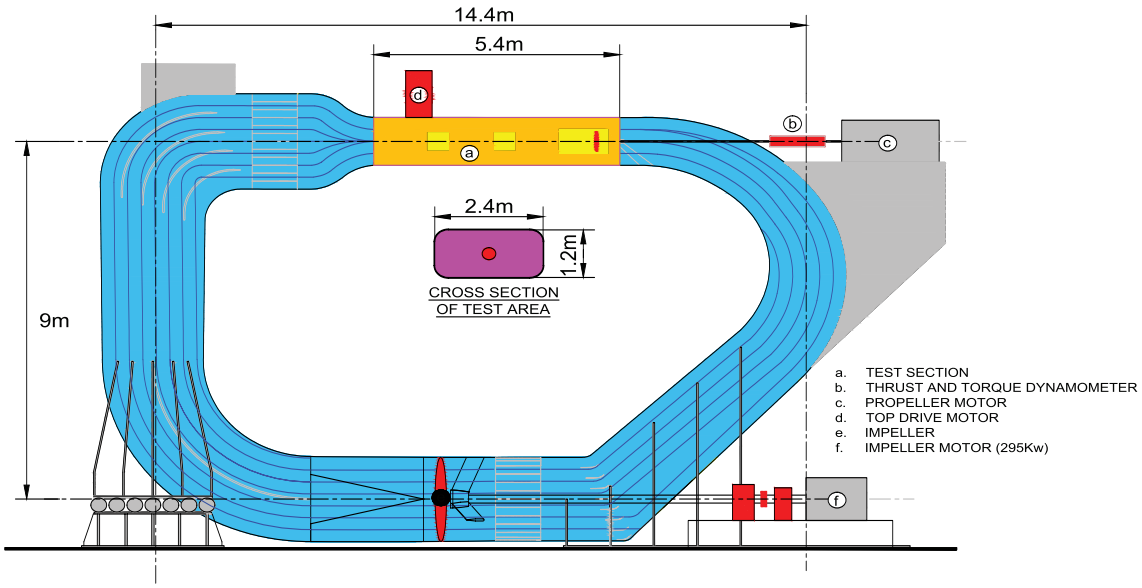
Cavitation Tunnel

Underpinning QinetiQ's propulsion capability



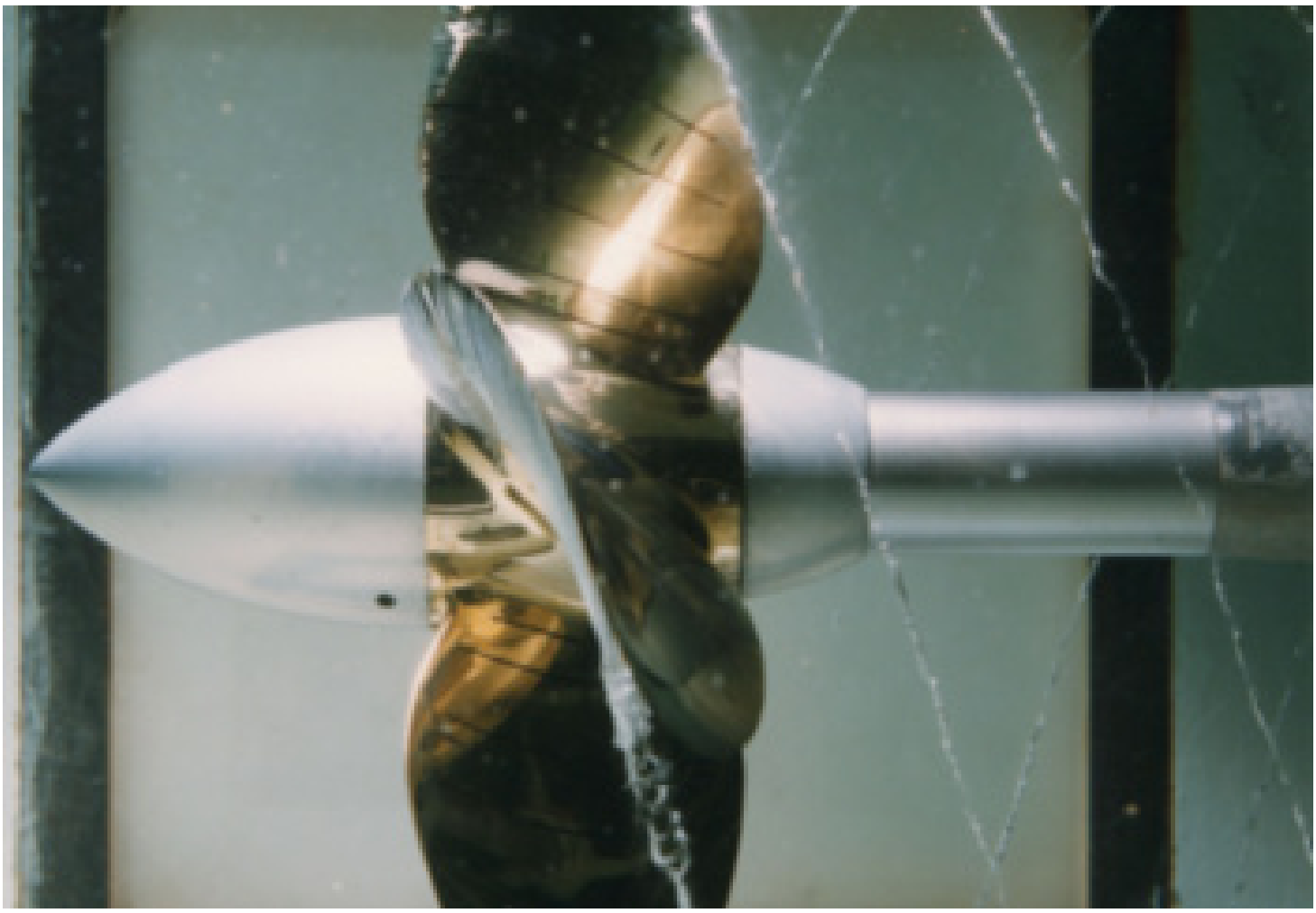
QinetiQ's Cavitation Tunnel forms our suite of hydrodynamic testing facilities on the Haslar site together with our 270m long Ship Tank and our newly upgraded Ocean Basin.

We use physical model testing, Computational Fluid Dynamics (CFD) and an analytical toolset to fully understand propulsion systems, and conduct design and analytical work to refine and optimise them.

Technical Specification

Working section dimensions:
5.4m (L) x 2.4m (W) x 1.2m (H)
Working Section Pressure:
3 kPa to 150 kPa
Maximum Flow Speed:
7.9m/s

- Large working section
- 'Open-water' experiments for propulsion and cavitation evaluation of propeller models
- 'Behind' experiments for wake surveys, propulsion and cavitation assessment
- Excellent cavitation viewing conditions for inception speed evaluation
- Measurement of fluctuating shaft forces, surface pressures and flow velocities
- Versatile facility used for unconventional tests
  - Small boat propellers
  - Flow induced vibration of cables



QinetiQ has a wealth of experience in the design and assessment of warship propellers. The Cavitation Tunnel is one of the major facilities used in this process.

It has a large working section, making it ideal for testing hull and propeller combinations, with measurement of the propulsive performance of the propeller and its cavitation inception speed being of particular interest.

For military customers, cavitation is crucial due to signature implications. Commercial clients are able to reap the benefits of this development of efficient, low noise propeller design and testing to ensure that their hull and propeller combinations are optimised for their operational regime with fuel used minimised, and providing evidence of noise signature to demonstrate environmental legislative compliance.

The Cavitation Tunnel has been used for many unusual experiments, including an assessment of propellers for outboard motors (with the outboard motor installed in place of the tunnel lid) and a study of flow-induced vibration of wire cables.

A number of special tools and a wide selection of instrumentation and photographic equipment are available to support testing, combined with access to an extensive range of computer based prediction and analysis programs.

A design office and fully equipped workshop for hull model and propeller/propulsor manufacture are available on site.

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