



KONGSBERG

## Kongsberg Maritime Simulation & Training Maritime Offshore Simulators



Dynamic Positioning  
Anchor Handling  
Tug Operation  
Crane & Winch  
Ship's Bridge  
LNG Cargo Handling  
Engine Room

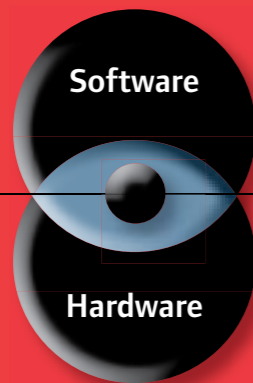
[www.km.kongsberg.com](http://www.km.kongsberg.com)

# We maximize marine performance by providing the Full Picture

## Core competencies

- Real equipment know-how
- Regulatory understanding
- Operational experience
- External interfaces
- Visualization
- E-learning
- User interface
- Hydrodynamics
- Physical modelling
- Training & Exercises
- Software architecture
- Assessment & Evaluation

## Technology



## Applications

- Ship's Bridge
- Engine Room
- Cargo Handling LNG LPG VLCC
- Communication GMDSS
- Vessel Traffic System (VTS)
- Dynamic Positioning
- Anchor Handling
- Tug/Escort
- Crane & Winch
- Crisis/Security/Anti-Terror
- Drilling
- Subsea

## Products

### Our mission

We shall earn the respect and recognition for our dedication to provide innovative and reliable marine electronics that ensure optimal operation at sea. By utilising and integrating our technology, experience and competencies in positioning, hydroacoustics, communication, control, navigation, simulation, and automation, we aim to give our customers The Full Picture. The Full Picture yields professional solutions and global services that make a difference enabling you to stay ahead of the competition.

### Our philosophy

Our success depends on the success of our customers. Actively listening to our customers and truly understanding their needs, and then translating these needs into successful products and solutions is central to achieving our goal. Our people are the key to our success and we empower them to achieve. Working together in a global network of knowledge, guided by our values, engenders innovation and world class performance. Every day we have to think a little differently, because every client is unique. We aspire to translate the imagination and dedication of our staff into successful technologies and solutions. Our commitment is to add value to your operations by providing you with The Full Picture.

## Simulation as it should be

KONGSBERG is a major supplier of dynamic positioning systems, automation and surveillance systems, process automation, satellite navigation and hydroacoustics. This gives us a valuable advantage for development of maritime simulators. Today we stand as the solid international market leader of marine and naval ship simulators. Our DP trainers and offshore simulator solutions are based on our experience with real products, and provide the highest degree of realism in use and appearance.

KONGSBERG is dedicated to develop and fulfil the simulation needs of the offshore industry. As an innovator in the world of maritime simulation, we build on more than 30 years experience of cooperation with first-class training academies and centres worldwide. This ensures the most realistic simulation environments for maximizing the use of simulators. KONGSBERG provides simulation as it should be.

## Demand for Maritime Simulators

The need for personnel training in the offshore sector today is significant. Simulation for training, procedure and mission planning and decision support represent the needs of the industry and are therefore integrated parts of the training. Due to the escalating costs, many possible risks and difficult access to offshore marine assets for "live" training with real equipment in real environments, simulation under realistic circumstances is a safer and more cost-efficient training solution. Additionally, with our highly realistic simulators it is possible to carry out training for all possible scenarios, including handling of crises and accidents. Offshore simulators from KONGSBERG meet all the training requirements to fulfil today's demand in the offshore industry.

## Flexibility a key

Our simulator software is fully scalable. The software can be supplied as full mission or part task trainers as well as desktop applications and web-enabled solutions. A comprehensive software library of vessel models, propulsion plants, cargo systems, navigation instruments, application specific functionality, ports and fairways enables us to configure solutions to meet a broad variety of teaching objectives – always providing realistic experiences.

The student evaluation and guidance application built into our simulators has set a new standard for maritime simulator training. The flexibility the systems provide enables self-study on or off training facilities, increases the quality and reduces the cost of training. Our aim is always to provide the simulator you as a customer need, at a price you can afford.



