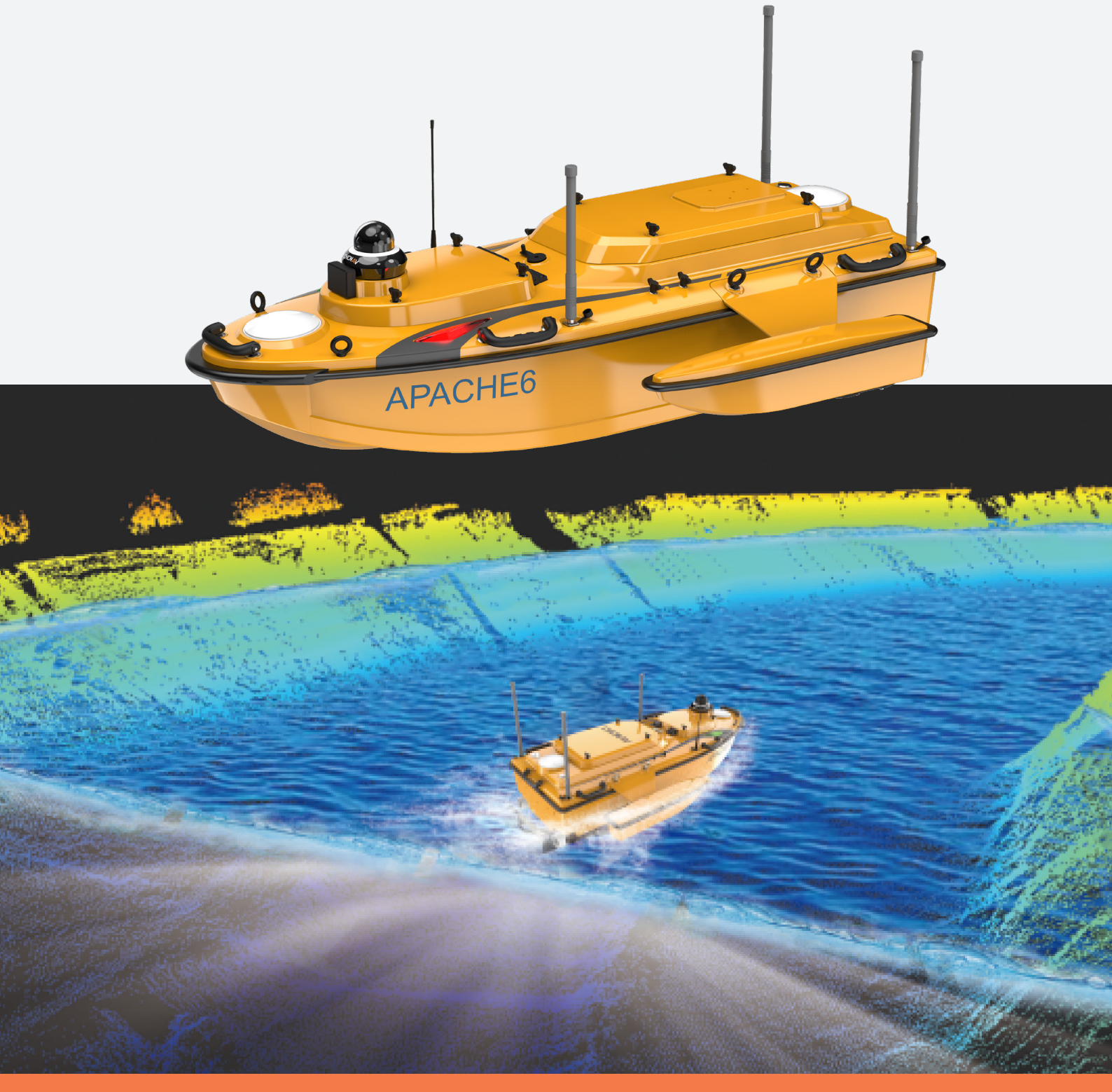
CHCNAV

Geospatial

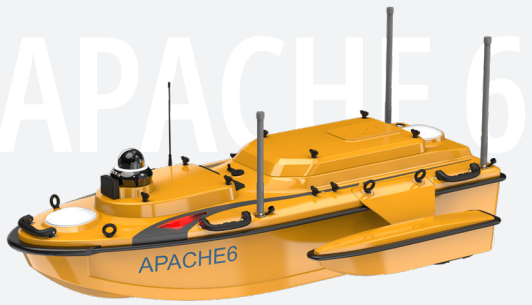
APACHE 6

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

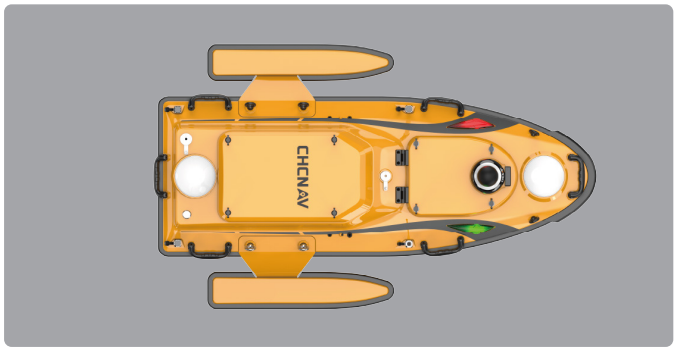
Smart Rotating Thruster:
Superior maneuverability

Integrated SVP Launcher:
All-in-one solution

Lightweight Carbon Fiber Construction

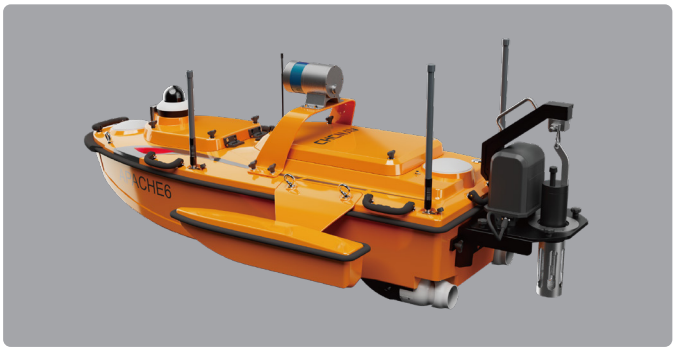


Detachable three-body design



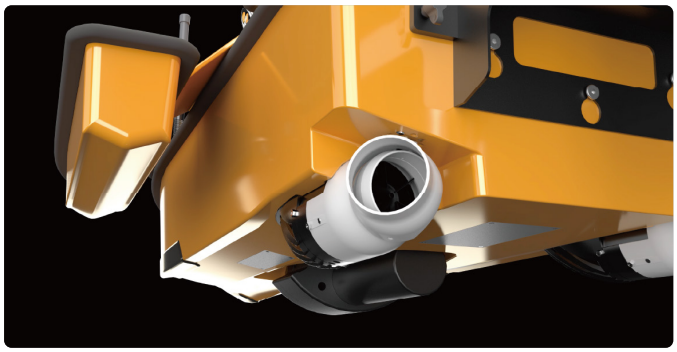
