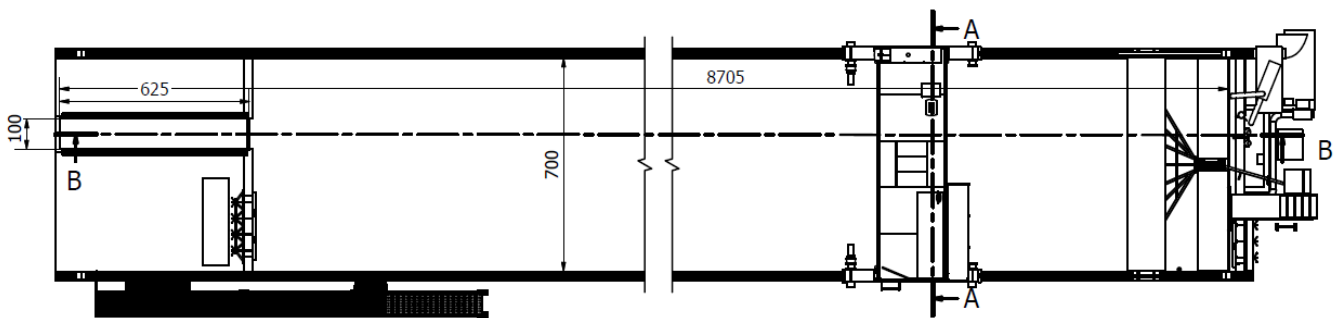
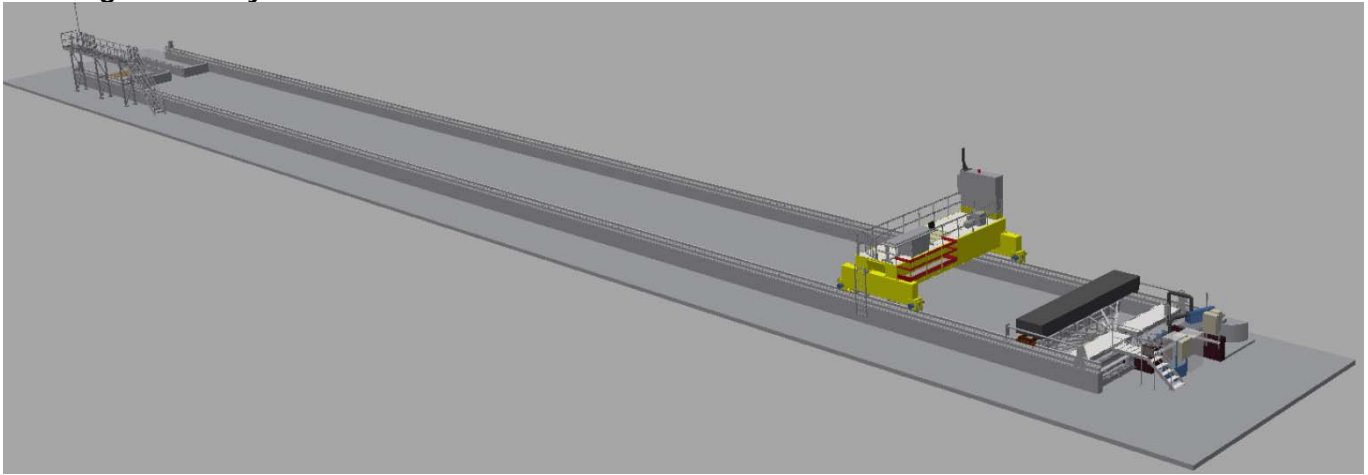
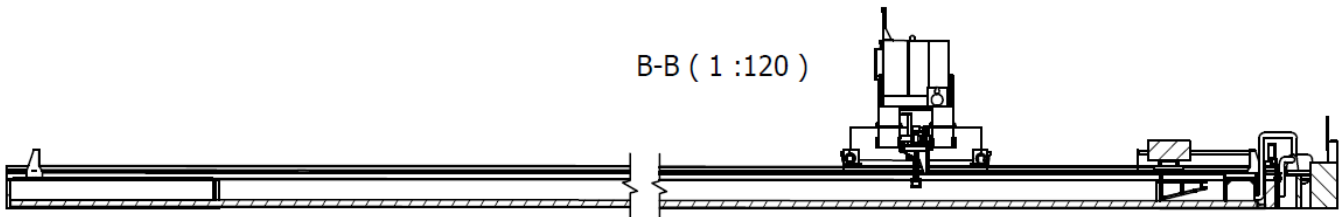


