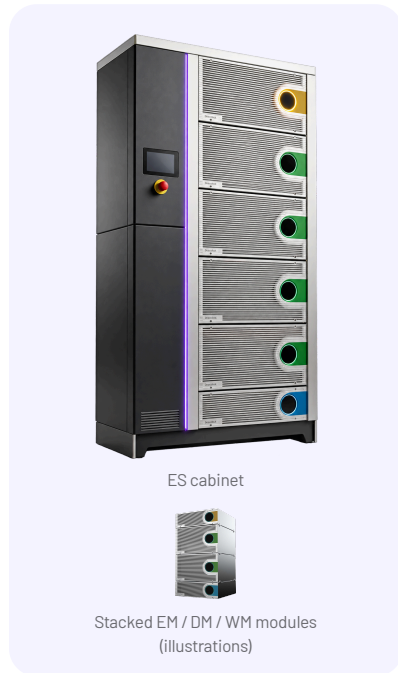


PROPRIETARY PRODUCT · PEM ELECTROLYSIS

Beeblock ES

Modular PEM electrolysis system

On-site green hydrogen built from stackable modules. Instead of engineering a bespoke plant, you assemble the system from three standard modules – electrolysis, drying and water treatment – and scale capacity by adding units.



01 KEY SPECIFICATIONS

Technology	PEM water electrolysis
System range	1–20 Nm ³ /h · 5–100 kW
Hydrogen output per module	Up to 1,050 NL/h per EM module
Specific energy consumption	4.9 kWh/Nm ³ (EM, beginning of life)
Outlet pressure	8–20 bar
Hydrogen purity	> 99.999 % (5N) with DM drying module, ISO 14687 Up to 99.999999 % (9N) with palladium purifier CABINET VERSION · IN DEVELOPMENT
Dew point	< –70 °C at atmospheric pressure (DM)
Feed water	Tap water via WM (TDS ≤ 500 mg/L recommended)
Power supply	100 / 220 V AC, single-phase, 50/60 Hz per module
Control & communication	Beeblock NET wireless; Modbus TCP to host
Ingress protection	IP20 – indoor installation

02 MODULE SPECIFICATIONS

	EM Electrolysis	DM Drying & purification	WM Water treatment & routing
Output	H ₂ up to 1,050 NL/h (2.157 kg/24 h)	H ₂ flow up to 2 Nm ³ /h	Water up to 700 mL/min
Quality	> 99.9 % (H ₂ O ≤ 700, O ₂ ≤ 300 ppm)	> 99.999 % (H ₂ O < 5, O ₂ < 5 ppm)	Conductivity 0.1 µS/cm
Pressure	8–20 bar	8–20 bar	Outlet ≤ 2 bar · inlet 2–6 bar
Power	4.9 kWh/Nm ³ (BOL) · standby 0.02 kW	300 W regen. / 25 W non-regen.	40 W · standby 3 W
Heat / water use	1.11 kW · 840 mL/h at 25 °C	–	–
Serves	–	Up to 2 EM modules	Up to 4 EM modules
Maintenance	–	Maintenance-free	Pre-filter ≈ 6 mo · RO ≈ 12 mo
W × D × H	593 × 656 × 339 mm	593 × 656 × 180 mm	593 × 656 × 180 mm
Weight bare / framed	50 / 58 kg	20 / 28 kg	10 / 18 kg

03 APPLICATIONS

- **Industrial hydrogen** – labs, semiconductor fabs, manufacturing
- **Distributed supply** – hydrogen made at the point of use
- **Renewable integration** – surplus solar or wind stored as hydrogen; pairs with Beeblock Gen fuel-cell power

04 WHY MODULAR

- **Stackable by design** – capacity scales with footprint, not complexity
- **Maintainable, always on** – each module is serviced or replaced on its own
- **Automotive reliability** – built on proven automotive-industry technology