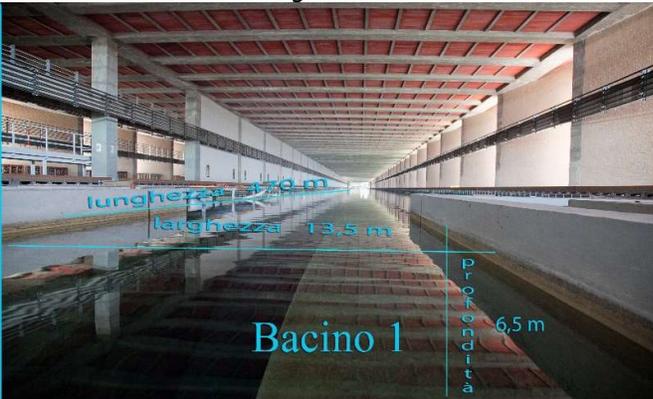
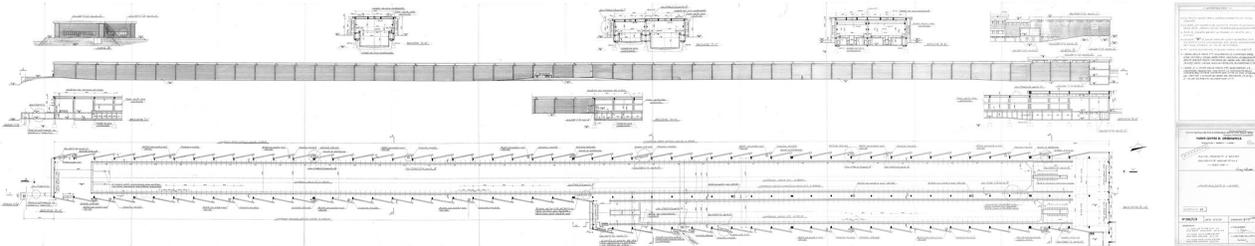


Name of organization CNR-INM National Research Council of Italy Institute of Marine Engineering		Year of information updating 2021
Year established 2018		Year of joining the ITTC 1933
Address Via di Vallerano 139		Status in the ITTC AC member
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Type of facility Seakeeping and Towing Tanks	Year constructed/upgraded 1962	
Name of facility Seakeeping Tank – Emilio Castagneto (ST) Towing Tank – Umberto Pugliese (TT)	Location (if different from the above address)	
Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top) <u>Emilio Castagneto (ST):</u> It is 220 m long, 9 m wide and has a depth of 3.8 m. Marine vehicles length: 1.5 m÷8.0 m; turbines diameter: up to 1.5 m <u>Umberto Pugliese (TT):</u> It is 470 m long, 13.5 m wide and has a depth of 6.5 m. Marine vehicles length: 1.5 m÷8.0 m; turbines diameter: up to 1.5 m		
Drawings of facility Top-view plan Bacino 2 → Emilio Castagneto		
		Bacino 1 → Umberto Pugliese
		
		

Detailed characteristics (carriages, wave/current/wind generators, instrumentations, etc.)

Emilio Castagneto (ST):

Carriage: Speed range : 0 – 7 m/s

Wavemaker: It is equipped with a single-flap wave generator, that provides regular as well as irregular waves for the investigation of seakeeping performances and absorbing beach in the opposite side with movable central part.

Waves amplitude: up to 400mm; Waves frequency: up to 2Hz; values depending of the Wave Basin Transfer Function (in other words not all combinations of amplitudes and frequencies are feasible). WBTF checked and eventually upgraded every 3 years.

Instrumentations: 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 $\pm 15^\circ$ in vertical plane) for open water characterisation of propellers in axial or inclined flow; 3-D optical system for measuring ship model motions in waves; ultrasound, servo-type and resistance probes for measuring wave elevation.

Umberto Pugliese (TT):

Carriage: Speed range : 0 – 13 m/s

The towing tanks have many applications, mainly concerning resistance and propulsion tests for performance evaluation of proposed design. The size of towing tank no. 1 offers excellent capabilities for the investigation of large, self-propelled models of high-speed vessels (mono- or multi-hull, semi-planing and planing craft, etc.). Equipment and methodologies for testing submarines and sail boats are available. Various unconventional marine vehicles are also designed and tested. The carriage supports the set up of the 6-component balance for submerged bodies or the Planar Motion Mechanism (PMM) for surface ships

Instrumentations: Force balance dynamometers; model propeller transmission dynamometers; Pitot tube rakes and five-hole Pitot tube for wake surveys; special test rig for sailing yacht tests; 6-component balance and model propeller transmission dynamometers for manoeuvring tests (PMM); three-components SPIV measurement systems; 3-D optical system for measuring ship model motions.

Applications (Tests performed)

Emilio Castagneto (ST):

Tests performed include:

- Resistance and self propulsion in waves
- Open water propeller characterization
- Seakeeping and propulsion evaluation in head and following waves
- Hydrodynamic forces on profiles, especially of rudders and medium and large sized ship models
- Mooring tests
- Wave energy converter tests

Umberto Pugliese (TT):

Tests performed include:

- Resistance and self propulsion in calm water
- 3-D wake surveys
- Vertical and horizontal planar motion experiments
- Resistance, self propulsion and hydrodynamic forces on submerged bodies
- Resistance, self propulsion tests for high speed marine vehicles
- Upright, yawed and heeled sailing yacht tests
- Tidal and current turbine tests

Published description (Publications on this facility)