

## W-01 PROTECTIVE CAPSULE

Wave Version 1 (W-01)

The W-01 protective capsule has been designed to provide a high-level individual and family safety shelter against major natural hazards, including:

- Tsunamis
- Severe flooding
- Coastal and river submersion
- Extreme weather events



The current version is designed to accommodate 2 adults and 2 children, with an architecture allowing future evolutions (extended capacity and collective versions). The W-01 aims to ensure rapid sheltering, controlled buoyancy, and high mechanical and thermal resistance, while remaining transportable and quickly deployable.

### **Main Structure**

- Double-shell structure made of Aluminum 5083
  - o Outer shell: 4 mm
  - o Inner shell: 4 mm
- Marine-grade alloy recognized for:
  - o Corrosion resistance
  - o Mechanical resilience
  - o Suitability for saline and humid environments

### **Access and physical security**

- Main access door lockable from the inside
- Emergency window
  - o 12 mm polycarbonate
  - o Protected by an anti-intrusion grille
- Integrated lightning protection system
  - o Designed to divert electrical discharges safely

### **Thermal, Fire Protection and Buoyancy**

- Multi-functional insulating foam injected between shells
  - o Thermal insulation
  - o Fire resistance
  - o Contribution to overall buoyancy
- External thermal protective coating
  - o Reduction of heat transfer
  - o Additional protection during prolonged exposure to heat / solar radiation

### **Interior Layout and Equipment**

- Seats equipped with safety harnesses
- Protective helmets for each occupant
- Air filtration system
- Chemical toilet (Ensures hygiene during prolonged confinement)
- Food rations and drinking water (Up to 2 weeks autonomy - optional)
- GPS tracking beacon (optional)
- Inflatable emergency raft (optional)

The architecture is designed to allow integration of third-party systems such as communications, tracking, situational awareness and remote monitoring solutions



### **Safety and Survival Systems**

#### Ventilation & Oxygenation

- 6 ventilation channels (10 cm<sup>2</sup> each)
- Water ingress prevention design
- Ability to operate in fully sealed mode during submersion
- Internal air volume: approx. 2.5 m<sup>3</sup>
  - o Estimated autonomy: ~3 hours without external supply
- Optional oxygen cylinder
  - o Significantly extends survival autonomy

### **Reinforcements and rigidity**

- Welded transverse reinforcements between both shells to increase:
  - o Global rigidity
  - o Resistance to impacts and compression forces
- Reinforced lower section
  - o Double thickness of Aluminum 5083 on the bottom and corner areas
  - o Enhanced protection against impacts with rocks, debris and floating obstacles

