

High-power rectifiers

High-power rectifiers for green hydrogen production

Efficient rectifiers built to power electrolyzers that demand pure hydrogen and peak performance.

Up to 10,000 A · 750 V DC

Thyristor, diode and IGBT

Designed and built in India



10,000 A

DC output (up to 25,000 A on request)

750 V

DC output (up to 1000 V on request)

±1 %

voltage / current control precision

≤2 %

ripple

Overview

Precision rectifiers for electrolyzers

Statcon Energiaa has built military-grade power electronics since 1987. Our precision-engineered rectifiers for hydrogen generation use thyristor, diode and IGBT topologies for high efficiency, low harmonics, low ripple and stable performance.

They are optimised on the input side for power quality, including harmonics and power factor, and on the output side for DC power quality: stability, regulation against line and load variations, and low AC ripple in the DC voltage.



Two 558 kW containerised rectifiers, 3600 A / 155 V, forced air-cooled, for a green hydrogen mobility pilot.

Features and offerings

- ✓ Designed for a wide input supply range, to withstand harsh weather
- ✓ Works in extreme temperatures without power loss: up to 50 °C outdoor and 45 °C indoor
- ✓ Isolation transformers (air or oil cooled) available as required
- ✓ Local spares and service support a 25-year service life
- ✓ Intuitive touchscreen with PLC for dynamic response, remote control and data logging
- ✓ Powers green hydrogen electrolyser plants using PEM or alkaline technology
- ✓ Forced air cooling removes the need for air conditioning (water-cooled option available)
- ✓ High efficiency through single-stage conversion
- ✓ Running in naval dockyards in India and overseas for over 20 years

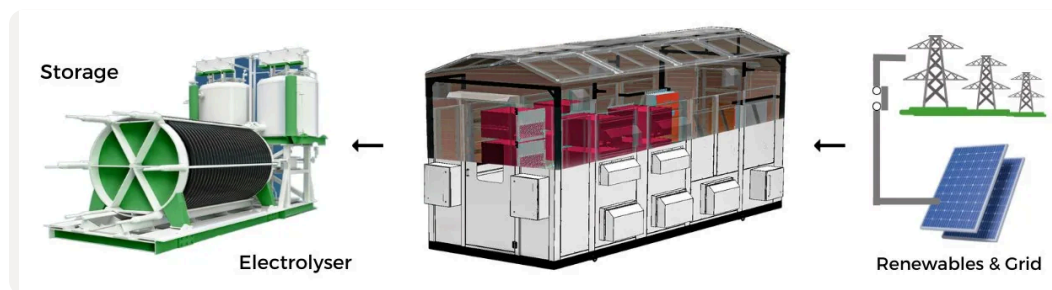
Technical specifications

Electrical, environmental and protection

	Specification
Electrical	
Input voltage	415 V (6.6 kV, 11 kV and 33 kV also available on request)
Regulation range	Stepless at constant voltage or current, 10–100%
Duty cycle	Designed for continuous operation at rated load
Output current	Up to 10,000 A DC (higher currents up to 25,000 A available on request)
Pulse	6, 12 or 24 pulse systems
Frequency	50 / 60 Hz
Output voltage	Up to 750 V DC (higher voltages up to 1000 V available on request)
Control precision	Voltage / current at $\pm 1\%$
PLC and HMI control	Optional
Current THD	12% / 5%
Ripple	$\leq 2\%$
Environmental	
Max. ambient	45 °C indoor and 50 °C outdoor
Enclosure	Indoor / outdoor
Cooling	Forced air-cooled / water-cooled
Available protections	
Protections	Over-current, short circuit, over-voltage, over-temperature

Design and options

- ✓ Rugged, proven thyristor converters with 12- and 24-pulse designs, galvanically isolated transformers and custom inter-phase transformers and filters: clean DC, low harmonics, high power factor
- ✓ Indoor and outdoor set-ups; trolley-mounted models for mobile outdoor use
- ✓ Runs on a 415 V LT supply; custom solutions for 6.6, 11 and 33 kV with specially designed transformers
- ✓ IGBT chopper-based rectifiers also available in select ratings
- ✓ Modular design from 350 V to 750 V DC; rectifiers can be paralleled for redundancy and expansion
- ✓ Customised components such as distribution panels also offered



From renewables and the grid, through the rectifier and its PLC touchscreen, to storage and the electrolyser.

Delivered

320 V, 4500 A shore-supply rectifier

Indoor type, for defence applications.

1.43 MW rectifier, 328 V, 4350 A

Indoor free-standing panel type, SCR controlled, for an industrial customer.