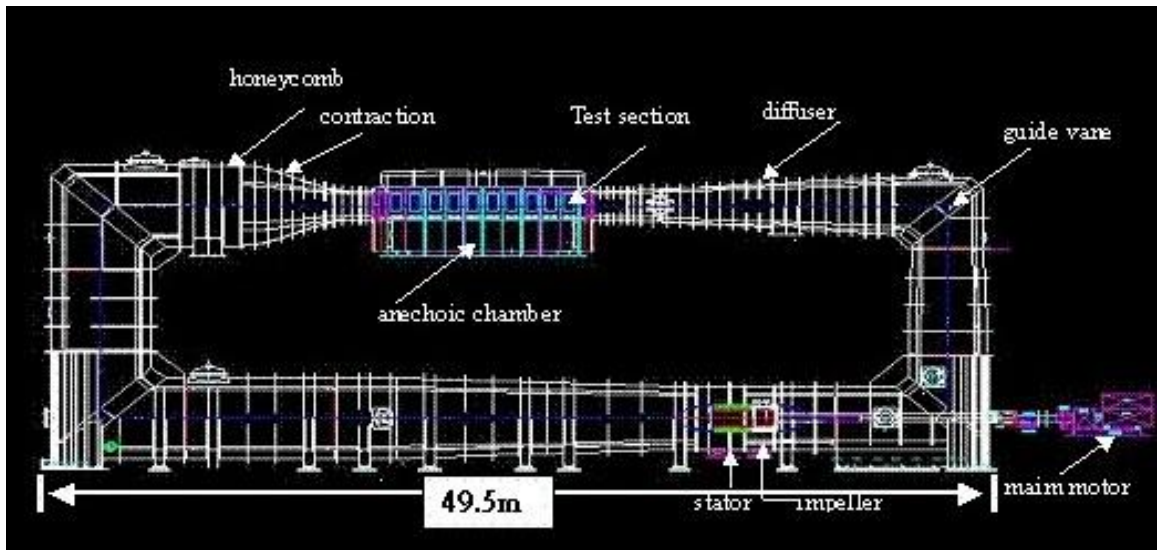


## Large Cavitation Tunnel

The Large Cavitation Tunnel was master-planned by the Ocean University, incorporating basic design from the Swedish Ship Research Laboratory (SSPA), detailed structural design by the Ship and Ocean Industries R&D Center (SOIC), and noise control design by the university. It was manufactured by Taiwan Shipbuilding's Keelung Plant and completed its basic performance testing in April 2002. The facility consists of a six-story building with two underground levels and four above-ground floors. The Tunnel body is entirely constructed of SUS 316 stainless steel, with an empty weight of approximately 470 tons and a total weight of approximately 1,400 tons when filled with water.



Exterior View of the Large Cavitation Tunnel Facility



Layout Diagram of the Large Cavitation Channel



Upper Section External View of the Large Cavitation Channel

### Test Section Specifications

**Dimensions:** Length 10.0 m × Width 2.60 m × Height 1.50 m

**Maximum flow velocity:** 12.15 m/s

**Adjustable test pressure range:** 28 kPa ~ 240 kPa

**Main drive power:** 1400 kW, 7-blade impeller, 9-blade stator

### Underwater Anechoic Chamber Specifications

**Anechoic chamber dimensions:** Length 8.2m × Width 2.2m × Height 1.77m

**Anechoic tank sound-absorbing material:** 10 dB reflection loss, with acoustic impedance matching that of water. Underwater microphones are installed in the anechoic tank to measure the sound intensity and frequency generated by test objects in the test section.



Test Section of the Large Cavitation Channel



Observation Platform of the Large Cavitation Tunnel Test Section



### **Main Functions**

Due to its combined characteristics of acoustic quietness and large dimensions, this channel's primary function is research and development of underwater fluid dynamics and noise.

- Research on fluid dynamics and underwater noise of submarines and various high-speed underwater vehicles
- Research on hull excitation forces and underwater noise generated by surface vessel propellers
- Development of high value-added ship hull forms and measurement of propeller excitation forces
- Flow field measurement, cavitation observation, and underwater noise measurement for various vehicles