Designed for easy transport and reliable performance in demanding near-shore conditions.

Auto SVP Launcher



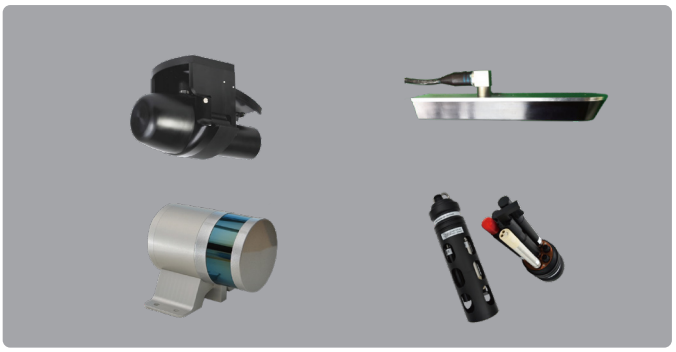
Integrated SVP enables completion of multibeam surveys in a single, seamless deployment.

Titanium Alloy Rotary Thruster



Turning radius as small as 6 ft, enabling more agile steering and effective operation in narrow waterways.

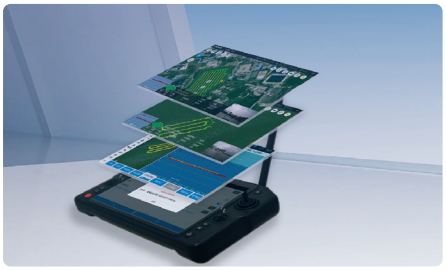
Compatible with a wide range of sensor options



