Polaris
Ships Bridge Simulator

KONGSBERG

A scalable bridge simulator to meet all training requirements

Experience

Polaris is our 6th generation ship's bridge simulator, representing an investment of more than 140 man-years of development. It is a result of detailed studies, that has carefully defined the optimum solution.

Advanced features

We can offer the best purchasing and life cycle cost. This is possible because we manufacture in volume. Polaris is not a development project, but a fully developed system. It is tested and proven by a large number of customers all over the world. This demonstrates not only our quality, but also our ability to deliver on a worldwide base. Through our Long Term System Support Program (LTSSP) we assume the risk of providing maintenance at a fixed price.

System integration

The Polaris Ship's Bridge Simulator can be interconnected with our, communication, engine room or cargo/ballast simulators to form "complete" ship simulation systems.

Simulator approvals

Kongsberg Maritime is officially recognised as the leading supplier of ship's bridge simulators. The Polaris Ships Bridge Simulator with it's SeaView Visual System exceeds the requirements of STCW'95 regulation I/12, Section A-I/12, Table A-II/1, Table AII/2 and Table AII/3 and Section B-I/12. The following have certified or approved our Ships Bridge Simulator:

- Det Norske Veritas (DNV).
- The Norwegian Maritime Directorate.
- Maritime and Coastguard Agency, UK (prev. DOT).
- United States Coast Guard - USCG, USA.
- Department of Transportation, Canada.
- Ministry of Transportof the Russian Federation Standards (MARSAT).
- Quality Management and Environmental Management System Certificates issued by Nemko Certification Service AS, NS-EN ISO 9001:2000 and NS-EN ISO 14001:2004.

The Polaris Bridge Simulator System - a concept for Total Training.

Bridge equipment

Polaris has a modern design similar to current onboard equipment. The design has taken into account the latest requirements to bridge design, working heights and has a modern professional styling. Our modular instrument panels and consoles allows you to buy a custom tailored simulator at the price of a standard system. Any bridge equipment is available both on monitor and as fully functioning instruments. At present more than eighty different instruments are available. Modular design makes individually laid out bridges and equipment configurations easily configurable.

This makes adaptation to special training requirements easy. Affordable visual systems are available with all our bridge simulators. We believe that like our other customers, you will be proud to own a Polaris system. The IMOs STCW Convention requires that simulators used for training and as a means to demonstrate competence, shall be approved by a maritime administration.

A combination of hands-on equipment, touch screen devices (Multiflex) and flexible consoles, to fit any advanced training requirement.

Det Norske Veritas (DNV) has established a standard for carrying out such approval. The Polaris Ships Bridge Simulator is type approved by DNV for class A, B, C and S categories of simulators. The modular design allows it to be configured for all levels of training from full mission to special task simulators as follows:

Full mission systems

By a full mission simulator we understand a simulator capable of simulating a total shipboard bridge operation situation, including the capability for advanced manoeuvring in restricted waterways. Advanced tugging with ship-to-ship interaction, ice, effects of tug/winches etc. A further option this type of simulator may include interface to a full mission Engine Room Simulator (ERS). This will enable a total training capability.

Multi task systems

By a multi task simulator we understand a simulator capable of simulating a total shipboard bridge operation situation, but excluding the capability for advanced manoeuvring in restricted waterways.

Limited task systems

By a limited task simulator we understand a simulator capable of simulating a shipboard bridge operation situation for limited (instrumentation or blind) navigation and collision avoidance.

Bridge simulator cubicle equipped with hands-on control for a Voith Schneider tug model.

Special task system

By a special tasks simulator we understand a simulator capable of simulating operation and/or maintenance of particular bridge instruments, and/or defined navigation/manoeuvring scenarios.

A visual scene showing winch lines.

Tug bridge with visual system.

Special task system

A complete set of instrument panels are available with the Polaris system, from Desktop to Full Mission. Functionality and operation are based on and are similar to real ships equipment. All instruments are designed with night viewing in mind, and include dimmable illumination. Cost effective solutions are available, such as the Windows®XP touch screen system (Multiflex) capable of presenting up to five (5) instruments with instant access and control.

