICATION	COMPRESSION & STORAGE	DISTRIBUTION
STACK 14-24%	BALANCE OF PLANT, UTILITIES AND CONSTRUCTION - 60-76% OF INSTALLED COST						

A GERMAN WORKS, SINCE 1899

HAW engineers patented industrial rubber lining in 1920. The Bockenem site now covers more than 120,000 m² and is the largest anti-corrosive lining shop floor in the world. Jasmino acquired HAW in 2024, adding design offices, heavy fabrication and a cost base that lets a German-certified package compete on price.

- ✓ **PED Module H/H1** permits Category IV pressure equipment
- ✓ **AD 2000 HPO** is the German plant-builder rule set
- ✓ **ISO 9001:2015** and **KTA 1401** nuclear QA
- ✓ Manufacturer *and* importer of record, so the PED duty does not land on you



VULCANISATION BAY · BOCKENEM

WHAT EPC MEANS HERE

01 ASSESS Hydrogen demand, site, process, offtake	02 ENGINEER Process, mechanical, piping, E&I, stress and CFD	03 PROCURE Certifiable plate, bought-in packages, long leads	04 FABRICATE Vessels, skids, spools, modules, lining	05 CONSTRUCT Erection, site welding, NDT, tightness testing	06 COMMISSION Handover, dossier, O&M and after-sales
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ONE CONTRACT, ONE PARTY LIABLE

On a flue gas desulphurisation circuit we held main contractor responsibility for the complete job, took the pipework ourselves, carried the pump refurbishment subcontract, and guaranteed the pumping system ran unbroken afterwards.

BEHIND THE WORKS

15 countries, 4 continents, equipment delivered to more than 40. Around fifty design engineers on SP3D, ANSYS, CAESAR II and PV Elite. Plate rolling to 95 mm and single pieces to 300 t at the group works.



RANGE OF SUPPLY

WHAT WE BUILD FOR A HYDROGEN PLANT.

SCOPE	EQUIPMENT	CLASS
Gas-lye separation	Separator vessels, demisters, knock-out drums, lye receivers	Cat. II-IV
KOH circulation	Circulation skids, manifolds, heat exchangers, filtration	Lined carbon steel
Water treatment	Demineralisation packages, feed tanks, dosing skids	WHG §19 linings
Cooling & drying	Coolers, condensate separators, dryer vessels, adsorbers	Cat. III-IV
Purification	Reactors, catalyst vessels, guard beds, filters	Alloy and clad
Buffer & storage	Buffer vessels, receivers, compression bottles	PED Module H/H1
Piping & racks	Pipe spooling, manifolds, jacketed lines, expansion joints	Shop-fabricated
Corrosion protection	Rubber, PTFE, PVDF, glass flake, FRP, brick and tile	13 compounds

5,500 mm
MAX OUTSIDE DIAMETER

15,000 mm
MAX LENGTH

95 mm
PLATE ROLLING, GROUP

600 t
DISHED-END PRESSES

WHERE WE ARE STRONGEST

Concentrated potassium hydroxide destroys carbon steel at temperature, and a solid alloy vessel prices itself out of the job. Lined carbon steel carries the same duty for a fraction of the metal cost.

WE BUILD IT, THEN WE LINE IT

Our steel shop and lining bays share a roof. Nozzle projection, weld geometry and internal access are fixed for the lining on the first drawing, so equipment leaves the weld bay and goes straight into the autoclave.



INSTALLED HYDROGEN PLANT · STACKS AND BALANCE OF PLANT



LINING APPLICATION · VESSEL INTERIOR

WHAT WE HAVE ALREADY DELIVERED.

We withhold customer identities as a matter of policy and release named references on request. None of these are hydrogen projects: a German qualification audit asks for code compliance, weld qualification, NDT capability and audit history, evidenced on comparable pressure and process work.

