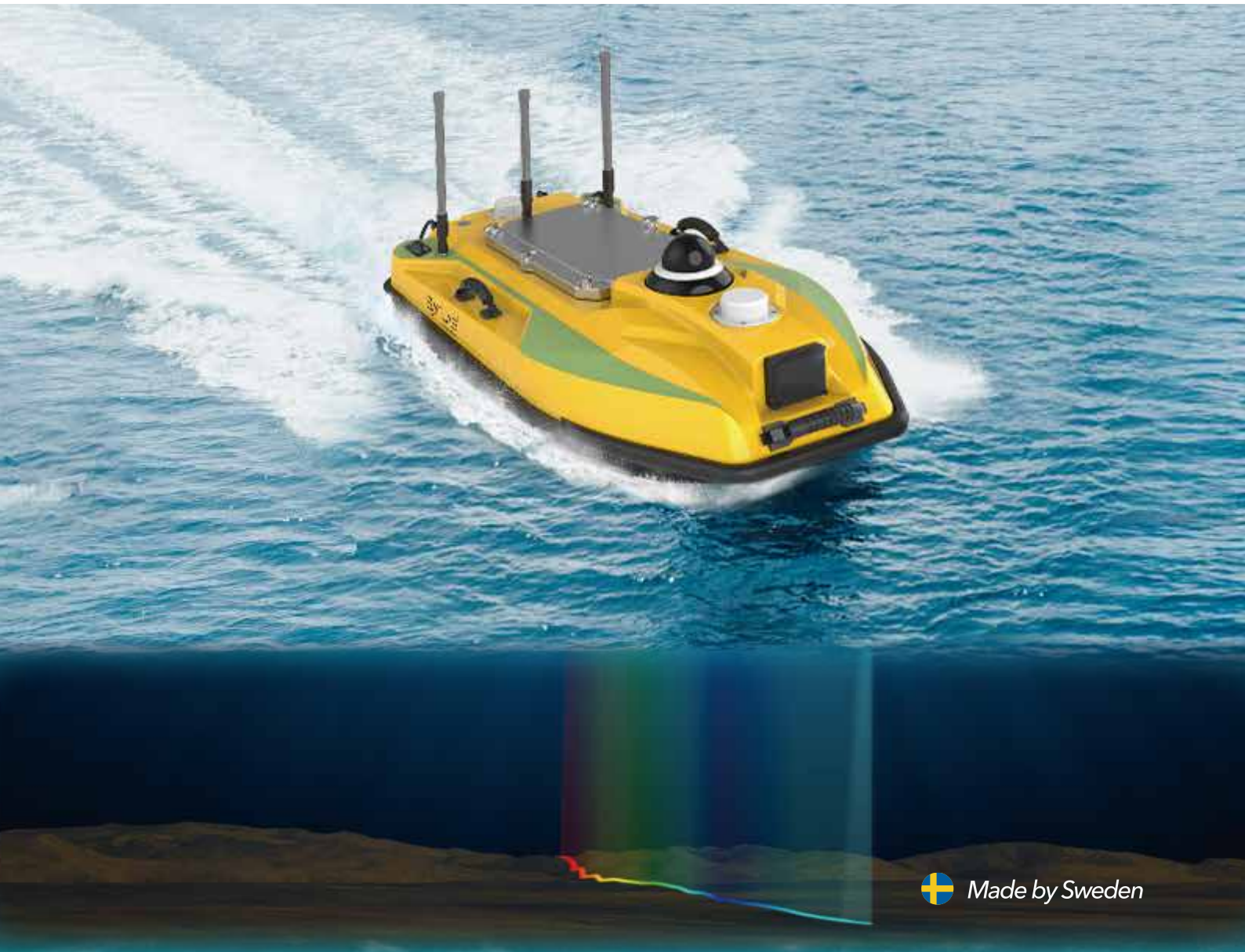


HydroBoat 990

An Android-powered USV System
for Bathymetric Surveys



HydroBoat 990

USVs (Unmanned Surface Vehicles) are widely used in hydrographic surveys, environmental monitoring, and water search and rescue. Among them, hydrographic surveying is the most used and developed field. When a hydrological survey is facing many unknown waters, it usually takes a long time navigation and requires high accuracy, which poses great challenges to the safety and health of surveyors.