Special task system:

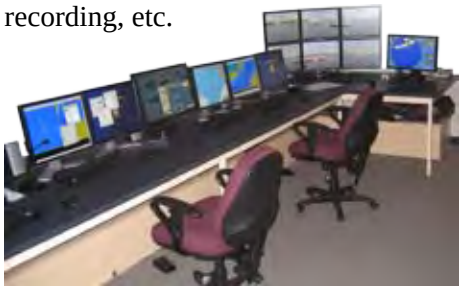
We have provided a wide range of special task simulators including:

- Inland river boat simulators - both for European and US waters.
- Anchor handling simulators.
- Dynamic positioning simulators.
- Cruise ship - replica bridge with LITTON and EMRI bridge equipment.
- Ferry simulators - replica bridge with STN ATLAS bridge equipment.
- Z-drive (ASD-tug) and azipod for merchant and naval applications.
- Voith Schneider tug operational features.
- KaMeWa waterjet controls - fast craft ships.
- Azipod control from Niigata Power Systems Co. Ltd (Japan).
- Interface to Oil spill simulator.
- Vessel Traffic Service (VTS) simulator.

Inland waterway bridge featuring visual system.

Instructor stations

Much effort has gone into the design of our instructor and debriefing facilities. This has resulted in the most user-friendly and flexible workstation available today. Our debriefing equipment includes colour printers, large screen projectors, voice recording, etc.



A dual position instructor station with a comprehensive visual slaveback.

Simulation models

Our success as a bridge simulator manufacturer is in part due to the quality of simulation models. These have been developed in close co-operation with several marine research institutes around the world during more than twentyfive years. Today, all hydrodynamic model are developed with six-degrees-of-freedom, standard or complex propulsion systems, single or dual hull, low or high speed using highly advanced mathematics. The existing library ranging from small high speed RHIB up to large VLCC ships are very comprehensive meeting almost any training requirement. A standard ship data request form have been developed, enabling quick and flexible numeric data collection for developing new models. This form supports a wide range of ship types; tugs, single-, catamaran-, air cushion hulls, high speed or low speed, fixed propellers, pitch controlled, engine types etc., together with ship test; maneuvering, turn-circle, zig-zag, acceleration and crash stop test.

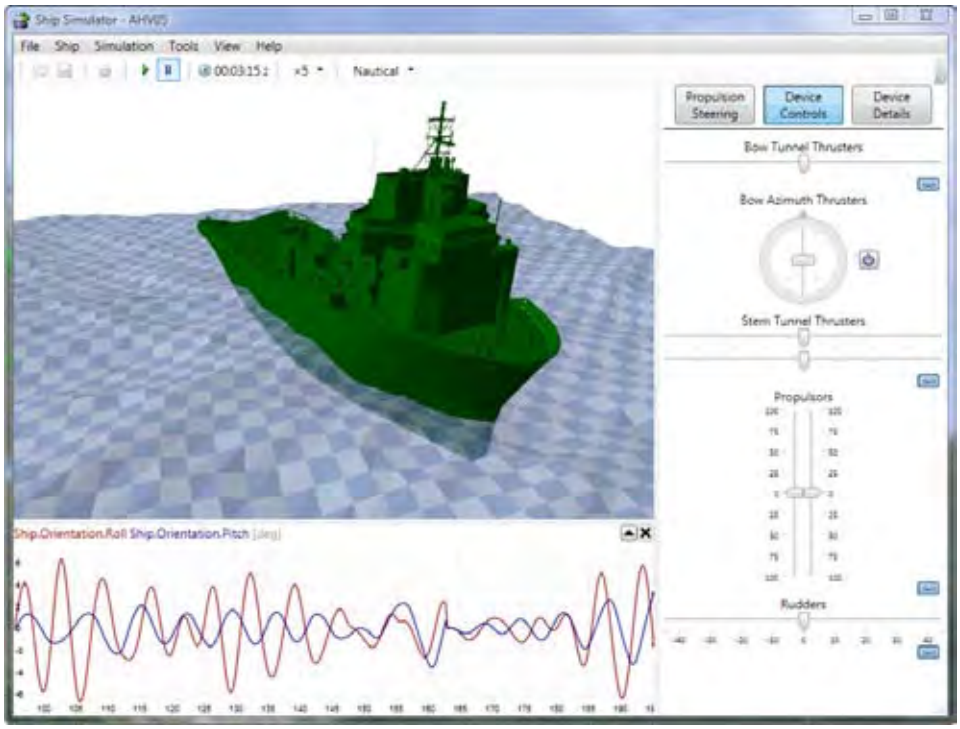
Modeling tool

Customers may also, as an option, purchase and acquire training in our hydrodynamic modeling tool know as the Ship Database Manager (SDBM). The modeling tool offers the possibility to create own ship mathematical models based on the vessel characteristics - both for data available or estimated values. Highly advanced methods for ship model preparation and analysis are used and the user is capable of visualizing in the tool the effects of wave and wave heights, change of load, vessel draught etc. before transferring the model to the Polaris bridge simulator.

