

Large Cavitation Tunnel Facility

CAPABILITY SHEET - VARIABLE-PRESSURE CIRCUIT, TEST SECTION, DEGASSING, DYNAMOMETRY AND ACOUSTICS - ENG

THE SYSTEM

WHAT	Variable-pressure closed-circuit water tunnels where propellers, hydrofoils and appendages meet their physics before the ship exists.
OUR ROLE	Circuit, impeller and drive, vacuum and degassing plant, test section and optics, dynamometry, imaging and acoustics, civil interfaces, training, AMC.
STATUS	Quoted against a naval research establishment's large cavitation tunnel facility requirement; no delivered cavitation tunnel is claimed.

THE GOVERNING IDEA

MATCH SIGMA, NOT THE SPEED	Model at natural pressure runs at the wrong cavitation number and lies politely - lower the pressure until model water boils where ship water would.
THE TUNNEL IS AN INSTRUMENT	Empty-section flow surveyed, dynamometers calibrated under load and speed, the acoustic floor proven - and re-proven through the facility's life.
WATER AS METROLOGY	Inception depends on the nuclei the water carries - the degassing plant is not a utility, and air content is logged with every test.

THE MACHINE

THE VERTICAL LOOP	Test section high, lightly loaded axial impeller deep where static head suppresses its own cavitation - vanes, honeycombs, screens, contraction, diffuser.
VACUUM + DEGASSING	Sigma set on demand on a calibrated pressure chain; dissolved air pulled down, free bubbles swept out, water quality on the record.
DYNAMOMETRY + ACOUSTICS	Thrust, torque, pressure pulses above the model, radiated noise on hydrophones - in a tunnel engineered quiet enough to listen.

DISTINCT & HONEST

WHAT IT SEES	Inception sigma per phenomenon - tip vortex, sheet, bubble, hub - imaged under stroboscopic and high-speed light through serious windows.
THE NAVAL FRANCHISE	The shafting page carries the propeller's thrust into the hull; this facility proves the propeller's design before steel is cut.
ENGAGEMENT	Send the test envelope, model scales and measurement scope to sales@neometrixgroup.com for a compliance matrix in two working days.

DEFENCE PROGRAMMES DESK

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