## Dynamic Positioning Simulation

A seagoing vessel is subject to the forces of wind, waves and current and those generated by the propulsion system. The Dynamic Positioning (DP) system calculates the forces that the thrusters must produce in order to control the vessel's motion, and the competence of dynamic positioning operators is therefore essential. KONGSBERG offers various simulators for DP training.

### From Desktop to Full Mission solutions

To comply with the need for training of DP personnel, KONGSBERG provides a wide range of simulator trainer solutions. Among these are DP Basic Desktop Trainer, Dual Redundant DP Advanced Trainer and DP Manoeuvring Simulator - fully integrated with KONGSBERG Polaris Ship Bridge with up to 360° visual systems. Our DP trainers and simulators use real KONGSBERG DP systems. We offer complete training programs, including simulated position-reference systems, sensors and environmental conditions.



We offer highly realistic and safe tools for efficient training on critical operations



### Basic and Advanced DP Trainers

DP Training is performed at Desktop and Console Operator Stations, which comprise a DP operator panel connected to a standard Personal Computer. To build up and execute a DP scenario, the instructor has a user-friendly operator station with dedicated operator functions - to control the various DP vessels and prepare vessel settings. To train for critical scenarios the instructor can introduce various levels of faults.

### The KONGSBERG Basic and Advanced DP Trainers feature:

- DP screen and button panel according to the operator manual, and configuration of the actual vessel and DP system
- Adjustment of simulated wind and current
- Simulated vessel behaviour
- Simulated position-reference systems and sensors
- Simulated thruster performance
- Manual joystick operation
- Automatic station keeping (position change, autopilot and auto track)



DP Basic Trainer



DP Advanced Trainer

### DP Manoeuvring Simulator

The DP Manoeuvring Simulator is a standard KONGSBERG DP system connected to a Polaris Ship's Bridge Simulator.

### Critical operations

The simulator enables the students to perform DP operations in a highly realistic environment. The visual system and the Radar/ARPA and ECDIS systems, combined with a dual redundant DP configuration, will enable training on critical operations and DP assisted manoeuvring near offshore installations or in coastal waters.

### Complete training program

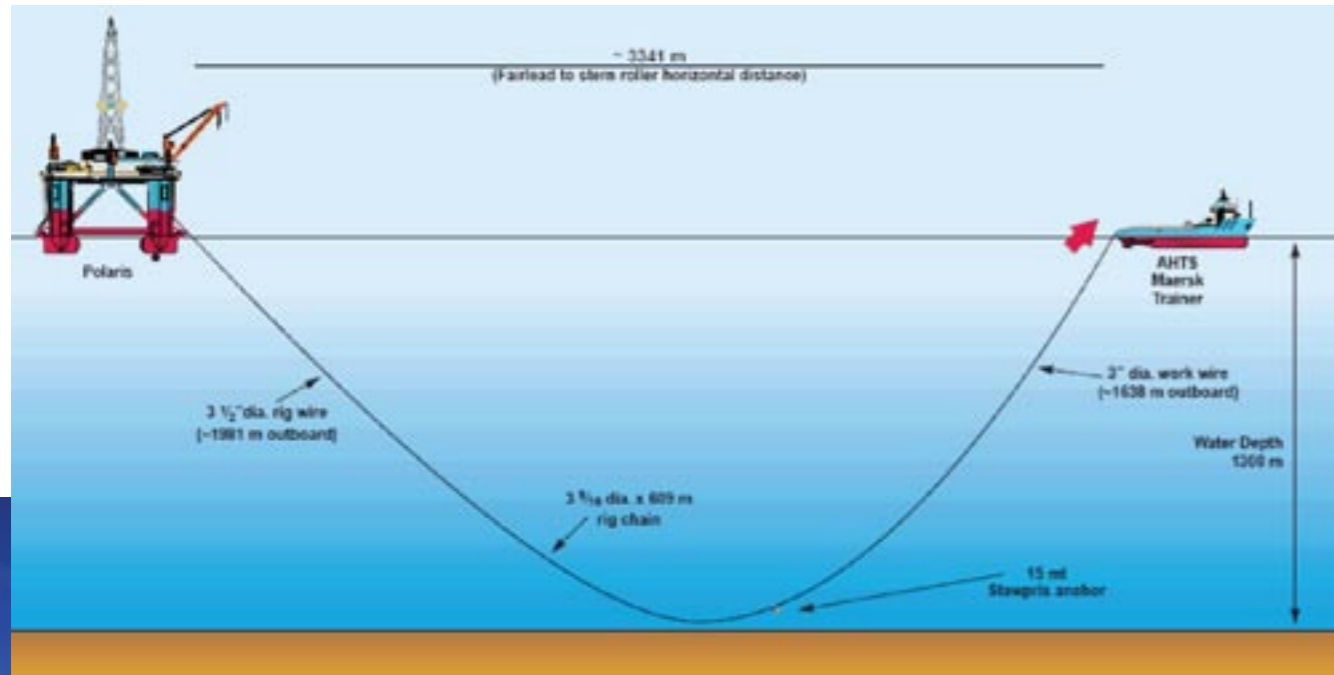
Exercises in an approved DP manoeuvring simulator can significantly reduce the supervised DP watchkeeping phase of the Nautical Institute's training scheme for DP operator certification. KONGSBERG's DP Manoeuvring Simulator fulfils the Nautical Institute's DP training requirements, and gives the possibility to perform complete training of platform support, realistic offshore loading operations, emergency manoeuvre to avoid collision and handling of vessels in narrow waters.