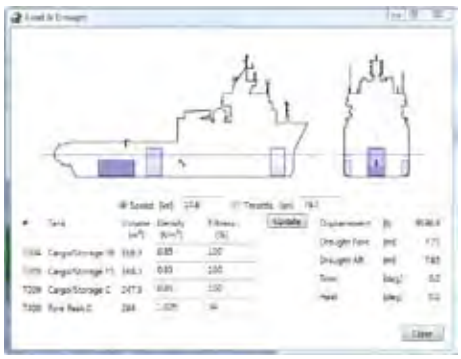
Student evaluation

The SEA system ™ allows structured and objective assessment off student performance. Defined limits and values are being controlled during the exercise and may support e-Coach messages to the student, as well as reporting schemes for further evaluation during debrief as well as examination.

Student Desktop with e-Coach messages and guidelines for action.



Full vessel control and view capability including graphs and visualization.



Control panel for vessel cargo/storage with density (t/m3) and fillness(%).

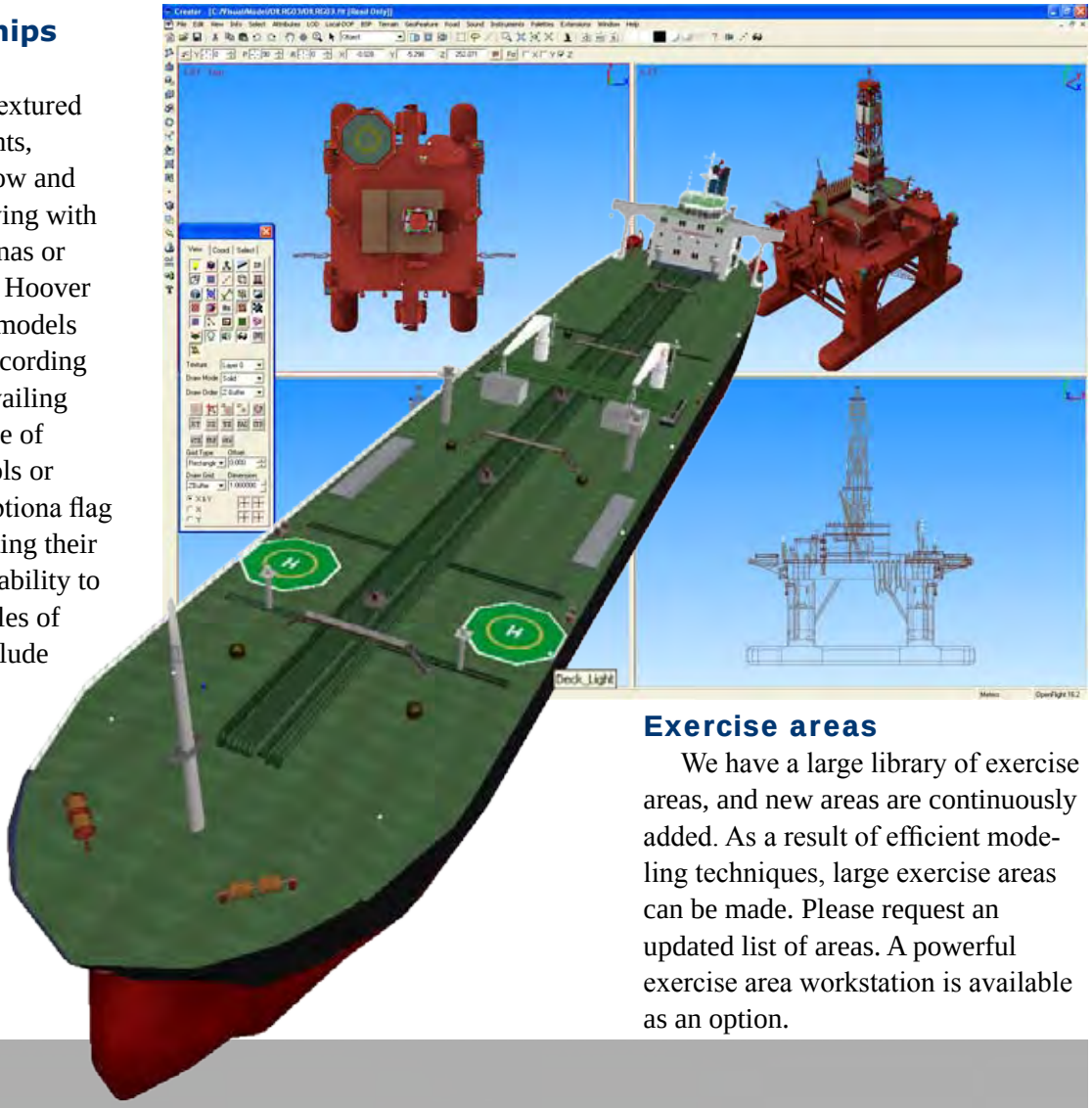
Upgrade program - LTSSP

Software upgrades, enhancements, new instruments and equipment is continually made available to all customers, and can be included as part of our long-term support program.

