



KONGSBERG

# K-SIM® FAST CRAFT



## INCREASED DEMAND FOR ADVANCED TRAINING

The need for efficient and effective high quality training of defense, law enforcement and professional boat operators will continue to increase over the next decade as operational requirements and equipment capabilities continually evolve.

Opportunities for live training, using operational equipment, are often limited by; risks to personnel safety and equipment damage; the risk of compromising operational security; and limited access to over-stretched operational platforms for training

## HIGH SPEED BOAT TRAINING SYSTEM

### K-Sim® Fast Craft

#### Meeting the training needs of high-speed tactical boat operations

K-Sim® Fast Craft Simulator is designed for highly realistic and immersive training in high-speed navigation, boat handling and tactical operations. It meets the demanding training needs associated with high-speed boat operation, allows for effective and repeatable training and reduces risk to personnel safety and equipment damage.

#### Realistic boat behaviour through advanced hydro-dynamic modelling

K-Sim Fast Craft utilizes an advanced physics engine and cutting-edge hydrodynamic vessel modelling capabilities to simulate high-speed vessels, and make them behave very closely to how they would do in real life. The simulator provides a fully interoperable representation and creates a realistic and accurate simulation of the boat's behaviour, wave interaction, stern wave effects and impact on other vessels/objects. This advanced and unique simulator solution can be delivered with generic fast craft hydrodynamic models as well as custom made models. The models are developed from recorded vessel performance data and validated against real vessel behaviour, allowing the fast craft model to behave and interact realistically, improving the realism of training significantly.

## Perception of operating in an actual environment

The simulator design comprises an advanced motion system scaled to realistically simulate the operating environment and boat-type characteristics at various speed ranges and sea states. The motion platform movement correlates to the propulsion system and hull type characteristics of the real boat.

To provide the trainees with the perception of operating in an actual environment, the simulator is equipped with a low radius, cylindrical visual projection system, designed with a larger vertical field of view to improve the visual experience through the motion envelope. The physical bridge layout is designed to replicate the on-board operator positions, configured specifically to the boat type with the possibility to integrate real controllers, indicators and displays.

## Realistic and cost-efficient training

Modern simulation technology has evolved to a level where highly realistic scenarios can be used to meet key requirements including: training; decision making; development of strategy, tactics and procedures; formulation and validation of concepts of operations; mission rehearsal; and after-action review.

K-Sim Fast Craft meets the demanding training needs associated with high-speed boat operations and the complex operating environment in modern naval warfare and law enforcement.

The highly realistic and near-to-real training environment, allows for increased efficiency in crew selection and training processes.

## Training provided

The simulator solution supports the full range of training within boat operations; from basic familiarization training to advanced operational related training at the operator, crew, team and squadron levels.

### Boat handling and navigation

- Boat and equipment familiarization
- Basic to advanced high-speed navigation
- Basic to advanced boat handling and manoeuvring
- High-speed tactical manoeuvres and interception

### Tactics, techniques and procedures

- SOP/TTP development and training
- Operator and bridge team procedures
- Maritime Interdiction Operations
- Search and Rescue operations
- Davit operations / launch and recovery
- Boarding operations
- Escalation of force and weapon engagement

### Rehearsal of concepts and operations

- Mission planning, rehearsal and debriefing
- Rules of engagement training
- Scenario based operational decision making
- Realistic scenarios with actual impact calculation



## Realistic training environment

The simulator is designed to replicate the on-board operator positions, control- and manoeuvring systems, configured specifically to the boat type with the possibility to integrate real controllers, indicators and displays such as:

- Navigation systems with the same control units as used on-board
- Force feedback steering wheel and propulsion levers
- Engine start/stop switches and monitoring with soundscape
- Electro-optic equipment and search light
- Remotely operated weapon controls
- Communication equipment

Various propulsion systems can be simulated, like; water-jet, surface drive, stern drive and outboards. The six degrees of freedom motion base is scaled to realistically simulate the operating environment and vessel behaviour at various speed range and sea state. The visual system comprises low radius cylindrical screen panels with ellipsoid extension panels for floor projection, extending the main visual inwards and covering the sides of the fast craft hull.



## Tactical training and integration of weapons trainer

K-Sim Fast Craft can include weapons training capabilities, for multiple weapons types, integrated into the simulator. This creates an extremely realistic training environment to effectively train the boat crew, in not only boat handling and high-speed navigation, but also highly realistic and full-scale tactical scenarios including weapons engagement. Maritime organizations will be provided with the possibility to train all on-board crew functions, in the full range of operational scenarios within their mission portfolio.