Significant reduction of onboard practice can be obtained using DP Manoeuvring Simulators

## Anchor Handling Simulation

KONGSBERG's Anchor Handling Simulator (AHS) represents a major innovation to the offshore industry. By using the AHS, it is possible to carry out realistic training on critical anchor handling operations under safe conditions.



### Various operations

The AHS is designed to function as a tool for education and procedure training of the navigator and winch operator of an anchor handling vessel. On the AHS one can plan and carry out anchor handling operations on various systems whilst different forces are affecting the scenario. In addition, the simulator makes survey and training for safety procedures possible before the procedures are introduced in real life.



### Realistic instrumentation and visual system

The simulator instrumentation looks, functions and feels like the real equipment used in the offshore industry. All relevant controls and functions are included - making the simulation of anchor handling operation highly realistic.

The visual experience is ensured by the KONGSBERG SeaView® visual system that allows full view of the deck operation, supporting correct decision making. Modular design makes individual bridge layouts and equipment configurations possible.



### Enhanced features:

- Integrated to KONGSBERG DP
- Physical modelling with interaction/friction between objects, e.g., Anchor Handling, Tug and Supply (AHTS) vessel, chain, line anchor, shackle, etc.
- True visual modelling of wires, lines, etc.
- Supports multiple vessels in common scenario
- Hydrodynamic models for jack-up and semi-submersibles
- Forward and aft bridge configuration
- Assisting vessel operations
- Towing operations
- Crane and winch operations



### AHS training scenarios:

- Ship manoeuvring in all conditions
- Operate various anchor equipment
- Anchor handling operations, towing and anchoring semi-submersible, jack-up
- Retrieve and launch anchors using common equipment
- Train a deepwater anchor handling scenario before being carried out in real life
- Optimize positions/designs of bridge handles and instruments
- Procedure development, testing and training
- Safe operation on deck



## Tug Simulation

Tug simulation from KONGSBERG makes training for tug handling risk free and cost efficient – in addition to providing training experiences that are as realistic as in real life scenarios.

### Full range operations

The KONGSBERG Polaris Ship's Bridge Simulator can be configured with one or several tug simulator control consoles, supporting a full range of tugboat operations and training. The tug bridge simulator interacts seamlessly with a large ship's bridge simulator, to support joint pilot/tug master training, e.g., emergency preparation and management scenarios. The tug simulation capabilities incorporate a comprehensive model of the tug's hull form, propulsion system, towline characteristics and winch arrangements.



