

## SAFETY AT SEA INTERNATIONAL AWARD 2009

### Advanced training simulator to train offshore personnel to escape from submerged cabin

#### Helicopter Underwater Escape Training (HUET)

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#### Introduction

Helicopter Underwater Escape Training plays a critical part in the safety of helicopter crews and personnel operating in the offshore industry. Each year several thousand offshore personnel go through mandatory underwater escape training. Until now the training has relied on conventional simulators with limited capabilities to replicate the disorientation, which results when helicopters are forced to make emergency landings in water and the aircraft cabin submerges and simultaneously rotates.

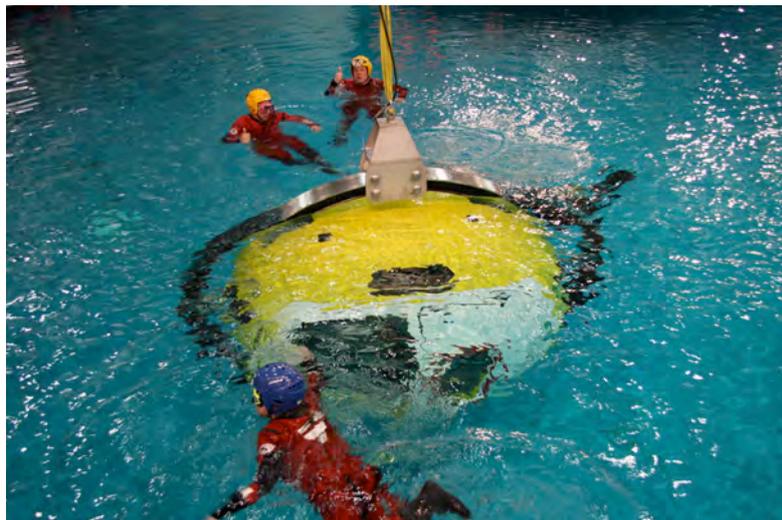
Working as instructors of HUET courses for many years, the developers gathered feedback and development ideas from the course participants. The result is the Multi-Way HUET, MWH-6 for short. MWH-6 is a revolutionary product in this area and it has a new, more realistic approach to the training. It has advanced multi-directional rotation and even free fall mode. MWH-6 can simulate all types of enclosed cabin environments, including also fixed wing aircraft and offshore boats. To increase training safety, fail-safe operational safety and emergency functions have been added to MWH-6.



## Description of the new product –MWH-6

MWH-6 achieves improved underwater escape training using following unique features:

- A) Spherical and double jointed structure allows the simulator to perform the identical unpredictable movements as a helicopter does when it ditches in the sea.
- B) MWH-6 rotates in all directions, not only 180 degrees as the traditional simulators.
- C) Controlling the experienced loss of direction and balance is one of the most important aspects in HUET-training. Training with MWH-6 is much more realistic and efficient than with any other simulator in the market.
- D) Location of doors, windows, hatches and seats can be altered to simulate a variety of helicopter models.
- E) The innovative design allows the MWH-6 to be quickly and easily transformed into a free falling training simulator. This unique feature allows simulation of impact on water. Fall distance up to 1,8 meters.
- F) Back-up functions are designed in case of emergency situations.
- G) Simulator internal space is recorded during training. The spherical structure allows accurate recording of the complete training cycle.
- H) MWH-6 is ideally suited for all types of training, including base training as traditional simulator with rotation around single axis, as in traditional HUET simulators.
- I) The cockpit can be modified to suit the specific type of cabin of a helicopter, fixed wing aircraft, boat or other type of enclosed cabin, with up to six seats for trainees and trainer.



MWH-6 simulates the unpredictable movements of ditched aircraft, helicopter or any other vehicle with enclosed cabin environment. Omni directional rotation means that the cabin can rotate both around its vertical and horizontal axis, in any given direction, as would be the case in a real accident. In the HUET training the immersed simulator body is allowed to rotate fully to settle in a full upside down position.

## First Experiences - Underwater Escape Training in Sweden

Scandinavian Safety Training Centre AB, SSTCAB, has been the first survival and safety training centre to develop their underwater escape training with the new generation simulator, MWH-6. SSTCAB studied all available simulators and came to the conclusion that none of the other available, traditional simulators could offer same benefits than MWH-6.

SSTCAB determined that MWH-6 improves trainees skills to survive better than conventional HUET simulators, where realistic training can be offered to different configurations of helicopters, fixed wing aircraft, boats and also land going vehicles.

The conventional simulators only simulate immersed cabin rotating around single axis, usually lengthwise. Most trainees find that the repetition of predictable submerging and controlled rotation does not offer any additional improvement to their survival skills.

SSTCAB decided that they want to be at the forefront of safety training, which status is now internationally recognized. HUET trainers in SSTCAB are benefitting from safe yet efficient and economical set-up for underwater escape training. Offshore personnel and helicopter crews can now be trained quickly and efficiently with the MWH-6. Step-by-step training can accommodate all types of trainee skill-sets, from beginner to advanced.



Stefan Nilsson and Mats Mellberg from SSTCAB during training with the MWH-6 simulator.

SSTCAB has their MWH-6 simulator equipped to have the cabin interior and the doors, windows and opening mechanisms to resemble the most common helicopter used in Sweden, namely, Sikorsky S-76. Realism is added with the addition of one sliding door.

MWH-6 offers step-by-step training all the way to most demanding and realistic simulation and works in a way that is not achieved in any other, traditional HUET simulator. Despite the realistic simulation training is safe with only one trainer inside the cabin. With MWH-6, the learning rate is much quicker and intensive than in a traditional HUET simulator

## Summary

It is clear that with MWH-6 the survival and safety training courses can offer much improved skills and readiness for both the professional crews and offshore personnel. In the unfortunate event when ditching in sea occurs, these skills will be highly valued.

The offshore survival and safety industry has been gradually developing over the past few decades. Improved training standards have been achieved as a result of organisations, supplier and service companies and individuals dedicated to the task of saving lives. MWH-6 represents the innovation capability of the offshore industry, which continually strives to find better tools for improved survival and safety training.

We the developers, manufacturers, trainers, customers and users of safety and survival training simulators strongly believe that the new MWH-6 deserves to be considered for the Safety at Sea International Award.