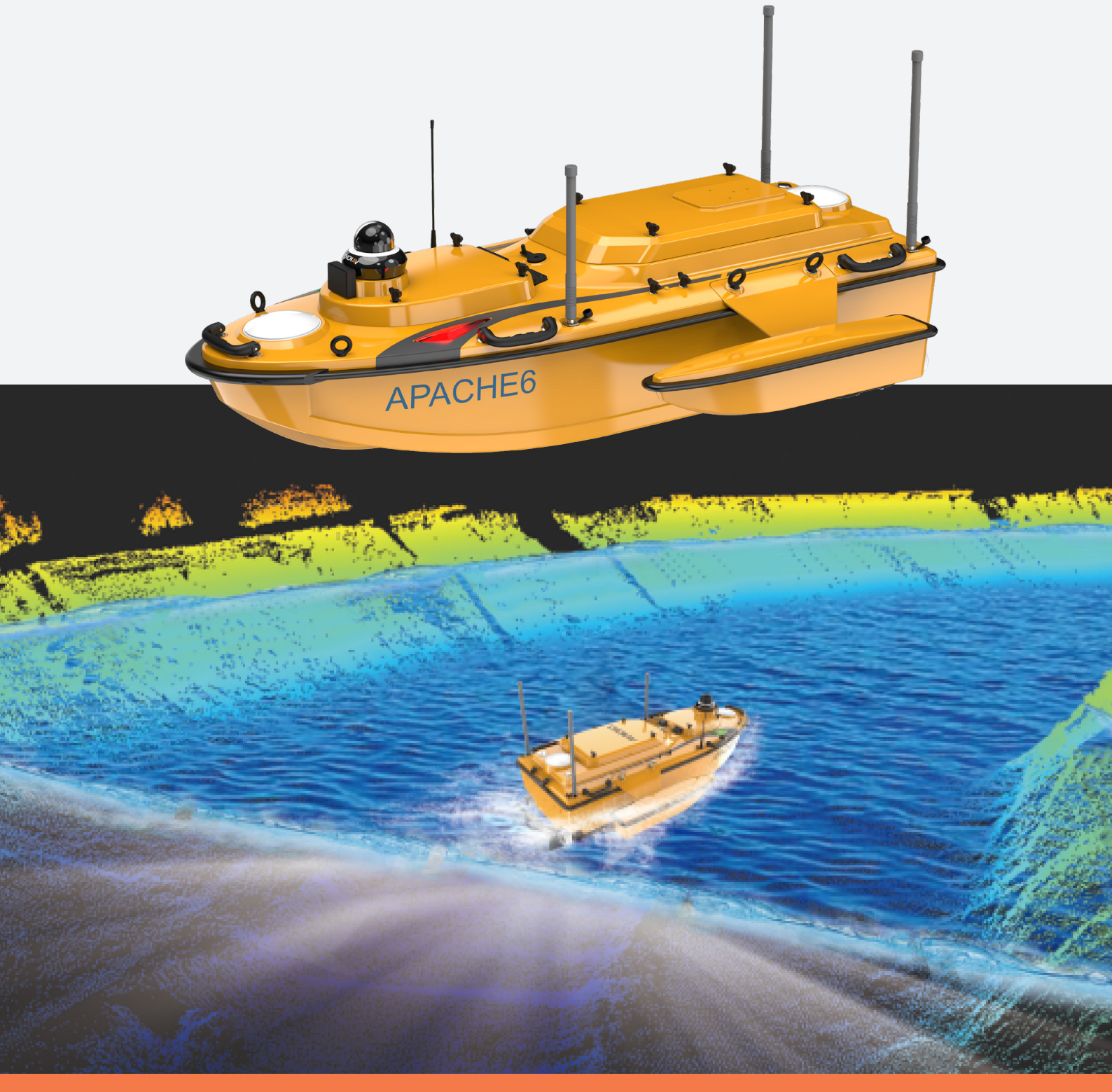
CHCNAV

Geospatial

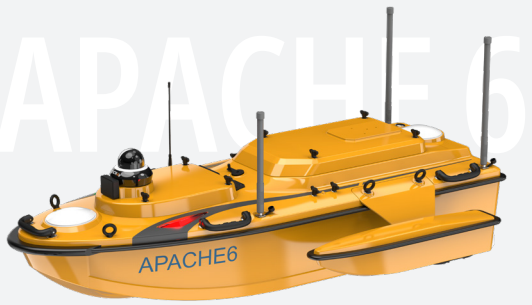
APACHE 6

MULTIBEAM BATHYMETRIC SURVEY USV



Highlights

The APACHE 6 USV is an integrated solution for 3D bathymetric surveys, underwater object positioning, offshore construction, underwater archaeology, and wreck salvage. Built with a triple-hull design and optimized for the Norbit™ multibeam echo sounder series, it provides stable and precise operations in challenging marine environments. The fully autonomous survey mode, powered by CHCNAV's absolute straight-line