## Crane Simulation

Simulation training is the most efficient method to train operators of complex, dangerous, and expensive equipment. KONGSBERG offers crane simulation for training of operators, through our US subsidiary - GlobalSim Inc. – the world leader in development of sophisticated crane operator simulators.

### Need for simulated training

With the increased complexity of new heavy lifting equipment, operation costs, rapid rise of accidents and the adoption of rigid operator certification, the need for simulated crane operator training is rapidly growing. Clients using our crane simulation for training experience a dramatic reduction in accidents and associated equipment downtime, a significant decrease in the amount of time required to train operators, and a substantial increase in productivity.

Simulation training is the most efficient method to train operators of complex, dangerous, and expensive equipment



### Realistic instrumentation

The tug's motion and dynamics are also completely synchronized to wave action and sea state. The visual scenes are highly detailed, with features and effects creating an impressive realistic training environment. This creates a unique opportunity to conduct procedural training and mission rehearsal for complex operations.



### Our fully integrated tug simulator supports a wide variety of training applications and operations:

- Coastal and offshore towing
- Ship assist work
- High speed escort work
- Oil rig and platform moves
- Search and rescue and emergency response
- Close quarter multi-tug manoeuvres
- Integrated tug master and pilot training





## Ship's Bridge

The Polaris Ship's Bridge Simulator is developed to run a number of specialised exercises. For the offshore industry, some of the applications integrated in Polaris are particularly suited for arctic operations, harsh environments and security issues.

### Ice Simulation

The increased offshore oil and gas activity, and traffic in arctic and other ice-prone areas, has increased the focus on safe marine and offshore operations. As these harsh operating areas are environmentally vulnerable, strict requirements to training and operation routines should apply. The ice add-on functionality to Polaris provides excellent simulation - including variable ice characteristics, with visual snow and ice.



### Crisis Management

In cooperation with Applied Science Associates (ASA) in the US, KONGSBERG delivers integrated ASA's Crisis Management program with Polaris. This Crisis Management Simulator (CMS) meets the operation, management and training needs of:

- Oil Spill Management System
- Chemical Spill/Gas Release Management System
- Marine Emergency Management System



### Most advanced system

With Master Lift™ Training System we provide the most advanced crane training aid available. Our simulators realistically replicate the operating characteristics of the actual equipment - in a safe and reliable training platform. Master Lift™ allows operators to immediately apply classroom knowledge into real applications.

The training experience prepares crane operators to be the most efficient in the industry.

### Customized training scenarios:

- Maritime Interdiction
- Anti-Terrorism Simulation
- Search And Rescue (SAR)
- Small Boat, RHIB, Launch and Recovery



### Training benefits of Master Lift™ crane simulation:

#### Operator/Student:

- Immediate application of classroom knowledge
- Realistic but safe learning environment
- Faster acquisition of skills

#### Training Department:

- Focus on specific skill areas
- Initial operator screening
- Reduced equipment maintenance and repair costs

#### Management:

- Reduced accidents and injuries
- Increased productivity
- Aid the licensing and certification process



## Simulation solutions for oil & gas operations

By fully utilizing the combined resources of KONGSBERG our customers can take advantage of unique system knowledge, combined with:

