

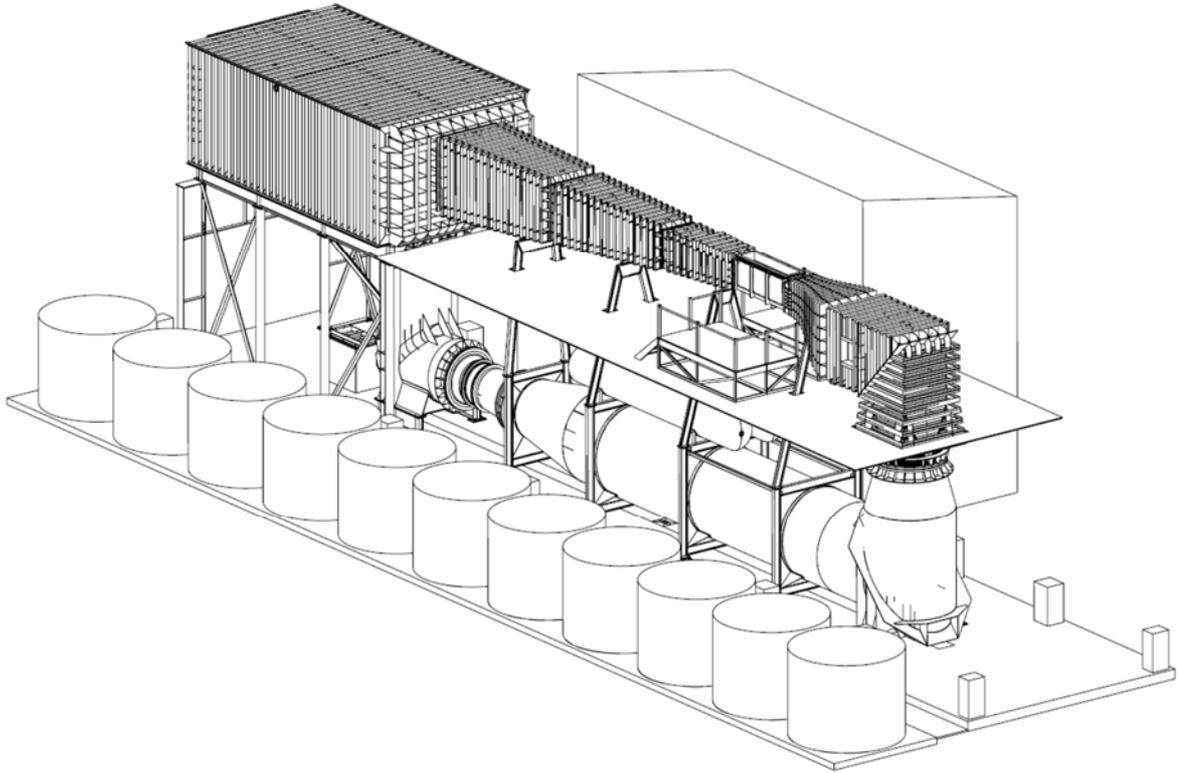
**INTERNATIONAL TOWING TANK CONFERENCE CATALOGUE OF FACILITIES
CIRCULATING WATER CHANNELS AND CAVITATION TUNNELS**

AUSTRALIAN MARITIME COLLEGE,

AUSTRALIA

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CAVITATION RESEARCH LABORATORY (2010)



DESCRIPTION OF FACILITY: Vertical plane, closed recirculating variable pressure water tunnel with downstream tank and resorber, test section dimensions 0.6 x 0.6 x 2.6m long, contraction ratio 7.12:1, circuit volume 365 cubic metres, low background noise and vibration levels, rapid degasser, online nuclei and incondensable gas injection and separation, working section ceiling boundary layer thickness control.

TYPE OF DRIVE SYSTEM: 6-Bladed axial flow impeller and 14 bladed stator with AC variable frequency drive.
TOTAL MOTOR POWER: 200kW, 1750rpm
WORKING SECTION MAX. VELOCITY: 12m/s
MAX & MIN ABS. PRESSURES: 400kPa, 4kPa
CAVITATION NUMBER RANGE: $\sigma = 0.07$ to 5.5

INSTRUMENTATION: propeller dynamometers, 6-component static and dynamic force balances, water-jet test circuit, laser diagnostics, low- and high-speed photography, 3-component traverse for physical sensors.

TYPE AND LOCATION OF TORQUE AND THRUST DYNAMOMETERS. 2 test section mounted strut type with shaft end transducers.

PROPELLER OR MODEL SIZE RANGE: diameters from 150mm to 300mm

TESTS PERFORMED:

- (1) basic cavitation research including nucleation, ventilation and diffusion phenomena
- (2) conventional propeller, hydrofoil and underwater vehicle measurements

PUBLISHED DESCRIPTION:

Brandner, P.A., Lecoffre, Y. and Walker, G.J., 2006 *Development of an Australian National Facility for Cavitation Research*, Proceedings of the Sixth International Symposium on Cavitation – CAV2006, Wageningen, The Netherlands, 9pp. (on CD).
 Brandner, P.A., Lecoffre, Y. and Walker, G.J., 2007, *Design Considerations in the Development of a Modern Cavitation Tunnel*, Proceedings of the Sixteenth Australasian Fluid Mechanics Conference, Gold Coast, Australia, 8pp. (on CD)