

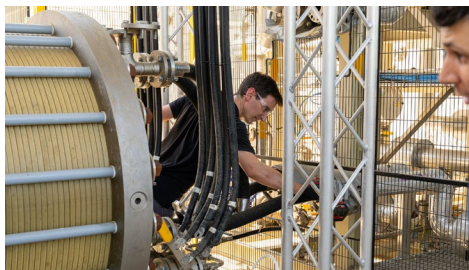
1 MW – 35 bar AEL/AEM test bench for test campaigns testing services



For many years, Loccioni has operated a wide range of electrolyser test benches at its laboratories in Italy, available to customers for performance and endurance testing. From watts to megawatts, Loccioni puts all its experience and expertise at the service of new electrolyser development.

THE SYSTEM

For full-scale testing of AEL and AEM stacks up to 1 MW, Loccioni offers a test bench designed for research and development and for long-term electrolyser testing. The test rig can operate with single or dual electrolyte circulation at operating pressures up to 35 barg. The Loccioni laboratory is equipped with a photovoltaic system and a battery energy storage system (BESS), so tests can be carried out under the real operating conditions of an electrolyser coupled with a renewable energy source for RFNBO hydrogen production.



1. Test chamber

MAIN FEATURES

The system performs a wide range of tests on AEL/AEM electrolyser stacks.

- > 4 independent main subsystems: TRU + BOP + MCC + auxiliaries
- > Local and remote-control system based on Siemens technology
- > Designed for 24/7 operation
- > 3 process safety layers with automatic safety shutdown
- > Gas quality and leak detection systems
- > Fire detection system

TECHNICAL SPECIFICATIONS

- > Number of cells: 65–115
- > Operating pressure: 0–35 barg
- > Adjustable anode/cathode ΔP balancing
- > Temperature: 20–80 °C
- > Current: 0–5,000 A
- > TRU type: thyristor
- > H₂ flow: 0–220 Nm³/h
- > H₂ and O₂ cross-leak: 0–20% LEL



2. Test bench

THE SOFTWARE

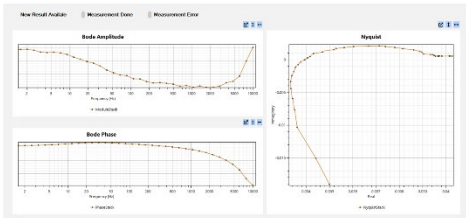
The software is built on Loccioni's Aulos platform and is divided into two subsystems: **Aulos Automation**, a desktop monitoring application that includes the HMI for controlling the hardware and running routines, and **Aulos Supervisor**, a server accessed through a web page, where users can build test plans by dragging and dropping instructions, and access the data generated by the system to compare and overlay the results of different tests.



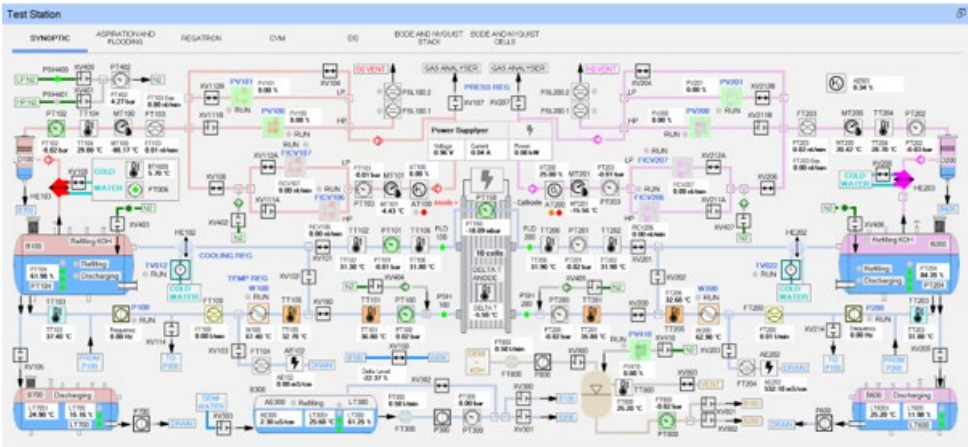
3. Automatic panel

Application features:

- > User Access Configuration
- > Hardware Monitoring and Calibration
- > Manual Debug
- > Dashboard
- > Program Editor
- > Program Execution
- > Automatic Cycling
- > Result Analysis
- > Health Analysis
- > Data Maintenance Tool



4. EIS panel



5. Synoptic panel

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