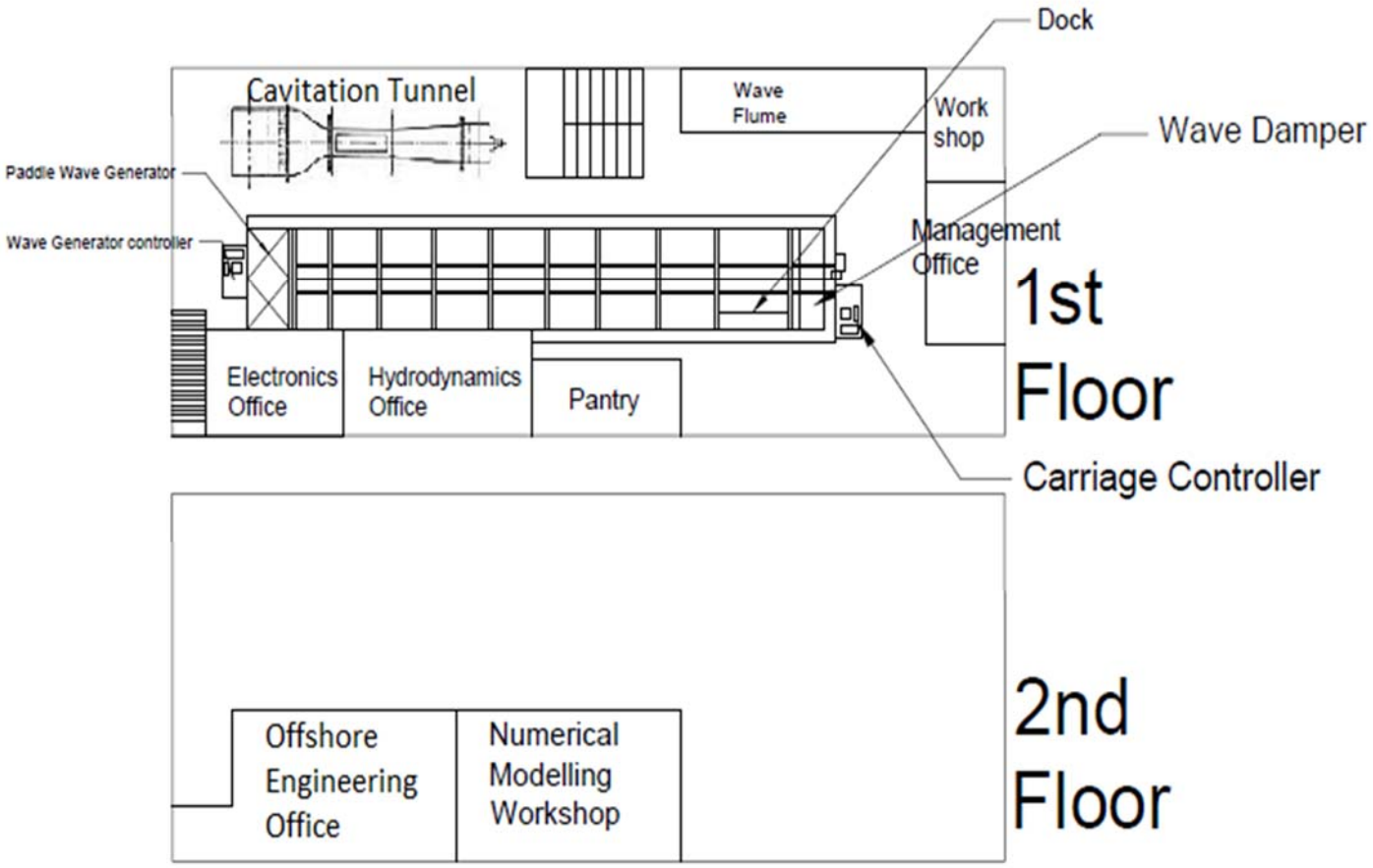
Name of organization Sharif University of Technology Marine Engineering Research Center	**Year of information updating** 2016
Year established 1993	**Year of joining the ITTC** 2001
Address Sharif University of Technology, Azadi Avenue, Tehran, Iran	**Status in the ITTC** Member
Contact details (phone, fax, e-mail) Tel.: +98 21 6616 5699 Fax: +98 21 6616 5563 E-mail: seif@sharif.edu	**Website** http://merc.sharif.ir