Please request a copy of the latest brochure for all program details.

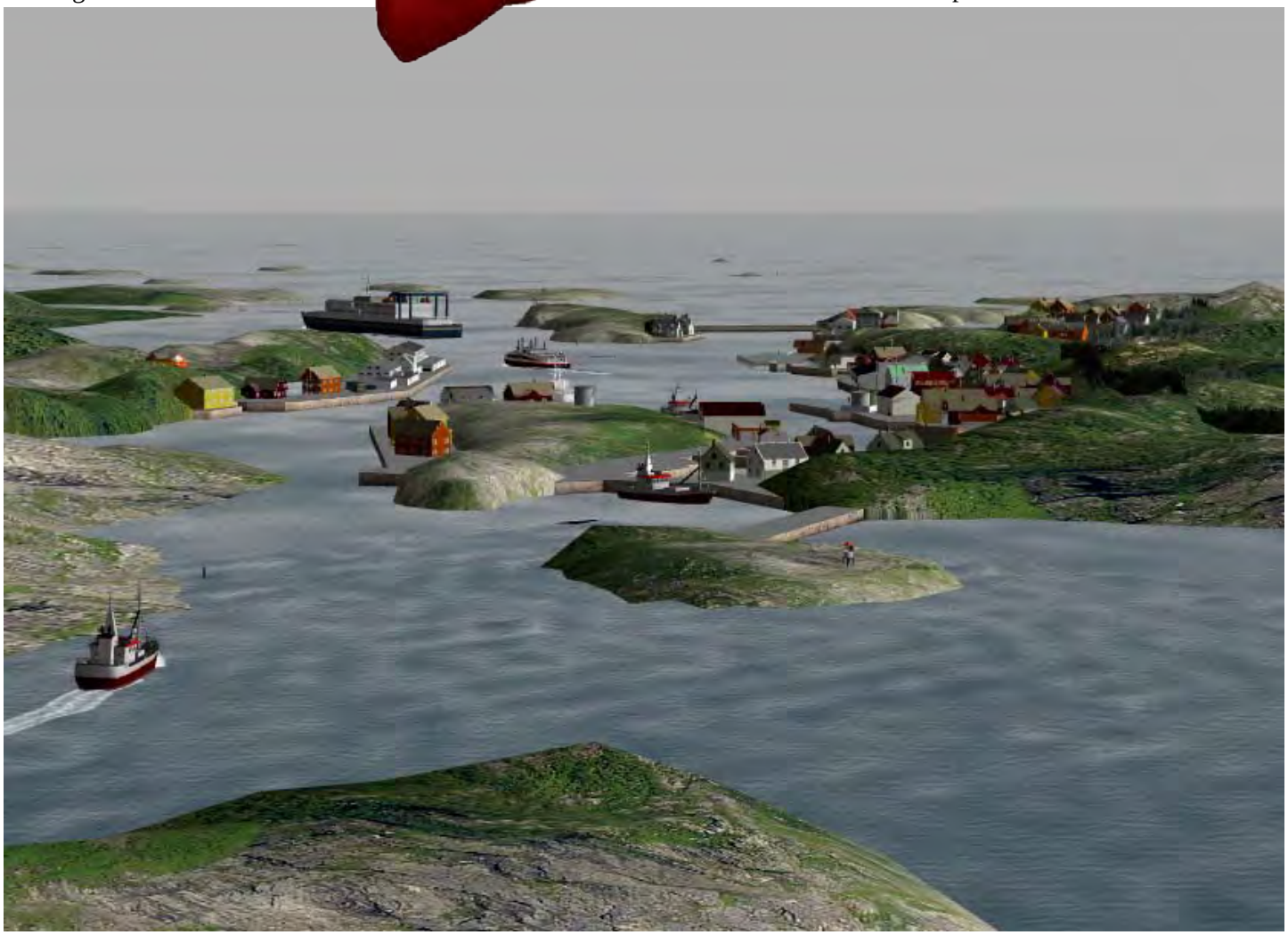
Target and traffic ships

Targets, traffic ships and objects can be fully photo-textured and includes navigation lights, superstructure, enlivened bow and stern waves and wakes varying with speed. Rotating radar antennas or propeller blades such as for Hoover crafts or other moving sub-models are included. They move according to their orientation and prevailing sea state. Targets are capable of showing various day symbols or light configurations (also optiona flag halyard/siganl deck) indicating their activities such as restricted ability to manoeuvre, according to rules of the road. Special targets include airplanes, rigs and offshore installation, helicopters, floating ice and iceberg targets, life rafts, rescue crafts (MOB-boats), Kisbee ring etc. Targets with strobe lights are available for instance for SAR (Search and Rescue) training.



Exercise areas

We have a large library of exercise areas, and new areas are continuously added. As a result of efficient modeling techniques, large exercise areas can be made. Please request an updated list of areas. A powerful exercise area workstation is available as an option.



Main specifications

General

Instructor data

- Configurable qty. 1 to 8
- Target ships, up to 100 per exercise
- Chart view, up to three (3)
- Target waypoints, >1000
- Recording time, > 24 hours
- Playback time, > 24 hours
- Assessment system
- E-coach messages (three levels)
- Graphic and alpa-numeric logging

Exercise data

- Buoyes, qty. >1000 per exercise
- Outline up to 221 x 221 nm
- Depths, exceed 150 000 points
- Visual data (incl. sun/moon, stars, all seasons, day and night)
- Radar data (incl. noise, clutter etc.)
- Terrain and urban structure(s)
- Navigation data
- Lights and lighthouse(s)

Own ship

Bridge equipment

- Console types: standing, cockpit type, corner solutions, chart work areas, GMDSS style, single and multi bulkhead and overhead systems.Both forward and stern type console available.
- Hands-on or screen based
- Touchscreen systems
- Basic instruments:
  - Engine Throttle/Telegraph
  - Steering System/Autopilot
