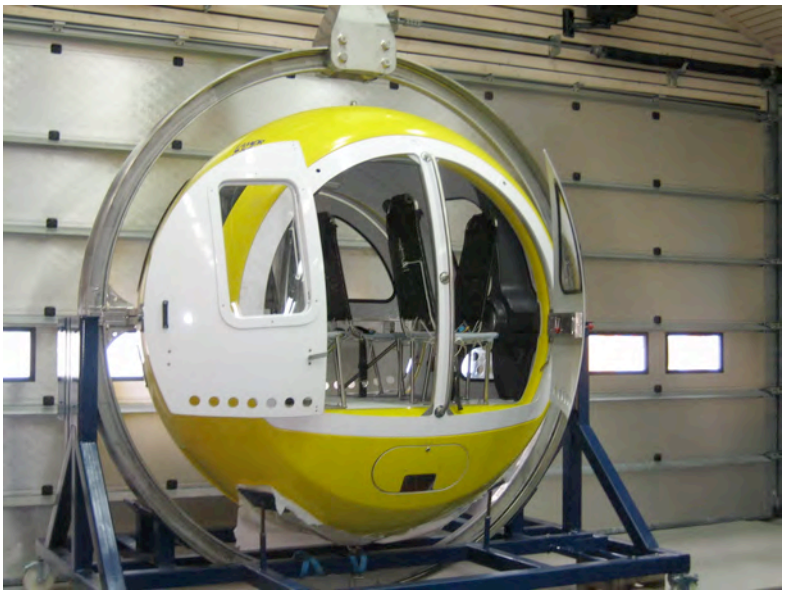
New Generation Helicopter Underwater Escape Simulator

Multi Way Huet

MWH-6

General Technical Specifications



Lamor Subsea

1.1. MWH-6

The Multiway Huet, MWH-6 , is a new type of simulator which enables improved underwater escape training of helicopter and fixed wing aircraft crew and passengers. The simulator has following unique features:

A) Spherical and double joined structure allows the simulator to perform identical unpredictable movements as a helicopter when it crashes/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 efficient than with other simulators in the market today.

D) Location 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 monitored 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 helicopters

Main dimensions of MWH-6 are as follows:

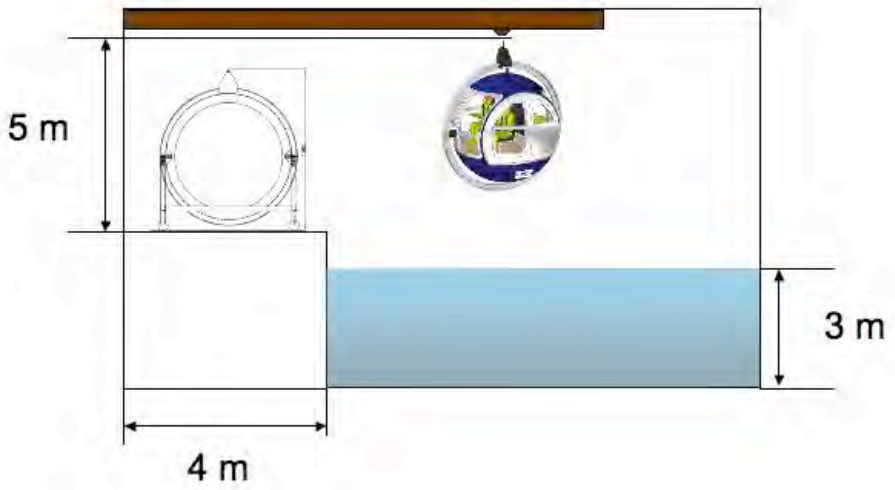
- Inside cabin height 1750 mm
- Inside cabin width 2150 mm
- External diameter with turning ring 3850 mm
- External diameter with simulator body only 2660 mm

Doors and windows, hatches and seats can be altered to simulate a variety of helicopter models.

1.2 Training Pool

- Dimensions of training pool required for MWH-6 are
  - Preferred length & width 10x10 meters
  - Depth 3 to 4 meters
  - Height above pool deck level to roof 6 meters, with minimum distance from crane hook to pool deck surface is five (5) meters

- space required to store MWH-6 simulator next to the pool, preferred minimum 4 x 4 meters to allow easy access around the simulator



1.3. Crane

Crane is required for lifting and deployment of the simulator.

In our standard supply we use a hoist from e.g. the German manufacturer Stahl. This hoist is offering the basic solutions in the safety for lifting people. For control this hoist we add a frequency inverter for hoisting, with a over speed when lowering the MWH simulator into the water when simulating a helicopter crash into water.

The safety features included are:

- Double capacity 6,3t to lift 3t
- Double brakes
- Double wire ropes
- Frequency inverter operates in Closed loop

The frequency inverter drives the hoisting motor with 80Hz when lowering the MWH into the water when simulating a helicopter crash. This higher speed is controlled with an extra pushbutton on the control pendant, which means a two-hand operation.

Technical data:	
Max capacity	6,3 ton/1Am
Lifting height	5 m
Lifting speed	0-12,5 m/min plus “over speed” 18m/min down, Frequency inverter control
Traveling speed	5/20 m/min Contactor control
Main voltage	3x400 VAC, 50 Hz
Control voltage	230 VAC

- Crane should reach to the centre of pool, preferred minimum three (3) metres from edge of the pool
- Alternative crane arrangements either with a rail across the pool (gantry/overhead crane) or a tower crane (slewing/telescopic jib)
- Lifting height is recommended five (5) meters from pool deck to crane hook. Height of lift four (4) meters.
- Measures and weight for the lifting gear depends on what type of equipment is chosen. Usually the equipment is water and splash proof.
- Power requirements depend on the chosen lifting gear. MWH-6 break requires approx 3 bars compressed air outlet at crane hook.

2. DELIVERY

1 pc MULTIWAY HUET – 6 (MWH-6), standard delivery

- frame (*Special* GPR) and seats for up to six (6) people
- ballast tanks, air actuated valves
- turning sphere and lifting mechanism (stainless steel) to fit customer crane.
- control panel for (equipment) brakes and ballasting systems
- internal video *for recording actions* inside MWH-6
- emergency *guiding light* system
- emergency *audible* notification (system) siren and flash light, both connected to panic button inside the cabin
- radio control system for breaks and ballast tank control
- operations and maintenance manuals
- CE design, production and documentation
- transport and storage stand with wheels

3. OPERATION

Operation of MWH is safe and reliable. All key safety functions are included and the staff will be trained to operate the simulator in a safe and correct manner.

The following lists the key issues relating to MWH operation:

- The staff must have a constant-ready divers' team
    - Minimum two divers recommended, where the divers will be outside the simulator ready to assist the trainees if required

- The measures in case of an emergency include
    - a maximum allowed time under water (i.e. 20 seconds)
    - radio communication to surface via divers
    - panic buttons inside the simulator with immediate flashing light and siren to indicate where assistance needed
    - spare air regulators
    - emergency divers

  When alarm is given the crane operator immediately hoists the simulator above water level so that the trainee in distress can breath. The emergency hoisting usually takes two seconds.

- Regulations, which govern the training process, include OPITO and OLF. MWH provides same functions as traditional simulators, with additional capability to provide realistic environment simulating that of a helicopter or fixed wing aircraft ditching in water. Other enclosed cabin environments can also be simulated, such as rescue boats, vehicles and alike.

- One or two persons required for maintenance and technical inspection. Basic maintenance skills required.