

# Cruden motion simulators for high speed boat training

We work in a variety of industries, helping organisations achieve their goals through simulation. From crew training to significantly reducing development cost and time, we provide the highest levels of accuracy and realism across our motion-based simulators, simulator software as well as water and boat models.

We have entered the marine market with the launch of a new training simulator for high speed boat handling, navigation and safety. Our 6-DOF simulators combine real boat hardware with professional image generation as well as dynamic wave and boat modelling techniques transferred from the motorsport and automotive sectors.

We are pleased to introduce ourselves as your new partner for repeatable fast boat training.

# Accurate, motion simulators for high speed boat training

While scenario-based simulator training is commonplace in the marine sector, this tends to focus on larger vessels. In our high speed boat simulator, we offer a new solution for training in critical boat handling, navigation and safety situations – where motion, forces and dynamic feedback are important factors.

Using detailed modelling and motion cueing techniques as well as professional image generation developed in the automotive and motorsport industries (including Formula 1™), our simulator is designed to set a new training standard for offshore, coastguard, naval, search and rescue, as well as security and control applications.

We have created detailed models for waves and boats as well as the interaction between the water and the hull. These elements are linked to the visuals creating a perfect match between a wave's appearance and feel; a proper graphical and physical representation of water and a boat. Our waves are based on actual changing physical wind parameters (force and direction) as well as swell, both can be tuned by the customer.

## Adding a simulator to your boat training program will:

- Increase training hours
- Improve skills
- Allow accident prevention training and improve safety
- Provide repeatable, programmable conditions and scenarios
- Enable realistic and detailed data-led AAR
- Reduce instructor exposure to the physical toll of real environment training
- Reduce the wear and tear on operational boats
- Reduce fuel costs
- Reduce impact on the environment



# Hardware, software, content, consultancy: Everything to help you develop your new simulator

We are compiling a range of standard simulator packages for training in dynamic nautical situations such as slamming, surfing, planning, capsizing and broaching. This includes interaction with other vessels, e.g. mother ships, as well as objects such as quays, beaches, piers and jetties.

Our simulators are designed to have you up and running within a couple of days. In addition to our standard simulators, we work with customers to create bespoke hard- and software. We are also able to seamlessly integrate your boat models into the simulator.

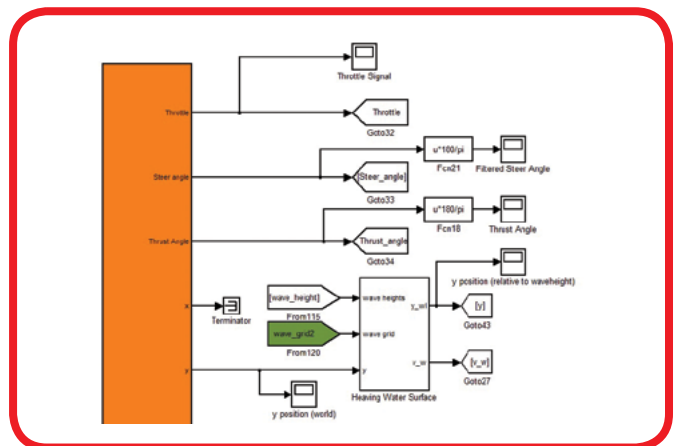
We also take care of the content. Our in-house Content & Design Studio develops water surfaces, boats and scenery. Using our in-house professional image generation, we create the most accurate simulated environment.

During the design process, we worked closely with, and gathered data from, the Royal Netherlands Marine Corps on its fast interceptor and security boats as well as Florida powerboat specialists.



## Simulator highlights:

- Cruden 6-DOF motion system
- Range of boat types available
- Open architecture allowing use of common communication and navigation equipment (ECDIS, AIS, ARPA, VHF etc.)
- Seamless integration of standard equipment (SIMRAD, Raymarine, Furuno etc.)
- Shock-mitigating seat
- On- or off-board projection systems
- Can be operated by one or two people (helmsman and navigator)
- Comprehensive, representative content features e.g. night time, all weathers, realistic lighting of buoys, ships, and landmarks etc.
- Full AAR capabilities
- Support & consultancy
- Service & maintenance



Cruden's founders – formerly of Fokker Aircraft Company and FCS Racing Simulation – have been developing professional motion simulators since the early 1990s. We started developing products for the aerospace industry and helped lead the technology transfer into the marine, automotive and motorsport industries.

As a result we have the world's leading experts in the complete array of technologies required for simulators.

Cruden's team of vehicle dynamicists, software developers, mechanical engineers and project managers is based at our global headquarters in Amsterdam. The building houses all of our functional teams covering the mechanical design of all our components and systems; hardware assembly and integration; our Content & Design Studio which makes all the content for the simulated environment e.g. tracks, waves, vehicles, cars, boats and scenery; the design of motion-cueing algorithms and associated software; simulator operating software and professional image generation.



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