

Deep Ocean Pressure Simulator

CAPABILITY SHEET · HIGH-PRESSURE CHAMBERS FOR SUBSEA & OCEAN EQUIPMENT · PROFILE CONTROL · ENGINEERING

THE ONE IDEA

PRINCIPLE	A deep-sea test has two halves: the way down and the way back. The return is part of the test, and it is controlled and recorded like the descent.
WHY	In the sea everything is squeezed from every side. A simulator finds out what that does to a housing, a sensor, a cable or a whole assembly before the ship does.

WHAT IT TESTS

ARTICLES	Housings, sensors, cables, connectors, buoyancy material, seals, windows and whole assemblies.
TESTS	Proof, cyclic, soak and destructive tests, run from stored profiles; destructive tests inside containment.

THE THREE HARD PARTS

THE AIR	Water barely compresses; air compresses like a spring and stores energy. The chamber is filled and degassed before it is pressurised.
THE CLOSURE	The pressure acts on the door as well as the walls; the force is pressure times area. The closure and its locking are the critical part, and are interlocked so they cannot open under pressure.
THE RETURN	Gas trapped in a void, a seal or buoyancy material expands as pressure falls. The release follows a controlled ramp, on the same control and sensing as the descent.

THE SYSTEM & SAFETY

SYSTEM	Chamber and closure, cable penetrators, fill and degas, pumps or intensifiers, accumulator, profile control, redundant pressure sensing, chiller, relief and drain, handling, data acquisition, foundation.
SAFETY	Stored energy is the hazard: relief devices vented to a safe place, two independent pressure readings, interlocks, a barrier and exclusion zone, remote operation, and a cycle log that counts fatigue life used.

SCOPE & STATUS

WHO DOES WHAT	Neometrix integrates the chamber, pumping, pressure control and safety systems. The pressure vessel is high-pressure vessel work, built to the pressure vessel code by a qualified vessel maker. No design or certification of the vessel is claimed.
NOT THIS	An unmanned chamber for equipment - not a chamber for people, and not a component-scale proof-pressure bench.
STATUS	Neometrix engineers deep ocean pressure simulators to order, as the integrator of the chamber, the pumping and pressure control, and the safety systems, with the pressure vessel built by a qualified high-pressure vessel maker, and no delivered deep ocean pressure simulator is claimed.

DEFENCE PROGRAMMES DESK

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Figures describe the system class Neometrix engineers to order and are not a quotation. Pressure, chamber size, profiles, medium and site are established against the customer's requirement at design review. ISO 9001 / ISO 14001. © Neometrix Defence Limited.