Cruden motion simulators for high speed boat crew training

We work in a variety of industries, helping organizations 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, dynamic models and geographic databases.

We serve the marine market with a range of training simulators for high speed boat handling, navigation, drills and tactics scenarios. Our simulators combine real boat hardware with professional image generation as well as dynamic wave and boat modeling 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 crew 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 cost effective solution for training drills and tactics scenarios, day and night under critical handling and navigation situations – where motion, forces and dynamic feedback are important factors.

Using detailed modeling and motion cueing techniques, and 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, defense, search and rescue, as well as security and control applications. Including simulated weapon systems and electro optics add even more training value to the system, enabling fire and maneuver training in a combined scenario with high speed navigation.

Cruden's highly detailed dynamic models and realistic sea surface description are tightly linked to the visual system creating a perfect match between a wave's appearance, feel and the out-of-the-window view. Dynamic water modeling depends on actual changing physical wind parameters (force and direction) in addition to swell. Multiple simulators can be combined in a shared scenario and additional boats can be inserted. Fendering is supported and boats will respond to each others wake system.

To provide an effective training environment, we create a realistic workplace for driver and navigator that has an identical look and feel to the real console or bridge. Navigation and communication equipment from SeaCross, SIMRAD, Raymarine and many more are supported and operate exactly as they would at sea. Radar is simulated in either broadband or pulse technique resulting in realistic radar imagery.

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 and trainee exposure to the physical toll of real environment training**
- **Reduce the wear and tear on operational boats**
- **Reduce costs**
- **Reduce impact on the environment**
- **Enable fire and maneuver training**

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

We have 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, as well as objects such as quays, beaches, piers, jetties and even an on-board slipway.

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.

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 (SeaCross, SIMRAD, Raymarine, Furuno etc.)**
- **Simulated electro-optical and infrared systems**
- **Shock-mitigating seats**
- **On- or off-board projection systems**
- **Multiple crew training**
- **Comprehensive, representative content features e.g. night time, weather changes, realistic light characteristics of buoys, ships, and landmarks etc.**
- **Simulated weapon system integration**
- **Full AAR capabilities**
- **Support & consultancy**
- **Service & maintenance**

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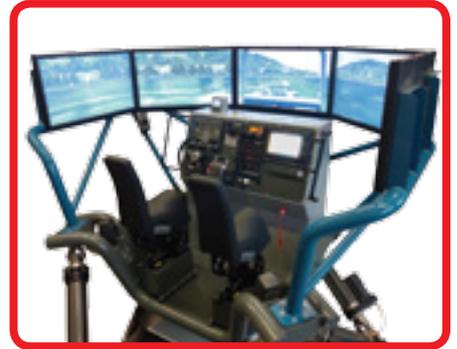
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Cruden's founders have been developing professional motion simulators since the early 1990s. We started developing products for the aerospace industry and helped lead the technology transfer into the marine, automotive and motorsport industries.

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, sea, vehicles, cars, boats and scenery; the design of motion-cueing algorithms and associated software; simulator operating software, authoring tools and professional image generation.

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