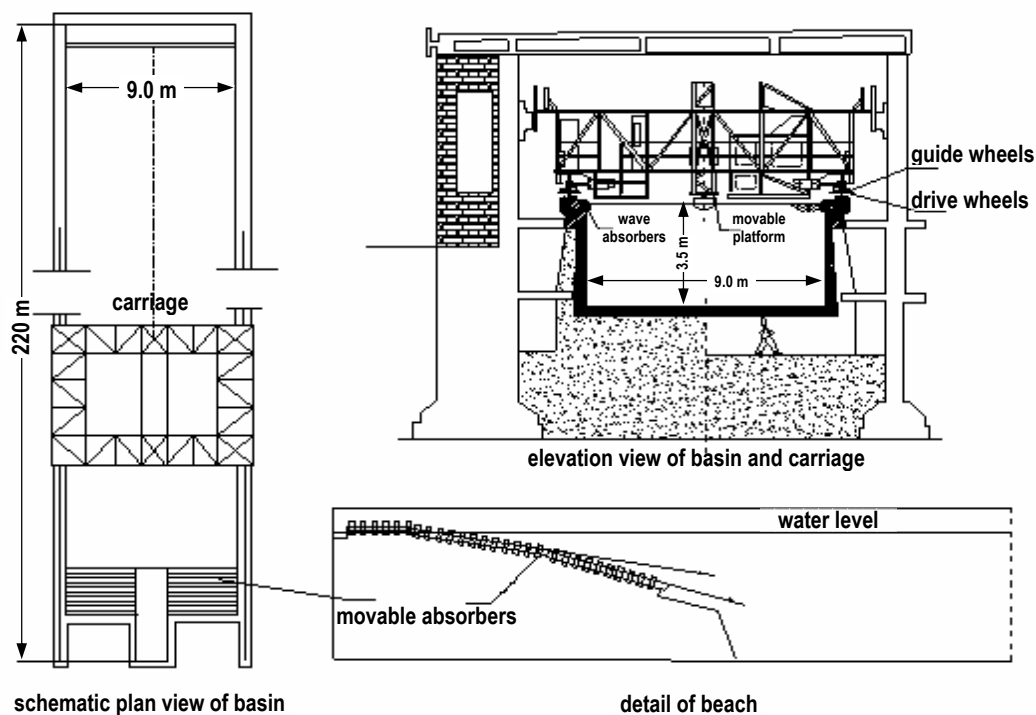


INTERNATIONAL TOWING TANK CONFERENCE CATALOGUE OF FACILITIES  
TOWING TANKS, SEAKEEPING AND MANOEUVRING BASINS

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ITALY

TOWING TANK NO. 2 (1976)



**Description of tank:** length = 220 m, breadth = 9.0 m, water depth = 3.5 m

**Description of carriage:** motor driven, manual control and automatic, manned

**Drive system and power:** Electric drive system with 8 drive wheels, each coupled to a DC main motor via a reduction gear, and 2 pairs of horizontal guide wheels (only on one rail). Electric main motors (57 kW × 8)

**Maximum carriage speed:** 10.0 m/s (accuracy better than ±0.15 %)

**Wave generation capability:** regular waves from 1 to 10 m in length, with corresponding height of 100 to 450 mm (slope 1°±9°); irregular waves according to any desired sea spectrum condition in appropriate scale

**Wavemaker type and extent:** one-side flap-type, 9 m wide, electro-hydraulically powered with 3 pumps of 38.5 kW total power, controlled by a 100 harmonic components electronic programming device, each harmonic modulated both in amplitude and frequency

**Beach type and length:** 2 crossed layers of square tubular 70 × 70 mm equally spaced, with movable central part for model transit

**Wind generation capability:** for mooring tests an additional structure, carrying wind generators, can be added on the beach of the carriage and oriented on the horizontal plane; air blowing generation system, of 2 rows with 6 fans each, capable of a continuous variation of speed (from 0 to 20 m/s), direction (0°±20°) and vertical gradient

**Instrumentation:** force balance dynamometers; model propeller transmission dynamometers; 5-holes Pitot tube rakes for wake surveys; 1 to 6-component balance for rudders and ship models tests; fully submerged propeller dynamometer (thrust range = ± 400 N, torque range = ± 15 Nm, speed range = 60 to 3000, rpm motor power 5 kW, right and left hand rotation, inclined operation up to ±15° in vertical plane) for open water characterisation of propellers in axial or inclined flow; 3-D optical system and inertial platform for measuring ship model motions in waves

**Model size range:** 1.5 m±8.0 m

**Tests performed:** (1) resistance and self propulsion in calm water (in deep and shallow water); (2) 3-D wake surveys; (3) open water propeller characterisation; (4) seakeeping and propulsion evaluation in head and following waves; (5) hydrodynamic forces on profiles, especially of rudders and medium and large sized ship models; (6) mooring tests

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