Type of facility Center of Excellence in Hydrodynamics and Dynamics of Marine Vehicles	**Year constructed / upgraded** 1993 / 2009
Name of facility Marine Engineering Laboratory	**Location** (if different from the above address)

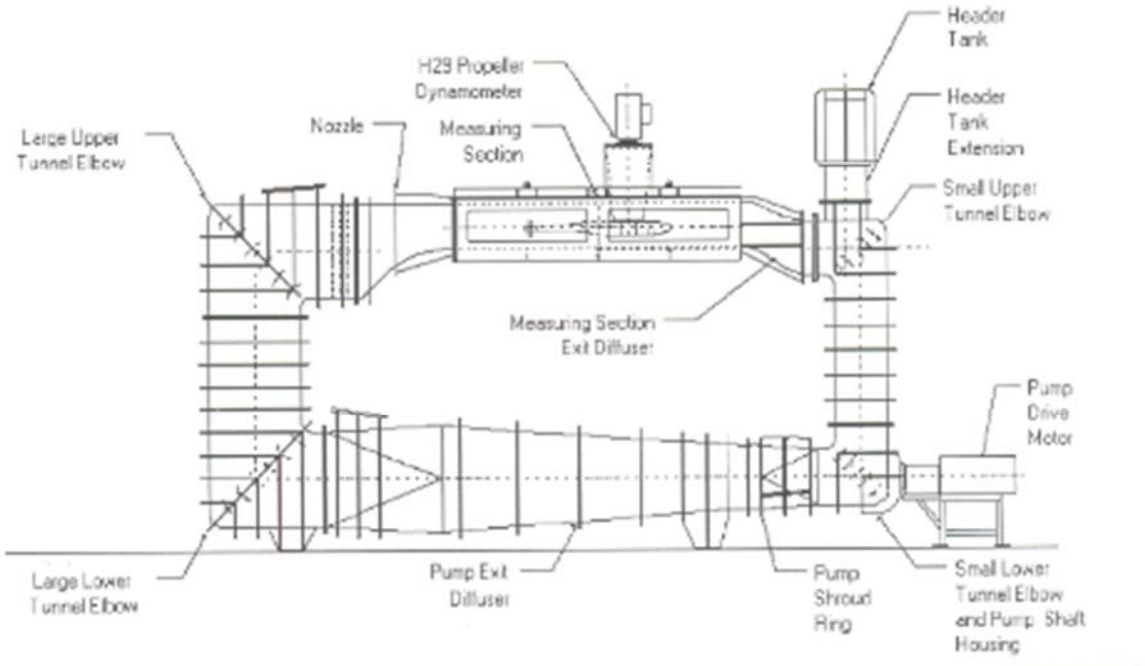
Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top)
Towing Tank: 28m (length) x 2.5m (width) with adjustable 0-1.2m (depth) with 6 m/s carriage; resistance, oblique towing and sea keeping test
Wave Maker: Paddle wave maker capable of generating linear waves with minimum amplitude of 0.01m
Wave flume: 5.2m x 0.3m x 0.3m wave flume with wave damper, capable of generating linear waves
Cavitation Tunnel: with 0.63m x 0.35m test section
CFD simulations: 32 cores processor computer

Drawings of facility

Facility Top-view plan



Cavitation tunnel Corss-section-view plan



Detailed characteristics (carriages, wave/current/wind generators, instrumentations, etc.)
Carriage: 0.01-6 m/s, driven by DC motor
Dynamometer for drag test
Dynamometer for drift/drag test up to angles -18~+18 degrees

Cavitation Tunnel: The specifications of the K23 with standard measuring section are:

Measuring Section: 60 cm x 34 cm

Contraction ratio of the nozzle: 6 : 1

Maximum velocity of the water in the measuring section. Approx.: 9 m/s

Pressure regulation from relatively high vacuum to about above atmospheric pressure: 1 bar

Centre to centre length between the two vertical parts: 4.89m

Impeller drive by AC Variable speed motor: 11 kW

Impeller Motor Speed: 1500rpm

Impeller Motor Speed Regulation: 1 : 15

Towing Tank: 28 x 2.5 x 1.2m tank with adjustable depth. Equipped with wave generator, wave damper and side glass windows for better visualization. Equipped with drop test instrumentation.