	PROJECT	SECTOR	SCALE	CONSTRAINT
01	FGD circulation modernisation	Coal-fired power station	300 t large-bore pipe, 8 pumps	14 months, main contractor
02	Stack outlet replacement	Energy-from-waste plant	New outlet fitted at height	Plant running throughout
03	Six crystallisers	Fertiliser producer	6 × 150 t, Ø9 m	45-day shutdown, met
04	Flue gas ducting	Chemical plant	1,200 t, >100 components	Scan to tested assembly
05	Three absorbers	Flue gas treatment plant	3 × 70 t, Ø6 × 15 m	20-day outage



TECHNICIANS INSIDE THE FLUE MOUTH · LIVE PLANT



PRE-ASSEMBLED CRYSTALLISERS · BARGE LOADING

TWO OF THESE IN DETAIL

On the FGD circuit we dismantled 300 tonnes of large-bore pipe, stripped it at 2,500 bar, re-lined it with HAW W06 butyl at 4 mm in our own autoclaves, then reinstalled and leak tested it.

The lining we cut out of three absorbers had been running since the 1990s. Thirty years is a measured service life, taken off the equipment we replaced rather than quoted from a datasheet.

AUDIT THE WORKS

We open Bockenem for supplier qualification audits at reasonable notice: shop floor, quality laboratory, autoclave bay, document control.

THE PARTNERSHIP

A STACK FROM INDIA. EVERYTHING AROUND IT, FROM HERE.

Greenzo Energy India Limited builds fully indigenised alkaline bipolar electrolyzers, 150 kW to 5 MW, from a 250 MW-a-year plant at Sanand, Gujarat.

Their stacks run on **25–30% potassium hydroxide at 85 °C**, delivered at **12–30 bar**. That duty is what our linings were developed for. We engineer, build and install everything downstream of the stack, and we commission it.



INSTALLED ALKALINE STACKS

MW-SCALE PROJECTS GREENZO HAS EXECUTED

Jindal Stainless (JSL)	Deendayal Port Authority	Engineers India Ltd	Felix Industries	Oswal Energies
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GREENZO GEIL SERIES	
Hydrogen output	2.5 – 1,000 Nm ³ /h
Rated power	11 kW – 5 MW
Delivery pressure	12 – 30 bar (g)
Purity after purification	99.99 – 99.9999 %
Stack life	≥ 10 years, optimal runtime ~12
Also supplied	Storage, compression, H ₂ -to-ammonia and methanol

A. COMPLETE SYSTEM, ONE CONTRACT

Stack, balance of plant, water treatment, lining, erection and commissioning. One party carries the conformity assessment, the CE marking and the warranty.

B. BALANCE OF PLANT ONLY

Keep your stack vendor and your process guarantee. We build and install the fabricated scope to your specification and your ITP.



ELECTRICAL AND CONTROL ROOM · INSTALLED PROJECT



WATER TREATMENT AND UTILITY SKID

WHAT WE ARE ASKING FOR

THREE THINGS YOU CAN GIVE US IN FIVE MINUTES AT THE STAND.

ONE SCOPE TO QUOTE

A live enquiry, however small. Separator vessels, a lye skid, pipe spools, a structural package. Start us on something non-critical.

YOUR VENDOR ROUTE

Which system, which commodity groups, what the qualification pack must contain. Back to you inside a week.

A DATE TO AUDIT

Bockenem is two hours from Hamburg by train.

CERTIFIED TO

PED H/H1

Category IV pressure equipment

AD 2000 HPO

German plant-builder rule set

ISO 9001

:2015 quality management

KTA 1401

Nuclear quality assurance



DESPATCH · BOCKENEM WORKS

HAW ENGINEERING

DESIGN · BUILD · PROTECT

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A company of the **Jasmino Group**. 15 countries, 4 continents, equipment delivered to more than 40. Manufacturing at Bockenem and Marl in Germany, Taloja in India, and a joint venture in Dammam, Saudi Arabia.

In technology partnership with **Greenzo Energy India Limited**.