Supercritical Water Electrolysis Test Stand

CAPABILITY SHEET · PRESSURE FIRST, THEN HEAT. · ENGINEERED TO ORDER

THE ONE IDEA

PRINCIPLE	Pressure first, then heat.
WHY IT MATTERS	Above its critical pressure, water becomes supercritical on heating without ever boiling.

THE STAND

PRESSURE VESSEL	Holds the cell and carries the load, with a lid that is opened and resealed many times.
FEED AND HEAT	A high-pressure pump feeds the electrolyte, and heaters raise the temperature at a controlled rate.
OUTLET LINES	Hydrogen and oxygen leave separately, each cooled, let down to low pressure and separated.
CONTROLS	The order of steps is enforced, with interlocks and time-stamped logging.

THE METHOD

ORDER	Prove tight cold, pressurise, heat, run, cool under pressure, then let down and flush.
ELECTROLYTE	Dissolved salts move the critical point, so the margin is set for the solution, not for pure water.

CONFIGURATIONS

MATERIALS	Electrode and materials studies: a small vessel for single electrodes and coupons.
CELL	A complete cell inside the vessel, with its power leads brought through the wall.
RANGE	One stand run below and above the critical point to compare the same cell.

SCOPE

SCOPE BOUNDARY	It is the research stand: not a stack tester, not a materials loading machine and not a hydrogen plant.
STATUS	Neometrix engineers supercritical water electrolysis test stands to order.

DEFENCE PROGRAMMES DESK

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