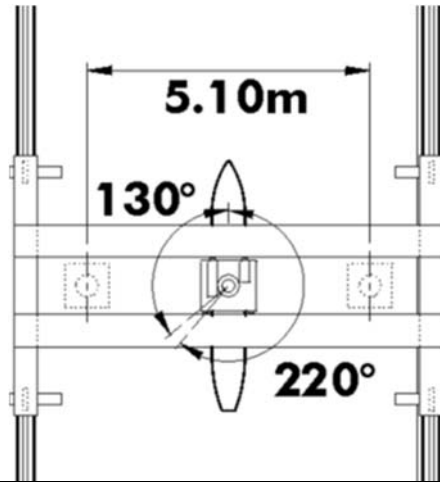
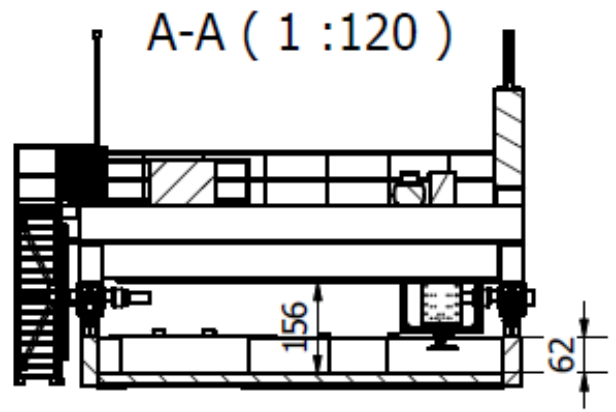
Name of organization Flanders Hydraulics Research (FHR) & Ghent University (UGent)		Year of information updating 2016
Year established 1992		Year of joining the ITTC 1993
Address Berchemlei 115, 2140 Antwerp, Belgium		Status in the ITTC Member
Contact details (phone, fax, e-mail) FHR: +32 324 60 35 UGent: +32 9 264 55 55 info@shallowwater.be		Website www.shallowwater.be
Type of facility Towing tank for ship manoeuvring (in shallow water)	Year constructed/upgraded 1992/continuously	
Name of facility Towing Tank for Manoeuvres in Shallow Water	Location (if different from the above address)	
Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top)		
Total length	[m]	87.5
Useful length	[m]	68.0
Width	[m]	7.0
Maximum water depth	[m]	0.50
Length of the ship models	[m]	3.5 – 4.5

Drawings of facility



B-B (1 :120)





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

Carriage: Range of positions, velocities, and accelerations

	Main carriage	Lateral carriage	Yawing table
Minimal position	0.000 m	-2.550 m	-130.0°
Maximal position	68.000 m	+2.550 m	+220.0°
Maximal velocity	2.01 m/s	1.30 m/s	16.0°/s
Maximal acceleration	0.40 m/s ²	0.70 m/s ²	8.0 °/s ²
Power Output	2 x 7.2 kW	4.3 kW	1.0 kW

Tests can be performed both in captive and in free running mode

Wave generator

Both regular and irregular long-crested waves can be generated. The piston of this wave generator is driven by an electro-hydraulic unit.

Kinematical characteristics of the wave generator

Stroke	Velocity	Acceleration
0.3 m	0.6 m/s	4.4 m/s

The towing tank is equipped with:

- 4 x 2 dynamometers for longitudinal and lateral forces (20, 50, 100, 200 N) (only captive);
- dynamometers for roll moment (only captive);
- measurement of propeller rpm;

- 3 propeller thrust and torque dynamometers (30 N, 0.5 Nm);
- measurement of vertical motion (due to squat or wave action) at different positions;
- measurement of rudder angle;
- 5 rudder force and moment dynamometers (50 N, 2 Nm);
- custom instrumentation such as Z-drives, lateral thrusters, etc. with steering capabilities and force measurements;
- wave height measurement devices;
- visuals system to assess water and wave actions;
- auxiliary carriage and/or secondary beam to perform ship-ship interaction tests

The tank is fully automated and can execute tests 24/7.

Applications (Tests performed)

Captive manoeuvring tests in shallow water for developing mathematical manoeuvring models;
 Free running manoeuvring tests for validation purposes;
 Ship-ship interaction tests (meeting, overtaking, lightering, moored ships);
 Tests in restricted or confined water for simulation purposes or on client demand;
 Seakeeping tests in shallow water, including manoeuvring in waves.

Published description (Publications on this facility)

Delefortrie, G.; Geerts, S.; Vantorre, M. (2016). The Towing Tank for Manoeuvres in Shallow Water. MASHCON 2016, Hamburg, Germany.
 Van Kerkhove, G.; Vantorre, M.; Delefortrie, G. (2009). Advanced model testing techniques for ship behaviour in shallow and confined water, in: (2009). AMT '09 - The 1st International Conference on Advanced Model Measurement Technology for the EU Maritime Industry, 1st - 2nd September 2009, Ecole Centrale de Nantes, France: conference proceedings [CD-ROM]. pp. 158-172