technology, ensures the USV follows a predetermined path with precision, even in strong currents.



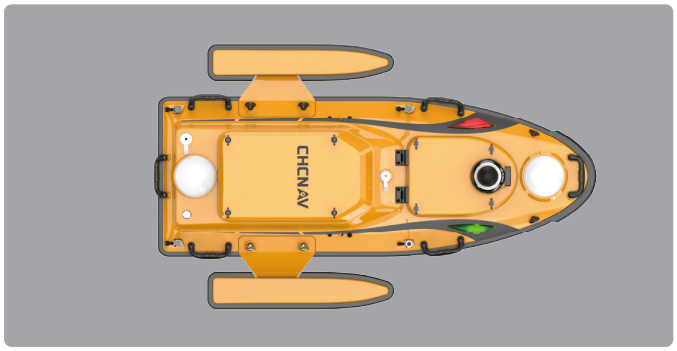
Key feature

- Carbon Fiber Hull: Lightweight and durable
- Modular Three-Part Design: Easy to transport
- Smart Rotating Thruster: Superior maneuverability
- Integrated SVP Launcher: All-in-one solution

Lightweight Carbon Fiber Construction

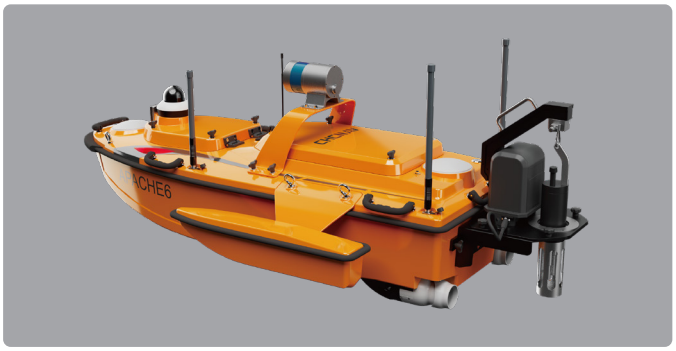


Detachable three-body design



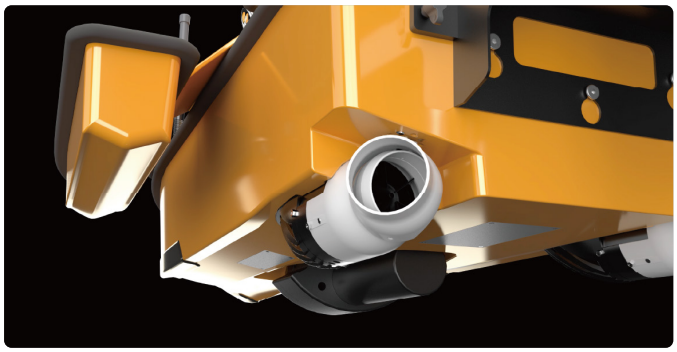
Designed for easy transport and reliable performance in demanding near-shore conditions.