  - Time/Log/Distance
  - Wind direction and force
  - DGPS
  - Echo Sounder
- Range of instruments:
  - Thruster
  - Gyro repeater
  - Magnetic compass
  - Doppler Log
  - Engine alarms
  - Watch responsibility
  - Sound system control
  - Distress and SSAS
  - Clinometer
  - Conning systems
  - Radio system (VHF w/DSC)
  - Short wave radio (MF/HF)
  - Radiotelex (NBDP)
  - Inmarsat systems (telex & voice)
  - Intercom (intraship)
  - Day shapes and flags
  - Hawser & winch controls
- Other systems:
  - Joystick/C-Joy/Poscon systems
  - Single Dynamic Position (DP)
  - Dual redundant DP (Class 2)
  - Triple redundant DP (Class 3)

(Please contact us for a full list of available instruments and panels).

Bridge system

- Radar/ARPA (COTS based):
  - Polaris Radar/ARPA
  - Kelvin Hughes Nucleus 5000
  - DataBridge-10 and SeaMap-10
  - K-Bridge (ARPA and ECDIS)

(Some units may require dedicated operators panels, tracker balls etc. for relevant and correct operation).

- OEM systems (ARPA)
  - Litton Marine
  - Furuno
  - Tokimec
  - STN Atlas
  - Kelvin Hughes

- OEM systems (ECDIS)
  - Litton Marine
  - Transas
  - Maris

(Some units may require dedicated operators panels, tracker balls etc. for relevant and correct operation).

Radar parameters

- Resolution down to 3,33 meter
- Range resolution 0,09°

Ship/student data

- 6-DOF Ship models (library)
- Radar Coastlines (library)
- Visual Areas (library)
- Own Ship Bridges, up to 26
- Up to ten tugs (10)
- Winches, up to eight (8)
- Hydraulic Winches - two (2)
- Mooring lines, up to ten (10)
- Up to 500 fenders

Visual system

- Typical 12 (twelve) channels for 360° field-of-view
- DLP and LCD projectors
- Plasma and TFT-systems, any size from 42 inch and up
- Binocular channels
- CCTV view positions
- Pelorus (floor or ceiling type)
- Wing control (i.e. starboard/port)
- Visual slaveback - instructor
- Visual slaveback - debrief

Tecnical details

Power

- 230 or 115 VAC, 50 or 60 Hz.
- Temperature 5° to 35° (recommended temp. range)
- Humidity 20% to 90%, no condensation.
- UPS - recommended.
- LAN 1000Base-T
- Category 5e (CAT 5e) cabling

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