

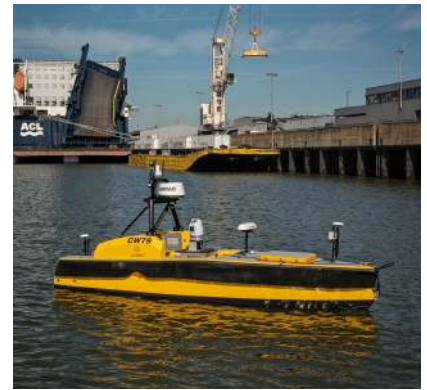


**L3HARRIS™**  
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# C-WORKER 5 AUTONOMOUS SURFACE VEHICLE (ASV)

## Hydrographic Survey ASV

VEHICLE CHARACTERISTICS	
Length	5.5m
Beam	1.8m
Height	3.2m mast fully raised, including antenna
Draught	0.85m
Weight	1,250 kg lightship, no payload 2,000 kg fully fuelled, no payload
Construction	Aluminium hull and structure
Sea state	Operations in up to and including sea state 3
Speed range	3 knots minimum speed 5-7 knots cruising speed 10 knots top speed
Endurance	~4 days @ 7 knots ~8 days @ 5 knots
Launch and recovery	Four integrated lift points for overhead lift via slings and shackles Docking system (optional)
Navigation aids	Solid-state compass Speed sensor Airmar depth transducer Class B AIS transponder Tri-colour navigation lights, all-round white mast head light Horn Halo 20+ radar (optional)
Cameras	360-degree camera box featuring four daylight cameras (forward/aft/port/starboard) and one forward-facing thermal (IR) camera
Propulsion	57hp inboard diesel engine and sail drive
Fuel capacity	770 litres (diesel)
Standard vehicle control	Mission planning (lines, waypoints, station keeping, geofencing) Direct remote control via a hand-held control unit
Optional vehicle control	Autonomous route planning with collision avoidance system
Primary communications link	5W COFDM IP mesh radio Tuneable RF channel bandwidths of 1.25 MHz to 10 MHz ~5km range with remote station antenna height of 3.5m Range can be increased with remote station antenna height >3.5m
Alternate communications	4G LTE cellular data connection Wi-Fi
Electrical power (DC)	1x 24V DC house battery bank 1x 12V DC engine start battery External shore power connector for shore supply charging
Payload capacity	~40kg wetside payload capacity (MBES, ADCP, SBP, CTD etc.) with sensors mounted on a fixed through-hull housing. Potential for deck-mounted and/or towed payloads Payload control equipment is located on-board in a 12U 19" rack unit, housed in a watertight compartment 24V DC 150A 1kW power



C-Worker 5 is an autonomous vehicle designed to support hydrographic survey work and to increase survey coverage in limited timeframes. A proven offshore survey “force-multiplier”, C-Worker 5 can operate for up to 8 days at a survey speed of around 5 knots.

The vehicle has a fixed payload location for accurate offset measurement. A 12U 19” rack unit is fitted inside a watertight forward compartment for the housing of sensor control equipment.

L3Harris operates a fleet of C-Worker 5 vehicles which, over a number of years, have been deployed in survey operations in the UK, France, USA and Australia carrying out in excess of 15,000km of survey lines in a single operational area.

Unlike conventional survey vessels, C-Worker 5's design is optimised for its purpose without having to consider human factors. Despite its compact size, the vehicle has excellent sea keeping ability and has been proven to carry out hydrographic operations just as well as a manned survey ship.

C-Worker 5's inboard diesel engine and sail drive powers a single propeller and can achieve vehicle speeds of up to 10 knots. The vehicle also has the benefit of a shallow draught and excellent manoeuvrability to enable operations in areas that larger vessels cannot reach.

C-Worker 5 can be launched and recovered by overhead lift with slings and shackles via four integrated lift points.

C-Worker 5 is operated using the ASView control system, which enables pre-programmed missions to be set up, executed and monitored via a graphical user interface. Control modes include waypoint and line following, heading and track hold, station keeping and geofencing. The vehicle can also be operated using a bespoke hand-held remote control unit.

ASView features standard S57 navigational charts with the ability to import files such as geotiff and .dxf survey lines. Situational awareness is provided by a 360-degree camera box on the vehicle's mast featuring four daylight cameras and one forward-facing thermal (IR) camera. Live video feeds are transmitted to the remote station in real time.

C-Worker 5's operational safety is enhanced by a SIL1-assured emergency stop system, and a supervision timeout feature that enables the vehicle to perform pre-programmed actions/missions following a loss of communications.

The vehicle's remote station control equipment is hand-portable and has a small form-factor enabling quick and easy set up to provide a control centre shore-side or on-board a support vessel.

Optional additions to the standard C-Worker 5 package include a docking system for launch and recovery from a mothership, a remotely deployable winch, a COLREG-aware route-planning collision avoidance system, and the provision of tailored operator and maintainer training programmes. L3Harris can also provide bespoke solutions for ongoing technical support and vehicle maintenance.



#### PACKAGE INCLUDES

- C-Worker 5 ASV with 5W COFDM IP mesh radio, 4G LTE and Wi-Fi communications links, and 360-degree daylight and thermal (IR) camera suite
- Hand-portable remote station equipment including ASView-Base station, ASView-Helm remote control unit, ASView-Bridge laptop with User Interface, antennas and associated cables
- C-Worker 5 is available for purchase or short/long term lease arrangement

#### OPTIONAL ADDITIONS

- Advanced autonomy with path-planning collision avoidance system
- Docking system for LARS from a mothership
- Payload winch to 100m depth with a 5kg payload (e.g. sound velocity profiler)
- Tailored operator and maintainer training courses
- Post-sale maintenance and technical support contract

#### C-Worker 5 Specifications

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