Auto SVP Launcher



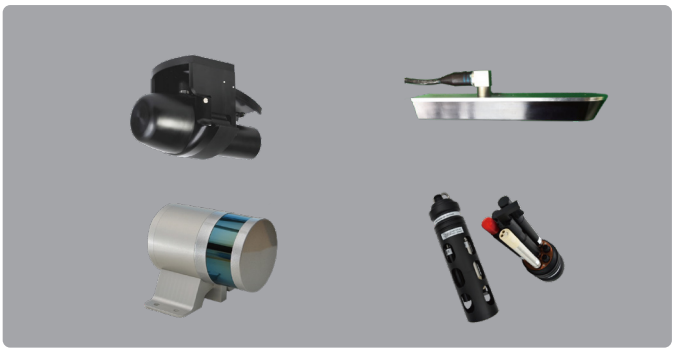
Integrated SVP enables completion of multibeam surveys in a single, seamless deployment.

Titanium Alloy Rotary Thruster



Turning radius as small as 2 meters, enabling more agile steering and effective operation in narrow waterways.

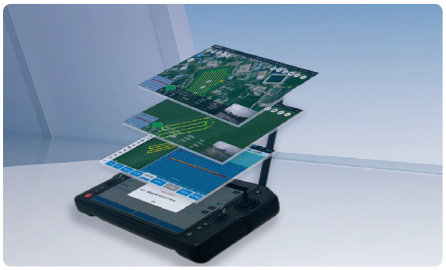
Compatible with a wide range of sensor options



Multibeam echo sounders, 3D laser scanners, water quality meters, side-scan sonar, and other survey instruments.

EasySail All-in-One Android Software

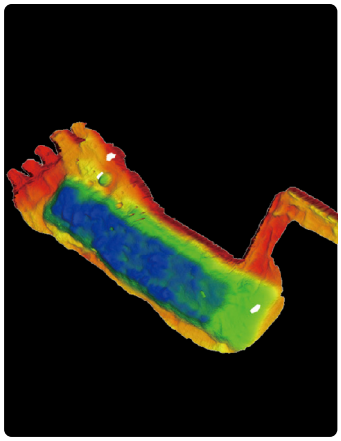




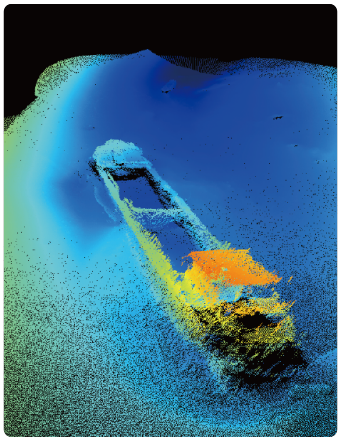


- Integrated display, control, and data acquisition streamline operation - no external laptop required.
- Remote controller with 4G and radio links for real-time video and data streaming.

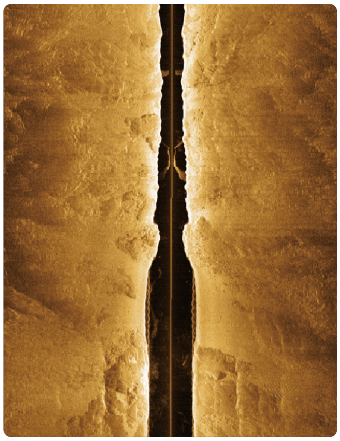
Use Cases



Bathymetric Survey



Shipwreck Detection and Mapping



Underwater Topography Identification



Water Quality Monitoring

SPECIFICATIONS

Physical

Hull Dimension (L x W x H)	Without floats: 1670 mm x 610 mm x 510 mm With floats: 1670 mm x 1000 mm x 510 mm
Material	High strength, high modulus carbon fiber
Weight (w/o battery and antenna)	46.5 kg (with floats)
Maximum Payload	60 kg
Anti-Wave & Wind	6rd wind level and 4nd wave level
Hull Design	Detachable M-type triple-hull
GNSS	Internal GNSS dual antenna
Waterproof	IP66
Draft	7.5 cm (unladen)
Indicator Light	Two-color (positioning and differential signal)
Camera	360° omnidirectional video
Obstacle Avoidance Distance & Range	0.2–40 m (H: 112°, V: 14°)