K-Sim Fast Craft enables training for tactical and operational scenarios in high-speed



## Instructor system

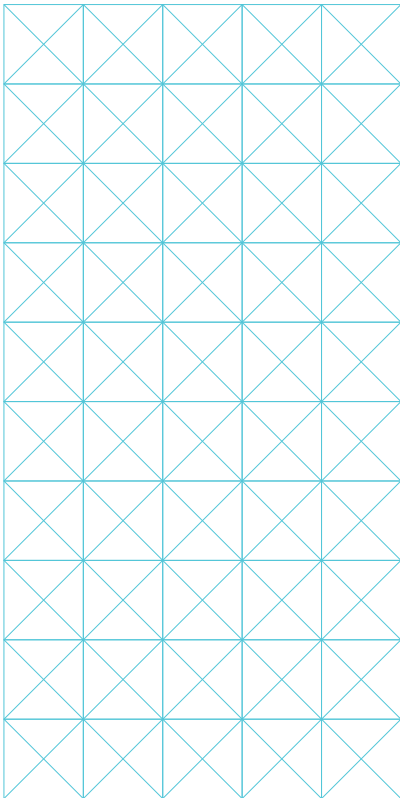
The K-Sim Fast Craft includes the same state-of-the-art instructor, monitoring and assessment system as K-Sim Navigation. In addition to the realistic environment for students, instructors benefit from an award winning\* instructor system designed to facilitate ease of use. It features an intuitive and modern educational tool utilizing modified ECDIS charts as a starting point with drag & drop function for creating exercises. The instructor system also includes automatic recording and an advanced assessment system for ensuring optimal training and feedback standards.

Features multiple weapons training capabilities

\* Award for Design Excellence from the Norwegian Design Council



The user-friendly instructor system enables full control of the exercise



## Adaptable to a wide range of customer segments

The simulator solution allows for effective training in high-risk operations, in a controlled and safe environment. The solution is adaptable to a wide range of user groups that operate high-speed boats:

- Special Operations Forces
- Coast Guards
- Navies
- Search and Rescue Organizations
- Marine Police Forces
- Pilots
- Customs and Border Patrols
- Fire Departments
- Maritime- and Fast Rescue Craft training providers
- Ship builders and manufacturers

## Meeting exact training requirements

KONGSBERG's range of simulator systems is based on in-depth understanding of the learning process. All simulators provide highly realistic training scenarios and can be customized to fulfil specific training requirements.

**Customized tactical boat handling and firing simulator for Singapore Police Coast Guard**  
KONGSBERG landed its largest ever simulator contract with the Singapore Ministry of Home Affairs, for the delivery of K-Sim Tactical Boat Handling Simulators to the Singapore Police Coast Guard. The delivery comprises four customized simulators, replicating different boat types, integrated with weapon capabilities for full-scale tactical training.

The simulator facility provides highly realistic tactical boat handling and fast Interception training for the Singapore Police Coast Guard. The delivery combines existing state-of-the-art software functionality with new customized vessel models including replication of the vessel hull, hardware and instrumentation as found on board, an innovative projection system and additional functionality supporting the Singapore Police Coast Guard's training objectives.

The solution is pushing the technology to achieve an entirely new level of hydrodynamic capabilities and creates a highly realistic simulated environment.

### Customized bridge simulator for Royal Norwegian Navy

KONGSBERG has a long relationship with the Royal Norwegian Navy and their Navigation Competence Centre. One of the latest deliveries is a specially designed 1:1 simulator replica of the tactical bridge system on board the Skjold class Corvette. As one of the fastest warships in the world, with a capability of speeds above 60 knots, the bridge team is subject to very strict requirements for safe navigation.

Built on K-Sim technology, the simulator features advanced software that realistically replicates the speed and handling of the Skjold. It provides realistic training scenarios, exceeding live training possibilities because of the high speed and safety procedures of the vessels. This allows the Navy to expose the crew to greater challenges in a safe and cost-efficient environment.



Royal Norwegian Navy is using a customized Kongsberg Digital simulator solution, which is a 1:1 simulator replica of the tactical bridge system on board the Skjold class Corvette.



The Skjold class Corvette is one of the fastest warships in the world with a capability of speeds above 60 knots.

