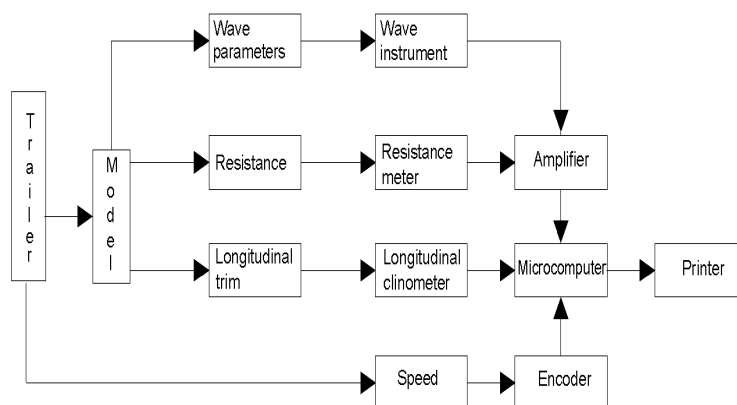


<b>Name of organization</b> Towing tank of Zhejiang Ocean University	<b>Year of information updating</b> Dec 30, 2015
<b>Year established</b> February , 2006	<b>Year of joining the ITTC</b> 2015
<b>Address</b> No.1, Haida South Road, Lincheng Changzhi Island,Zhoushan, Zhejiang, 316022 P.R.China	<b>Status in the ITTC</b> Member
<b>Contact details</b> (phone, fax, e-mail) Phone:86-13454080152 Fax:86-580-2550051 Email:zzd@zjou.edu.cn	<b>Website</b> <a href="http://chxy.zjou.edu.cn/zwy_list.jsp?urltype=tree.TreeTempUrl&amp;wbtreeid=1102">http://chxy.zjou.edu.cn/zwy_list.jsp?urltype=tree.TreeTempUrl&amp;wbtreeid=1102</a>  <a href="http://en.zjou.edu.cn/">http://en.zjou.edu.cn/</a>
<b>Type of facility</b> Towing tank	<b>Year constructed/upgraded</b> February, 2006
<b>Name of facility</b>	<b>Location</b> (if different from the above address) No.68, Haiyuan Road,Zhejiang Ocean University, Zhoushan 316000, China

**Main characteristics** (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top)  
The towing tank size (LxWxH):(130m×6m×4.1m. The length of boatyard is 5 meters long and the wave maker is 4 meters long, the maximum length of test section is 121 meters long.

### Drawings of facility

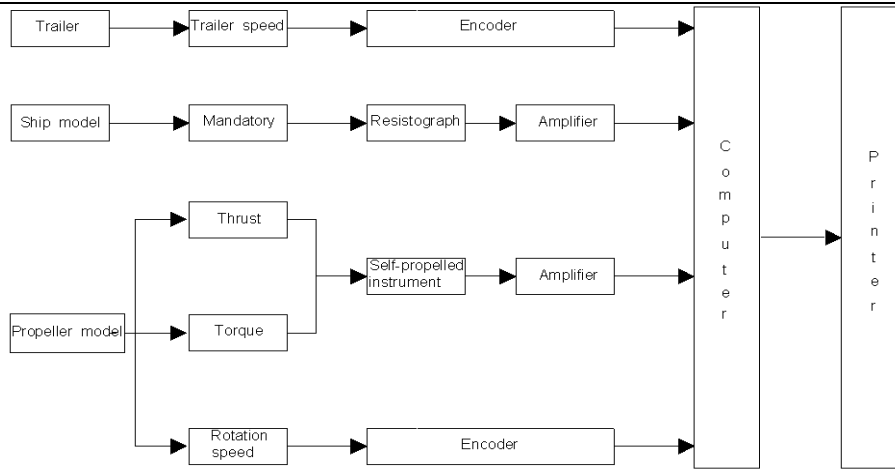
#### 1. Resistance experiment test system



Main particular of resistance experiment

No.	Parameter	Range of measurement parameters
1	Model towing speed	0.1 ~ 6.5m/s
2	Model towing resistance	0.0 ~ 300N
3	Model measuring point heave	-200 ~ +200mm
4	Wave height	-300 ~ +300mm