Propulsion

Propeller Type	Brushless DC
Direction Control	Supports both differential steering and servo steering modes
Rated Motor Power	1000 W
Maximum Motor Speed	7200 ± 5% RPM
Motor Installation	Pluggable
Li-ion Battery Capacity	32.4 V, 23.1 Ah
Battery Endurance	6 h @2 m/s (3 battery sets, expandable)
Power Supply	Single/dual balanced battery support
Battery Replacement	Hot swap supported
Charging Time	3 h
Maximum Speed	6 m/s

Remote Control

Dimension (L x W x H)	350 mm x 195 mm x 101 mm
Display Screen	10-inch
Resolution Ratio	1920 x 1200
Internal Storage	RAM: 4 GB, Storage: 64 GB
Battery Endurance	5 h
Communication Frequency	2.4 GHz
Peripheral Interface	USB, Nano SIM, TF card (up to 128 GB), Type-C

Communications

Data Communication	Standard 4G and Remote control
Remote Control Range	1.5 km (Remote)(1); Unlimited (4G)
SIM Card Slot	Nano SIM
Reserved Interface	2x RJ45 ports, 2x RS232 serial ports
Navigation Mode	Manual or Auto-Pilot
Data Storage	Local (multi-channel) & Remote

Software

EasySail	Route planning and autonomous navigation. Total mileage statistics, remaining mileage reminder, multi-angle video and online map display. Hull parameter control, physical & virtual joysticks, system self-check at power-on. Data collection and post-processing. Waveform overlay and attitude correction. Coordinate conversion, trajectory, water depth, waveform and hull parameter real-time display. Online software/firmware updates. Export via USB/Type-C.

Positioning

Satellite System	BDS B1I/B2I/B3I, GPS L1C/A/L2C/L5, Galileo E1/E5a/E5b, GLONASS L1/L2, QZSS L1/L2/L5
Single Point Position (RMS)	Horizontal: 1.5 m Vertical: 2.5 m
DGNSS Positioning Accuracy	Horizontal: ±(0.4 m + 1 ppm) Vertical: ±(0.8 m + 1 ppm)
RTK Positioning Accuracy	Horizontal: ±(8 mm + 1 ppm) Vertical: ±(15 mm + 1 ppm)
Radio Protocols	Satel 3AS, CHC(2), TT450, Transparent
Heading Accuracy	0.1 ° @ 1 m baseline
Inertial Navigation Stability	6 °/ h (accuracy attenuation 1 m after 20 s)
IMU Update Rate	200 Hz

D270 Single Beam Echo Sounder

Data Type	CHCGD(2), NMEA SDDPT/SDDBT, original waveform
Sounding Range	0.1 m to 200 m
Sounding Accuracy	±0.01 m + 0.1% x D (D is the depth of water)
Resolution	3 mm
Maximum Sampling Rate	30 Hz
Frequency	200 kHz
Beam Angle	5°
Sound Velocity Adjustment Range	1400–1700 m/s
Integrated Water Temperature Sensor	-55°C~+100°C, real-time correction of the sound speed

***Specifications are subject to change without notice.**

(1) For best communication, keep the remote controller at least 1.5 m above water level. Actual range may be affected by weather, swells, electromagnetic interference, and other environmental conditions.

(2) CHCGD & CHC protocol is CHCNAV format.

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CHC Navigation Headquarter

577 Songying Road, Qingpu,
201703, Shanghai, China
Marketing@chcnav.com
+86 21 54260273

CHC Navigation Europe Kft

Office Campus, Building A, 6/B Gubacsi Street,
Budapest 1097, Hungary
Europe_office@chcnav.com
+36 20 510 6723