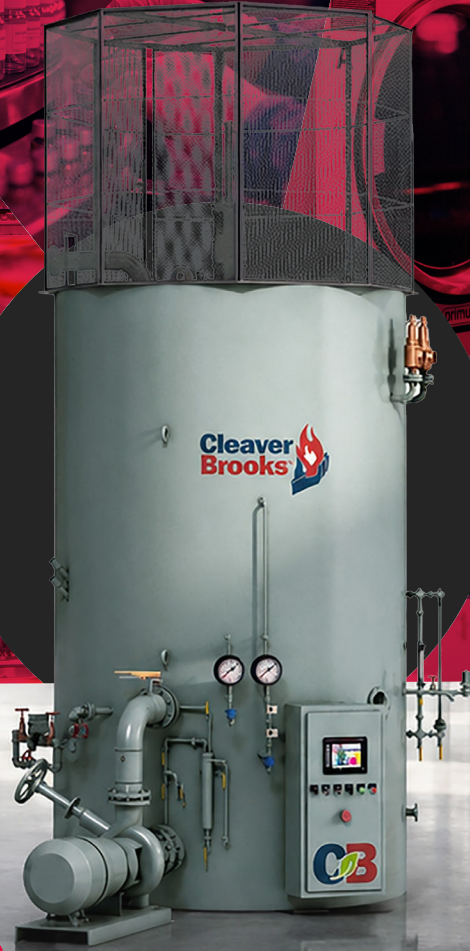




CleaverBrooks Electrode Boilers

Steam Without Combustion,
Powered by Electricity Instead of Fuel

**To
10,000 BHP**

Approximately
156,500 kg/h steam

**Nearly
100%**

Efficiency at every
operating point

**Zero Local
Emissions**

No combustion,
no stack, no fuel line

A genuine alternative to burning fuel, not just an efficiency upgrade.

An electrode boiler generates steam directly from electricity, heating water through the resistance of submerged electrodes rather than burning fuel. That removes combustion, and everything that comes with it, from the process entirely, eliminating around 17.7 metric tonnes of CO₂ per boiler horsepower every year with no burner, exhaust stack or gas line on site.

For sites facing gas allocation limits, supply interruptions or rising costs, it offers a dependable steam source that can draw on renewable electricity, run during cheaper off-peak periods, and cut fossil fuel dependency by up to 100 per cent.

The benefits of going electric

- Zero local emissions, well suited to decarbonisation and site emissions reduction targets.
- No combustion equipment required, no gas or oil piping, combustion air supply or exhaust stack to install or maintain.
- Flexible fuel supply, since electricity is available from the grid or from onsite renewable generation.
- Nearly 100 per cent efficient at every operating point, not just at full load.
- Full modulation with effectively infinite turndown, drawing only the power the system actually needs.
- Quiet operation, with no combustion fan or burner noise.
- Rapid response, reaching full steam output on demand rather than ramping up over time.



Built for the industries that cannot afford an unplanned shutdown.

- Durable and reliable: fully steel construction, 25 kV rated insulators and Allen-Bradley PLC controls.
- Quality tested in an ISO-certified shop and certified to stringent cUL and UL standards.
- Ready to connect directly to a medium voltage supply without needing a separate power transformer station.
- Pre-assembled and pre-piped at the factory, with single-source responsibility and pre-configured controls from the one supplier.

Markets already running on electrode steam.

Healthcare, food processing, campus heating, chemical processing, government facilities, mining, utilities, breweries and distilleries, and pulp and paper all use electrode boilers where a dependable, zero combustion steam source matters.

Standard features

Boiler	Trim	Electrical
• ASME code vessel	• Steam back-pressure valve	• Rated insulators and connection lugs
• Heavy-duty steel construction	• Centrifugal circulating pumps	• Current transformers and metering
• Medium voltage safety cage	• Conductivity sensors and controls	• Electrical pre-heat assembly
• ASME pressure relief valves	• PLC pressure, power and level control	• Hydraulic ram for modulation



Capacity that scales with voltage and pressure.