#### 2. Self-propulsion test system

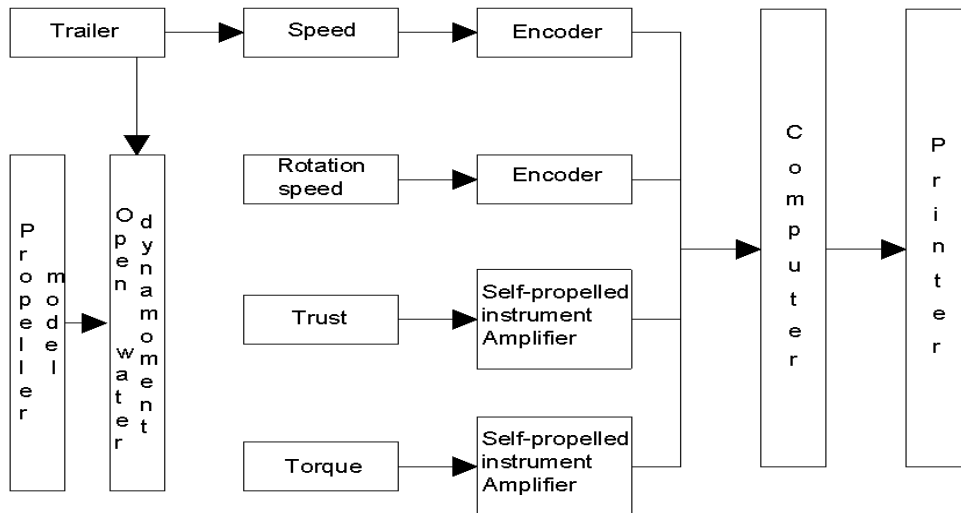


Schematic diagram of self-propulsion experiment

Main particular of self-propulsion experiment

No.	Parameter	Range of measurement parameters
1	Model of the towing speed	1 ~ 6m/s
2	Propeller speed	0 ~ 40r/s
3	Model of coercive power	0 ~ 100N
4	Propeller thrust	0 ~ 100N
5	Propeller torque	0 ~ 4Nm

### 3. Testing system of Open water experiment of propeller



Main particular of open water experiment

No.	Parameter	Range of measurement parameters
1	Model of the towing speed	0.1 ~ 6.5m/s
2	Propeller speed	0 ~ 50r/s
3	Propeller thrust	0 ~ 200N
4	Propeller torque	0 ~ 7Nm

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

The dimension of the towing tank is 130m×6m×4.1m. The main facilities include the trailer, hydraulic servo wave generator, the self-propulsion maneuvering test system, and also net position controlling system for fishing net test.

The measuring bridge can be moved in vertical and transverse direction. The main facilities include ship model resistance dynamometer (Cussons, R47-1), friction-free strain type self-propulsion apparatus (HG-601), dynamic meter for propeller in open water, wave meter, measuring instrument of trim and heave. The operating system of wave making is made up of computer and servo control system. Different wave spectrum, including regular wave and irregular wave, can be simulated.

The speed of the trailer is 0.1~6.5m/s. Such waves can be generated:

1. wavelength: 0.5~20m
2. wave period: 0.5~5.0
3. wave frequency: 0.2~2.0Hz

When water depth is 3.5m, the maximum wave height of regular wave can reach to 0.35m, and the wave length is 10~5m.

**Applications** (Tests performed)

In the recent 5 years, over 40 tests have performed in the tank. Here are some of them:

