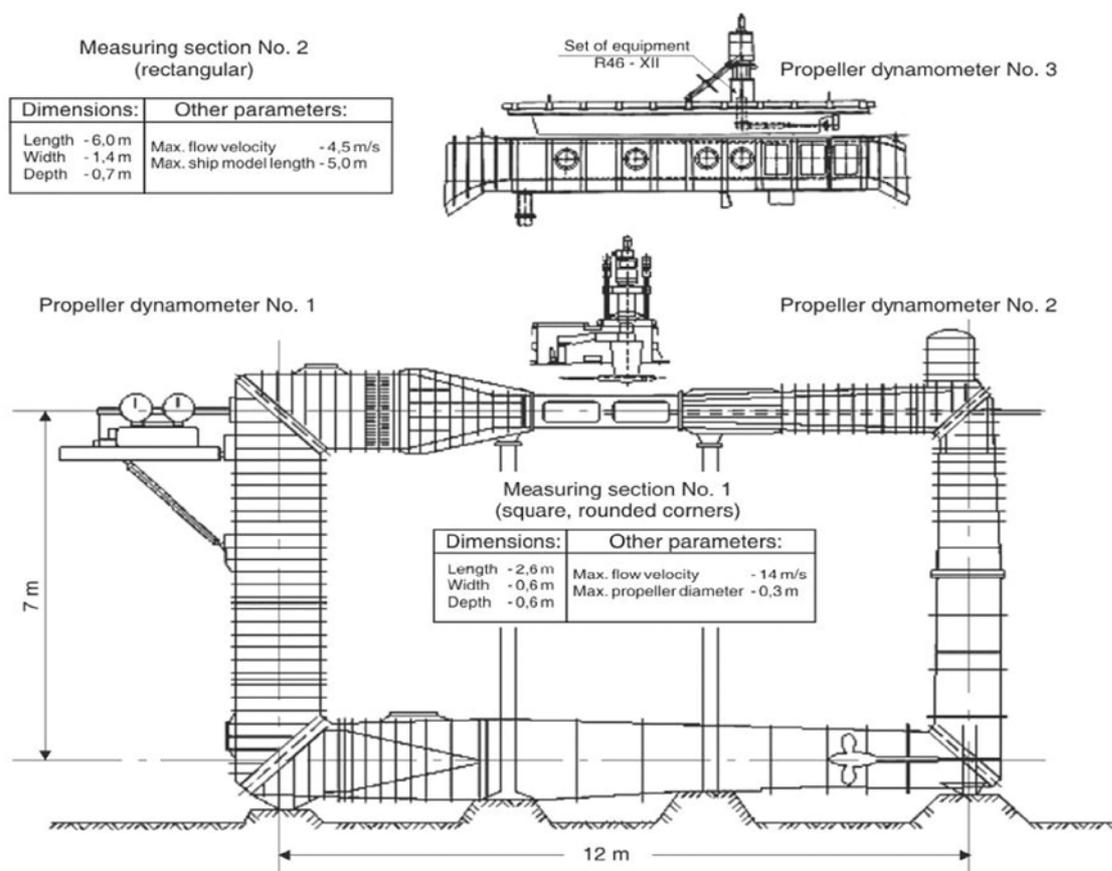


Name of organization BULGARIAN SHIP HYDRODYNAMICS CENTRE		Year of information updating 2016	
Year established 1975		Year of joining the ITTC 1975	
Address 1 William Froude st., P.O. Box 58, 9003 Varna, kv. Asparuhovo, Bulgaria		Status in the ITTC AC member	
Contact details (phone, fax, e-mail) Phone: +359 52 370 501 Fax: +359 52 370 514 Email: office@bshc.bg		Website http://www.bshc.bg/	
Type of facility Cavitation tunnel		Year constructed/upgraded 1975/1986	
Name of facility Cavitation tunnel K 15 B		Location (if different from the above address)	
Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top) Type K 15 B , Kempf & Remmers, Germany (vertical set-up), closed circulation, closed working section Length (between vertical axes) - 12m Height (between horizontal axes) - 2.6m Min. cavitation number - 0.2 Absolute pressure, max. - 200kPa Absolute pressure, min. - 6kPa			