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

EasySail All-in-One Android Software

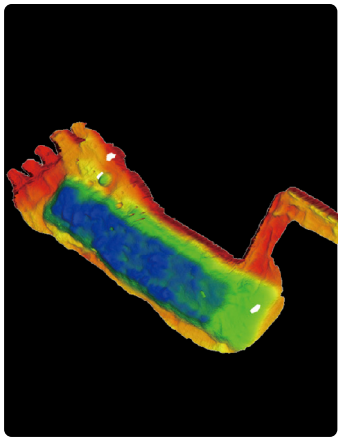




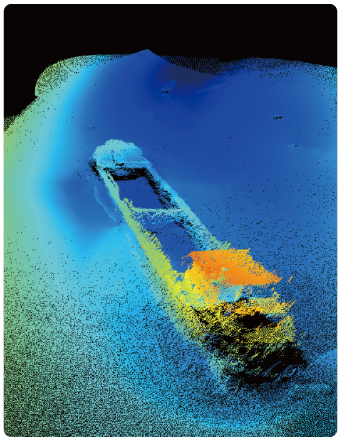


- Integrated display, control, and data acquisition streamline operation - no external laptop required.
- Remote controller with 4G and radio links for real-time video and data streaming.

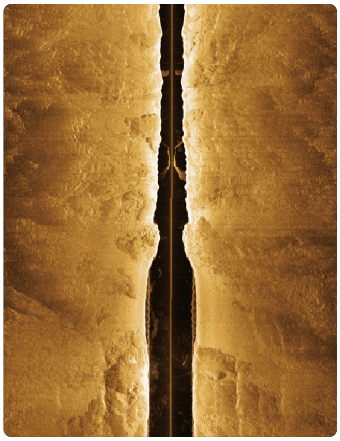
Use Cases



Bathymetric Survey



Shipwreck Detection and Mapping



Underwater Topography Identification



Water Quality Monitoring

SPECIFICATIONS

Physical

Hull Dimension (L x W x H)	Without floats: 5.48 ft × 2 ft × 1.67 ft With floats: 5.48 ft × 3.28 ft × 1.67 ft
Material	High strength, high modulus carbon fiber
Weight (w/o instrument and battery)	33 lb
Maximum Payload	132 lb
Hull Design	Detachable triple-hull vessel
GNSS	Internal GNSS dual antenna
Waterproof	IP66
Draft	3.0 in (unladen)
Indicator Light	Two-color (positioning and differential signal)
Camera	360° omnidirectional video
Obstacle Avoidance Distance & Range	0.6–131 ft (H: 112°, V: 14°)

Propulsion

Propeller Type	Brushless DC
Direction Control	Supports both differential steering and servo steering modes
Rated Motor Power	800 W
Maximum Motor Speed	7200 ± 5% RPM
Motor Installation	Pluggable
Li-ion Battery Capacity	32.4 V, 23.1 Ah
Battery Endurance	6 h @6.6 ft/s (3 battery sets, expandable)
Power Supply	Single/dual balanced battery support
Battery Replacement	Hot swap supported
Charging Time	3 h
Maximum Speed	19.7 ft/s

Remote Control

Dimension (L x W x H)	13.6 in × 7.7 in × 3.5 in
Display Screen	10 in
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	0.6 mi (Remote); Unlimited (4G)
SIM Card Slot	Nano SIM
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/L2P(Y)/ L2C/L5, Galileo E1/E5a/E5b, GLONASS L1/L2, QZSS L1/L2/L5
Single Point Position (RMS)	Horizontal: 4.9 ft Vertical: 8.2 ft
DGNSS Positioning Accuracy	Horizontal: 1.3 ft + 1 ppm Vertical: 2.6 ft + 1 ppm
RTK Positioning Accuracy	Horizontal: ±0.31 in + 1 ppm Vertical: ±0.59 in + 1 ppm
Radio Protocols	Satel 3AS, CHC(1), TT450, Transparent
Heading Accuracy	0.1 ° @ 3.3 ft baseline
Inertial Navigation Stability	6 °/ h (accuracy attenuation 3.3 ft after 20 s)
IMU Update Rate	200 Hz

D270 Single Beam Echo Sounder

Data Type	CHCGD(1), NMEA SDDPT/SDDBT, original waveform
Sounding Range	0.3 ft to 656 ft
Sounding Accuracy	±0.03 ft + 0.1% x D (D is the depth of water)
Resolution	0.12 in
Maximum Sampling Rate	30 Hz
Frequency	200 kHz
Beam Angle	6.2° ± 1°
Sound Velocity Adjustment Range	4593–5577 ft/s
Integrated Water Temperature Sensor	-67°F ~ +212°F, real-time correction of the sound speed

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

(1) CHCGD & CHC protocol is CHCNAV format.

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