- 1.2015.11-12 Resistance experiment test of 138m san carrier, for Ningbo HAIXING Design Institute.
- 2.2015.10 Resistance test and movement test of semi-submersible, for Shanghai Jiaotong Univ.
- 3.2015.08-09 Resistance experiment test of bulk carrier, for Hangzhou HAITONG Design Institute.
4. 2015.06-07 Vortex-induced movement test of semi-submersible, for Shanghai Jiaotong Univ.
- 5.2015.06 Resistance experiment test of yacht, for XINMA Design Institute.
- 6.2015.05 Resistance test of bulk carrier, for WANDA Design Institute.
- 7.2015.04 Resistance test of engineering vessel, for XINHAI Design Institute.
- 8.2015.11-12 Resistance test of river and ocean combined ship, for XINHAI Design Institute.
- 9.2014.11 Resistance test of bulk carrier, for XINHAI Design Institute.
- 10.2014.09 Resistance test of fishing vessel, for XINHAI Design Institute.
- 11.2014.07-08 Vortex-induced movement test of Truss SPAR, for Shanghai Jiaotong Univ.
- 12.2014.06 Resistance test of engineering vessel, for PACIFIC Ocean Engineering (Zhoushan).
- 13.2014.04 Resistance test of fishing vessel, for JINXIN Design Institute.
- 14.2014.03 Vortex-induced movement test of SPAR model, for Shanghai Jiaotong Univ.
- 15.2013.12 Resistance test of fishery administration vessel, for XINHAI Design Institute.
- 16.2013.10 Resistance test of fishing vessel, for WANDA Design Institute.
- 17.2013.09 Resistance test of engineering vessel, for XINHAI Design Institute.
- 18.2013.06 Resistance test of bulk carrier, for ZENGZHOU Ship Yard.
- 19.2013.05 Resistance test of river and ocean combined ship, for WANDA Design Institute.
- 17.2013.1-2 Resistance experiment test of engineering ship for CNOOC, 229.
- 18.2012.11 Resistance test of dry cargo ship, for XINHAI Design Institute.
- 19.2012.10 Resistance test of bulk carrier, for Zhenghe Ship Yard.
- 20.2012.08 Resistance test of fishery administration vessel, for WANDA Design Institute.
- 21.2012.07 Resistance test of fishing vessel, for XINHAI Design Institute.
- 22.2012.04 Resistance experiment test of 360dwt bulk carrier, for ZHENGHE SHIP YARD.
- 23.2012.01 Resistance test of bulk carrier, for DONGFANG Design Institute.
- 24.2011.11 Resistance test of covered barge, for XINHAI Design Institute.
- 25.2011.9-10 Resistance test of fishing vessel, for WANDA Design Institute.
- 26.2011.07 Resistance experiment test of bulk carrier, for ZHENGHE SHIP YARD.

28.2011.06 Resistance test of bulk carrier, for NINGBO DONGFANG Design Institute.

29.2011.05 Resistance test of fishing vessel, for DONGFANG Design Institute.

30.2011.03 Resistance test of bulk carrier, for XINGHAI Design Institute.

**Published description** (Publications on this facility)

In the recent years, over 20 papers are published on this facility. Here are some of them:

1.LI Guangnian, XIE Yonghe, GUO Xin. Design of Towing Tank[J]. SHIPBUILDING OF CHINA(in Chinese). Vol.52 No.3. Sep. 2011

2.LI Guangnian , GUO Xin , YU Aihua , XIE Yonghe. A method of Adjusting the Track of the Towing Tank[J]. SHIP & OCEANENGINEERING(in Chinese). Vol.39 No.2. Apr.2010

3.GUO Xin, LI Guang-nian, LAO Zhan-jie. Design and Analysis on Trailer System of Towing Tank[J]. SHIP & OCEANENGINEERING(in Chinese), Vol.42 No.3. Jun.2013

4.LI Guang-nian, Design on the testing system of the towing tank(C), ICHPSM 2011

5.Li Detang, Research on Model and Simulation of Hydraulic Lifting System of the Wave Power Generating Platform based on AMESim.(C) ,IIICEC 2015

6. Chen Zhengshou, Risk analysis and assessment of overtopping concerning sea dikes in the case of storm surge, China Ocean Engineering,ISSN:0890-5487,2014-08, 28(4):479-487.

7. Zhao-De Zhang, Yan Zhang, Safety Analysis of a Working Ship Operating on the Sea, 2015National Conference of Information Technology and Computer Science (CITCS2015).

8.Zhao Xiaodong, Studies on Nano-additive for the Substitution of Hazardous Chemical Substances in Antifouling Coatings for the Protection of Ship Hulls, Pakistan Journal of Pharmaceutical Sciences, ISSN 011-601X, 2014.07、 27(4)、 1117-1122

9.Li Detang, Analysis of Floating Buoy of a Wave Power Generating Jack-Up Platform Haiyuan 1, Hindawi Publishing Corporation Advances in Mechanical Engineering.

10. Wang Huaming, Numerical Study on Hydrodynamic Performance of Submarine in Turning Motion, Proceedings of IWNTM'2012.

11.Li Detang, The research and development of steady and continuously wave power generating, Frontiers of Energy and Environmental Engineering.

12. Li Guangnian, Wave making analysis of asymmetric twin hull ship, Shipbuilding of China, ISSN 1000-4882.

13. LI Guangnian, Wu Weiguo, Hydraulic model test of hydroturbine in vertical direction[J]; Shipbuilding of China, 2014.03, Vol.55 No.1:143-148

14. Liu Yulang, Roll Stability's Catastrophe Mechanism of a Flooded Ship on Regular Sea Waves, Chinese Physics, ISSN 1674-1056,2014.04,23 (4),1-4.