Drawings of facility



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

DESCRIPTION OF FACILITY	vertical plane, closed recirculation, closed working section;
TYPE OF DRIVE SYSTEM	- 4-bladed axial flow impeller with Ward-Leonard control;
TOTAL MOTOR POWER	- 96 kw, 1500rpm;
MAX. & MIN. ABS. PRESSURES	- 200kPa;
CAVITATION NUMBER RANGE	- $\sigma = 0.2$ to 170.
INSTRUMENTATION	
TYPE AND LOCATION OF TORQUE & THRUST DYNAMOMETERS	- No. 1 balance type & strain gauge dynamometer, arranged upstream, Type J25 , Kempf & Remmers T range: ± 2950 N, Q range: ± 147 Nm Rate of rotation – up to 60 rps, Accuracy - $\pm 0,15\%$ No. 2 sealed strain gauge dynamometer, no permanent location, Type H41 , Kempf & Remmers T range: ± 1960 N, Q range: ± 98 Nm Rate of rotation – up to 50 rps, Accuracy - $\pm 0,15\%$ inclinable shaft - ± 12 deg No. 3 sealed strain gauge dynamometer, watertight Type R45 , Kempf & Remmers T range: ± 392 N, Q range: ± 14.7 Nm Rate of rotation – up to 50 rps, Accuracy - $\pm 0,15\%$ Inclinable shaft ± 18 deg No. 4 sealed strain gauge dynamometer, no permanent location, Type R46 , Kempf & Remmers T range: ± 700 N, Q range: ± 40 Nm
SIX-COMPONENT BALANCE	- Type H36 , Kempf & Remmers Measuring range forces: $F_x = \pm 2000$ N; $F_y = \pm 500$ N; $F_z = \pm 2000$ N; moments: $M_x = \pm 100$ Nm; $M_y = \pm 800$ Nm; $M_z = \pm 200$ Nm; Accuracy $\pm 0,15\%$
WAKE RAKE	fourteen Pitot-static tubes for measurement of axial flow distribution with scanivalb system
3-D WAKE RAKE	- six 5-hole Pitot tubes for measurement of 3-D flow distribution with scanivalb system
MINIATURE PRESSURE TRANSDUCERS	- for measuring pressure distributions on propeller blades and on ship hull
ACOUSTIC MEASURING EQUIPMENT	
HIGH PRECISION DIGITAL MANOMETERS	
INSTRUMENTATION AMPLIFIERS WITH FILTERS	
MEASURING SYSTEM - PC WITH NI MULTIFUNCTIONAL DAQ CARDS AND DATA ACQUISITION SOFTWARE BASED ON LABVIEW	
CAMERAS FOR HIGH QUALITY VIDEO AND PHOTO DOCUMENTATION OF THE EXPERIMENTS	
HIGH SPEED CAMERA	

Applications (Tests performed)

PROPOLLER SIZE RANGE - diameters from 150 to 300mm; 250mm typical

TESTS PERFORMED

- cavitation tests on screw and ducted propellers in axial & oblique flow and counter-rotating propellers
- Cavitation erosion investigation
- Propeller tests in uniform or non-uniform flow;
- Hydrodynamic test on foils, struts, rudders, submerged bodies, etc.
- Propeller/rudder behind hull condition tests
- Pods and Z-drives tests
- Hull and rudder pressure distribution measurements
- Assessment of 6DoF loads on propellers and rudders
- Acoustic measurements

Published description (Publications on this facility)

1. Proceedings of the 14th ITTC-Ottawa, 1975
2. BSHC Brochure, last edition 2014
3. Proceedings of the Scientific Session dedicated to the 40-th Anniversary of BSHC, October 2016