Maximum model weight, length and acceleration: 15kg, 1.8m and 2 m/s2

Dynamometers: 25KGf dynamometers with adjustable drift angle for resistance, seakeeping and oblique towing test

Wave Generator: Flap type wave generator with at the end of the tank, capable of generating regular waves with wave length 0.2m - 2m, wave amplitude of 0.01m ~ 0.12m.

Applications (Tests performed)

Design and optimization of commercial ship hulls
Design and optimization of commercial propellers
Drag and sea keeping model tests
Openwater tests
Free running model tests
Wave loads analysis
Wave studying analysis
Design and manufacturing of dynamometers
Fiberglass model manufacturing work shop
VIV studies and optimization

Published description (Publications on this facility)

The effect of added mass fluctuations on vertical vibration of a TLP (International Journal of Engineering)(2003)
New technologies for higher speed at sea (Malasya-Marine Technology) (2003)
Resistance test of a foil assisted catamaran (Poland–Hydronav) (2003)
Technical aspects of future ships (Russia-NEVA) (2003)
Numerical modeling of water impact (Russia-NEVA) (2003)
Performance comparison between planning monohull and catamaran at high Froude numbers (Iranian Journal of Science and Technology) (2004)
Feasibility study for Urmia lake floating bridge (Oceanic Engineering International Journal) (2004)
Vertical response of TLP with the effect of added mass fluctuation (Croatia-Sorta) (2004)
Experimental study on Hysucat vessels (China Ocean Engineering Journal) (2004)
Boundary Element Method (BEM) for wave making resistance of displacement catamaran (Italy-Hiper) (2004)
Numerical simulation of three-dimensional interfacial flows (Germany-Nutts) (2004)
Axial vibration of TLP tendons under sea wave load (Bulgaria-Black Sea) (2004)
Principles of submarine dynamics modeling (USA-International Underwater Intervention-New Orleans) (2005)
Comparison of interface capturing methods in multiphase flow (Iran-Iranian Journal of Science and Technology) (2005)
Geometrical optimization of TLP hull using genetic algorithm method to minimize down time (Austria-First International Conference on Design Engineering And Science) (2005)
A comprehensive study of dynamic responses of tension leg platform under sea wave loads (9th Conference of Mechanical Engineering) (2005)
Numerical calculations of ship induced waves (Iran-Marine Engineering Journal) (2005)
Stochastic nonlinear dynamic analysis of TLP under wave loads (Iran-Marine Engineering Journal) (2006)
Numerical simulation of three-dimensional interfacial flows (England- International Journal of Numerical Methods for Heat and Fluid Flow) (2007)
Development of a VOF fractional step solver for floating body motion simulation (UK-Applied Ocean Research) (2007)
Towards simulation of 3D nonlinear high-speed vessels motion (England-Ocean Engineering) (2008)
A unified computation method for simulating dynamic behavior of planning vessels (Chine-China ocean Engineering Journal) (2009)
Unsteady multiphase modeling of cavitation around NACA0015 (Taiwan-Journal of Marine Science Technology) (2010)
Numerical simulation of underwater propeller non-activating noise (Iran-International Journal of Maritime Technology) (2013)
An experimental study of interceptor's effectiveness (Poland-Polish Maritime Research) (2013)
A study on vertical motions of high speed planning boats with automatically controlled aft interceptors in calm water and head waves) (2014)
RANS simulation of interceptor effect on hydrodynamic coefficients of longitudinal equations of motion of planning catamarans) (2014)
A numerical study on initiation and development if cavitation and its effects on marine propellers noise (Journal of Engineering for the Maritime Environment) (2015)
A mathematical model for acceleration phase of aerodynamically alleviated catamarans and minimizing the time needed to reach final speed (Journal of Marine Science and Technology) (2016)
Up to more than 80 papers by this date