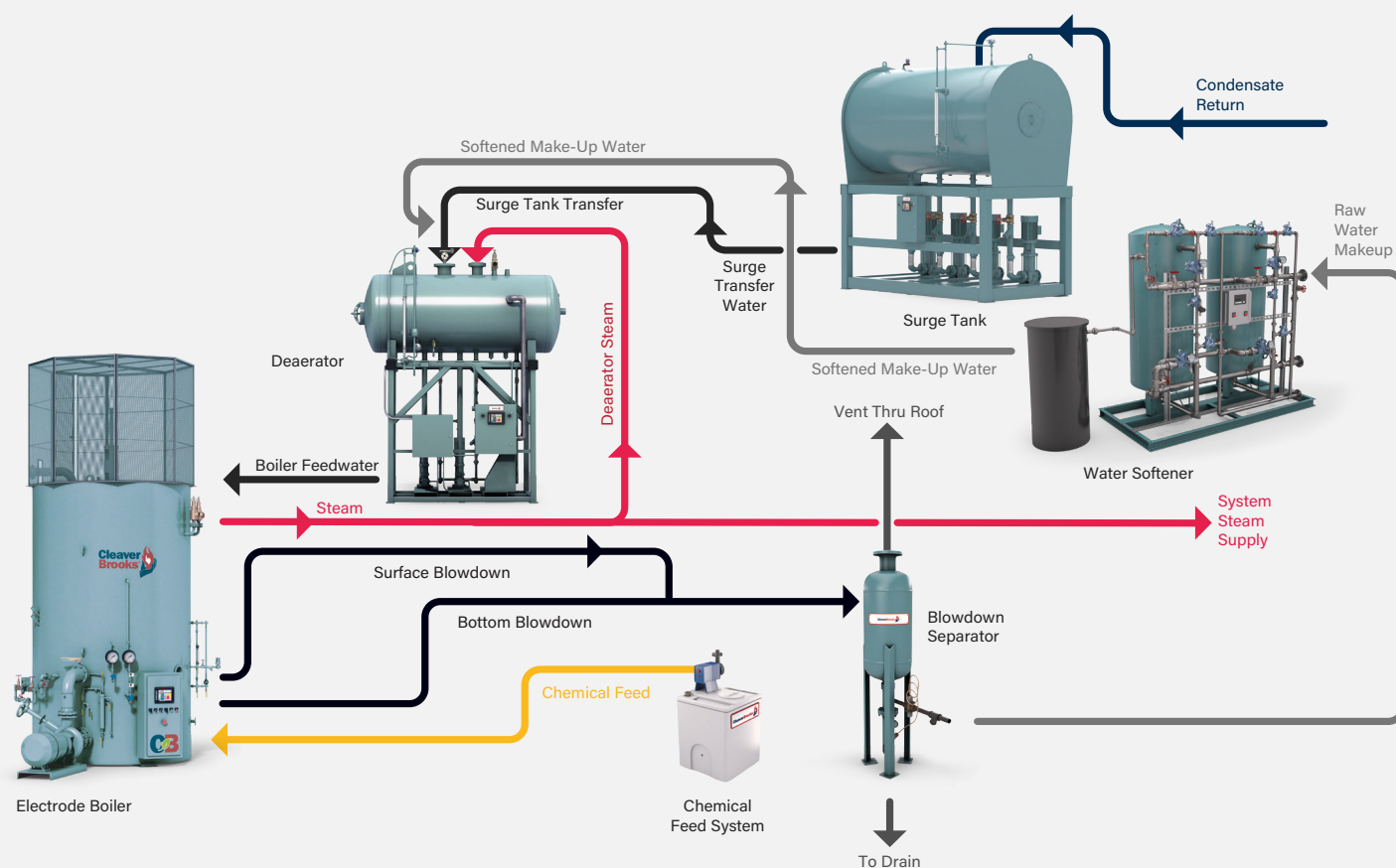
An electrode boiler's output climbs with both supply voltage and operating pressure, since higher voltage lets more power convert into steam within the same vessel. Two supply voltage classes cover most industrial applications, and both are available at pressures beyond the ranges shown below on request.

Supply voltage	Input capacity	Gross output	Operating pressure
Lower voltage class	Up to approximately 48 MW	58,967 to 77,111 kg/h	8.6 to 20.7 bar
Higher voltage class	Up to approximately 125 MW	149,685 to 195,045 kg/h	8.6 to 20.7 bar

Figures assume 99.5 per cent boiler efficiency and a feedwater supply at 108°C. Operating pressure up to 31 bar is available; contact O'Brien for maximum capacities beyond that. Figures reflect manufacturer specification ratings and are confirmed for construction by submittals.

Engineered as a complete system, not just a boiler.

Every electrode boiler O'Brien supplies can be paired with the surrounding plant that keeps it running efficiently: deaerators to pre-heat feedwater and strip dissolved gases, surge tanks to collect condensate and cut makeup water use, water softeners to protect the vessel from scale, chemical feed systems to hold the water chemistry at its target, and blowdown separators to safely cool discharge water. Advanced controls, including Hawk boiler controls and Prometha IoT monitoring, tie the whole system together on one platform rather than leaving each piece to run on its own.



Why O'Brien?

- **Australia's Largest**

Leading supplier of industrial boilers across Australia

- **20+ Years Experience**

Decades of engineering expertise in steam & hot water systems

- **24/7 Support**

Around the clock support with instant phone assistance

- **Accredited Training**

RTO Code 45484,
boiler operation training nationwide

- **Tailored Solutions**

Custom engineered,
with no off the shelf compromises

- **765+ Active Clients**

Trusted across Australia
and internationally

Ready to engineer
your energy solution?

Connect with us at



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