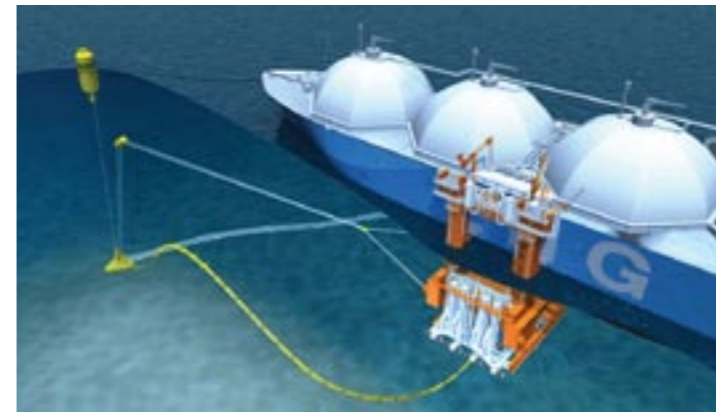
- Polaris Ship's Bridge Simulator (SBS) with SeaView® visualization system, Neptune Engine Room Simulators (ERS) and Cargo Handling Simulators (CHS)
- Process simulation utilizing D-SPICE® and ASSET®; powerful dynamic life-cycle simulation tools
- Real-time 3D graphics visualization, utilizing the new advanced 3D geo-portal software Vispo3D™
- Integrated Collaboration Environments (ICE) including SiteCom® real-time data management system

KONGSBERG will fulfil your offshore simulation application needs throughout all project phases. This includes, e.g., feasibility and conceptual design, engineering, testing, training and operations support.



### KONGSBERG offers tailored solutions for various offshore simulation applications:

- Drilling operations
- Subsea operations
- Seismic
- Pipelaying
- Heavy-lift
- Decommissioning



## LNG Cargo Handling Simulation

KONGSBERG is a leading supplier of life cycle simulators for studies, engineering and training of crew.