The hydrographic survey USV combines various complex systems to offer users the simple and efficient operation mode. With double hull design, HydroBoat 990 USV integrates the GNSS system, bathymetry system, communication system and autonomous navigation system, which ensures both efficient surveying and safe navigation.

Top 3 Challenges about USV



Usability

It is complicated and a waste of time repeating the unnecessary operational processes in many instances.



Functionality

It is applicable to various environments with abundant functions which makes the surveying more convenient.



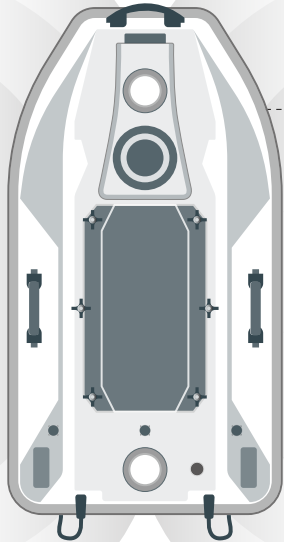
Reliability

It is important to avoid USV from sinking and wrecking. Besides, every part should be maintained in good quality for such a complex system.



HydroBoat 990 bathymetric USV system

System of efficiency and reliability



- 1 Supported by auto and manual mode in the pilot system, safeguarded by radar's obstacle avoidance and hovering system.
- 2 Stable hull design for standing waves, IP67 waterproof, and rugged body with collision protection.
- 3 One-click connection with a powerful controller makes the USV a direct-to-go system, operating at ranges of 2km.
- 4 The pioneering Android app for hydrography and pilot control, makes surveying easier and faster with one intelligent controller.



Usability

- Operate in One Versatile app
- Time-saving Turn on and Survey
- Network without Base Station
- Integration with GNSS and SBES
- Connection with Indicator Lights



Functionality

- Stable Hovering Function
- Avoid Collision with Obstacles
- Real-time Video Patrol
- 4G Remote Control
- Auto-reverse in the Shallows



Reliability

- IP67 Double Hull
- Anti-Collision & Wear-Resisting
- IHO Standard & CE Certification
- Automotive Grade INS Integration
- Onboard Water Depth Logging

Specification

| Vehicle Specifications | |
|-----------------------------------|---|
| Hull dimension (L x W x H) | 1035mm*560mm*345mm |
| Weight | 20kg(No Battery) |
| Material | Carbon ber, Rubber Bumper |
| Anti-wave & Wind | 3rd wind level & 2nd wave level |
| Waterproof | IP67 |
| Indicator light | Two-color light |
| Camera | 360° omnidirectional video |
| Anticollision sensor | Detection distance 10-30 meters |
| Propeller | 2*Brushless Propeller |
| Direction control | Veering without steering engine |
| Maximum speed | 6m/s |
| Battery endurance | One battery 5h with 1.5m/s, total 2 batteries |
| Controller | |
| System | Android System |
| Software | SLHydro USV |
| Control range | 1.3km on 2.4GHz; Unlimited on 4G |
| GNSS Performance | |
| Satellite system | GPS, BDS, GLONASS, Galieo |
| RTK Positioning accuracy | H: ±8mm + 1 ppm RMS V: ±15mm + 1 ppm RMS |
| Heading accuracy | 0.2° @1 m baseline |
| INS accuracy | 2.1°/h, <1m/20s |
| Refresh Rate | 200Hz |
| Built-in Single Beam Echo Sounder | |
| Depth range | 0.15m - 200m |
| Accuracy | ±0.01m + 0.1% x D (D is the depth of water) |
| Frequency | 200 kHz |
| Beam angle | 5±0.5° |
| Software | |
| SLHydro USV | Mission planning |
| | Vessel Monitoring |
| | Coordinate conversion |
| | Bathymetric data acquisition |
| | Bathymetric data download |
| SLHydro Sounder | Bathymetric data processing |
| | Bathymetric data correction |
| | Bathymetric data export |



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