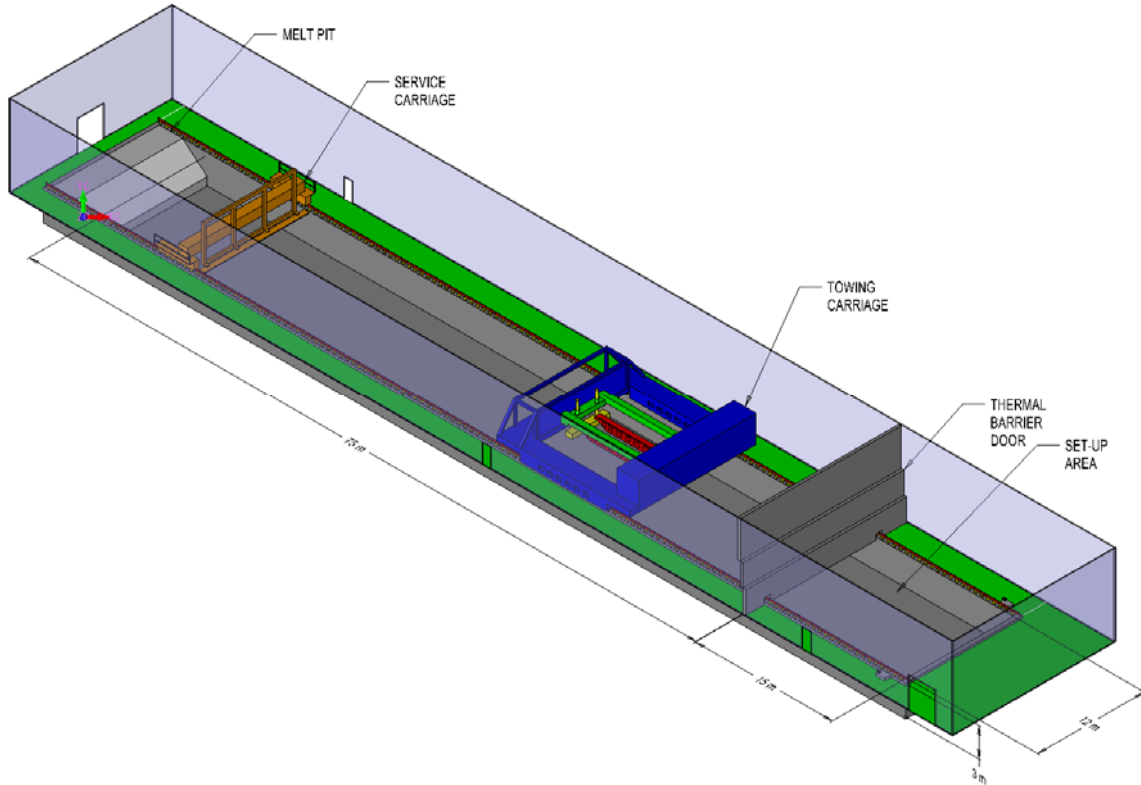


**INTERNATIONAL TOWING TANK CONFERENCE CATALOGUE OF FACILITIES  
TOWING TANKS, SEAKEEPING AND MANOEUVERING BASINS**

NATIONAL RESEARCH COUNCIL OF CANADA  
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**ICE TANK (1985)**



**TOWING CARRIAGE:** Manned carriage with a 4 wheel or rack synchronous motor drive, test frame adjustable for model size, 80,000 kg mass, 745 kW of power for a drive force of 60 kN, speed range 0.0002 m/s to 4.0 m/s. Also includes and underwater Frame 9.4m long by 6.3 wide running on pneumatic wheels over the bottom of the tank, connected to tow carriage. Capable of speeds of up to 1.0m/s.

**SERVICE CARRIAGE:** Separate carriage with adjustable height work platform and rotatable push blades for ice management and ice ridge construction. Carriage is independently controlled or can be connected to tow carriage.

**REFRIGERATION:** Ammonia-based, 26 evaporators, computerized control, temp. range  $-30^{\circ}\text{C}$  to  $+15^{\circ}\text{C}$ , ice growth 2.5 mm/hr @  $-20^{\circ}\text{C}$

**TEST ICE:** NRC EG/AD/S formulation; fine grain columnar structure with controllable density to correctly model ice buoyancy; thickness range 5 mm to 160 cm, ice strength range 10 kPa to 150 kPa

**TEST EQUIPMENT:** 2D multibeam imaging sonar system mounted on underwater carriage for ice rubble and ice ridge thickness profiles and for measuring ice build up in front of structures, underwater and above water video, Planar Motion Mechanism (PMM).

**MODEL SIZE RANGE:** Ship models up to 12m in length, floating structures 0.5m – 4 m in diameter.

**TESTS PERFORMED:** Ship resistance and self-propulsion in ice and open water, ice forces on moored and fixed structures, free manoeuvring in ice, manoeuvring (PMM) in ice and open water.

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Website [www.nrc-cnrc.gc.ca/eng/rd/ocre/](http://www.nrc-cnrc.gc.ca/eng/rd/ocre/)