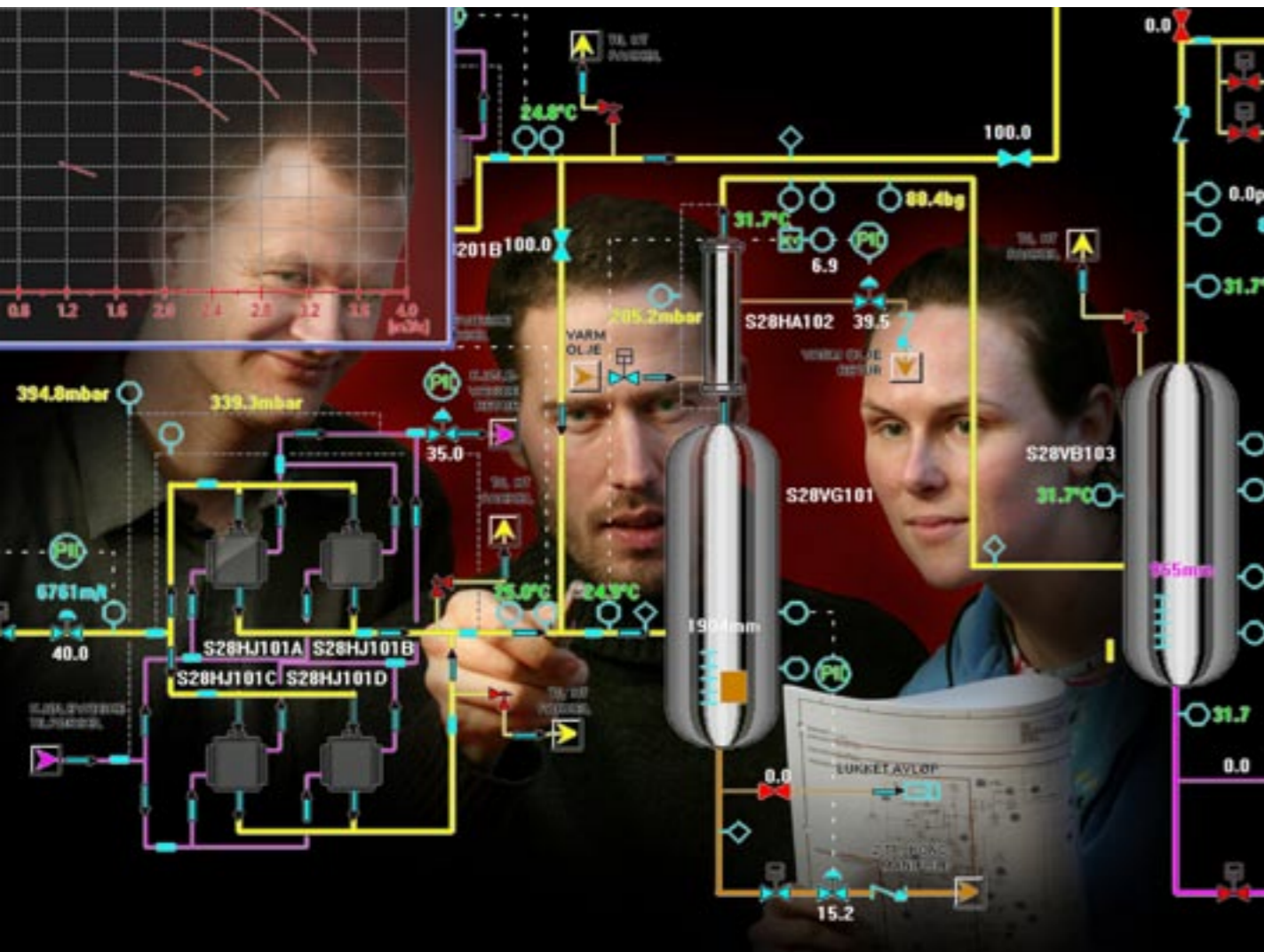
### Training of maritime crew

Our cargo handling simulators for tankers, LNG and LPG are designed for the training of new students as well as experienced deck officers. All of the simulators are designed based on real ships – giving a truly genuine experience.

Our LNG simulators are available for spherical and membrane design vessels. KONGSBERG is advancing the level of realism and training applications of its membrane LNG simulator through the integration of the KONGSBERG AIM Control System.

Typical training objectives are system familiarization, special operations and procedures, cargo and ballast operations, and emergency procedures.





## We are always there, wherever you need us

KONGSBERG customer services organisation is designed to provide high-quality, global support, whenever and wherever it is needed. We are committed to providing easy access to support and service, and to responding promptly to your needs. Support and service activities are supervised from our headquarters in Norway, with service and support centres at strategic locations around the globe – where you are and the action is. As part of our commitment to total customer satisfaction, we offer a wide variety of services to meet individual customer's operational needs. KONGSBERG Support 24 is a solution designed to give round-the-clock support. For mission-critical operations, KONGSBERG Support 24 can be extended to include remote monitoring. We can adapt the level of support needs by offering service agreements, on-site spare part stocks and quick on-site response arrangements.

### Global and local support

We provide global support from local service and support facilities at strategic locations world wide. Service and support work is carried out under the supervision of your personal account manager, who will ensure that you receive high-quality service and support where and when you need it. Your account manager will ensure continuity and work closely with your personnel to improve and optimise system availability and performance. Under the direction of your account manager, and with a local inventory of spare parts, our well-qualified field service engineers will be able to help you quickly and effectively.



### Life-cycle simulation

KONGSBERG is the world's leading supplier of dynamic process simulation and optimization services. This also includes systems for development and operation of oil and gas fields, LNG plants and transportation pipelines.

### Unique platform

The Life-Cycle Simulator covers the total value chain by full reutilization of all simulation models. The process models are customized for your installation and provide a unique test platform. Knowledge achieved through simulation training can result in increased safety, shorter commissioning, higher plant availability and reduced CO<sub>2</sub> emissions.

**ASSETT® or D-SPICE® Life-Cycle simulation project involves the following uses of the dynamic simulation model:**

- Engineering: Improves process design during the pre- and detail engineering phases
- Distributed Control System (DCS) check-out: improves DCS design during the construction phases
- Operator training: Prepares operators for plant operations before plant start up
- Operation support: Improves operations and safety during the lifetime of the plant



### Solid competence reduces cost

We have always recognised the importance of supporting our products and systems with professional training.

A wide range of courses are therefore offered to ensure that you achieve the goal of full system utilisation with safe and efficient operation.



### Upgrading that pays

Product and system upgrades can improve your vessel's operations and reduce your overall maintenance costs. We will ensure that existing products and systems can be extended or upgraded based on standard upgrade kits.

## Support 24

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