

The ARCboat range



Features

	ARCboat	ARCboat Lite
Maximum flow conditions	5 m/s	2 or 3 m/s
Number of thrusters	2	2 or 4
Battery life	up to 5 hours	up to 4 hours
Detachable bow	✓	✓
Remote control range	up to 2 km	up to 2 km

Dimensions

Overall length	1.95 m	1.33 m
Length without bow	1.20 m	0.98 m
Draft (with skids)	0.22 m	0.22 m
Beam	0.72 m	0.55 m
Sensor deployment depth	0.12 m	0.07 m

Weight

Total unladen weight	29.8 kg	15.9 kg
Total unladen weight with batteries	37.2 kg	16.9 kg
Largest sensor fitted	7.6 kg	7.6 kg

The ARCboat

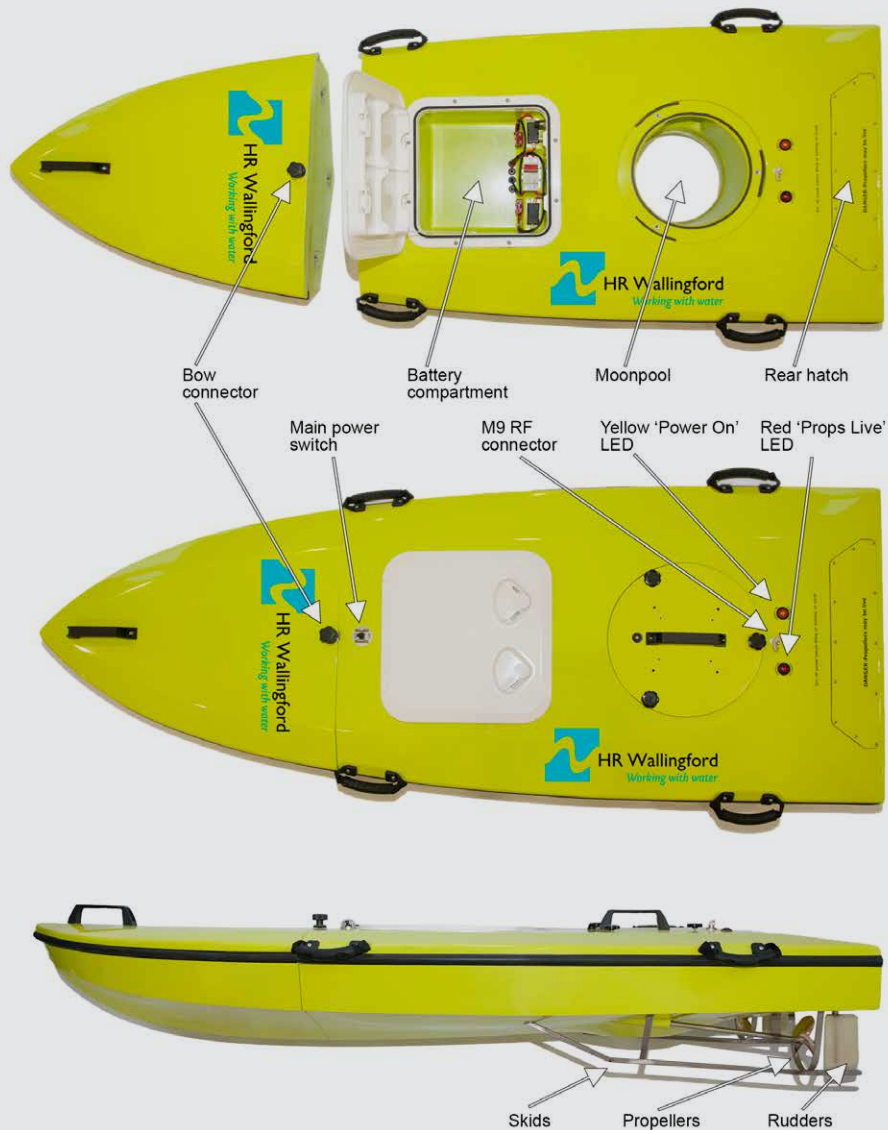


The ARCboat is a remote controlled boat that is used to collect river and estuarine data including flow, depth and suspended sediment concentrations.

It was developed in partnership with end-users and perfected to meet their exact needs.

HR Wallingford provides outstanding customer support throughout the ownership of an ARCboat, from delivery to ongoing training and support.

The ARCboat



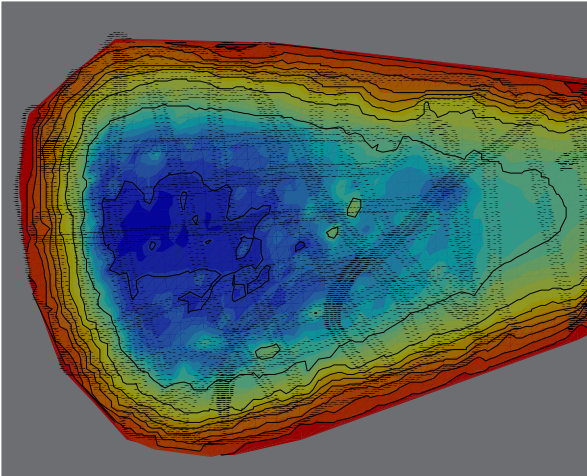
Specifications

Dimensions

Length without detachable bow	1.20 m
Overall length	1.95 m
Draft	0.18 m
Beam	0.72 m
Draft (inc. skids)	0.22 m
Deployment depth of ADCP	0.12 m

Dry weight

Main hull, deck, propulsion system and electronics	25.6 kg
Detachable bow	4.2 kg
Total unladen weight	29.8 kg
Total unladen weight with batteries	37.2 kg
Largest ADCP fitted	7.6 kg
Total weight	44.8 kg



Technical specification

- > Designed to provide clean data in flows of up to 5 m/s
- > A hull design that offers minimal flow disturbance
- > Twin rudders and twin shrouded propellers provide very high maneuverability
- > Deployment depth for the ADCP of only 12 cm below the waterline.
- > Skids protect the ADCP sensor, propellers and rudders from damage.
- > Battery life of up to five hours depending on use. Supplied with spare battery packs and chargers.
- > A relatively light and portable vessel with an unladen weight of 29 kg, a length of 1.95 m, beam of 0.72 m and draft of 0.22 m with skids.
- > Rigid and robust GRP hull able to accept minor knocks and damage.
- > Resistant to UV light.
- > A detachable bow that allows road transport in small vehicles and is easy to replace in the event of front-end impact damage.

- > Supplied with fairings and adaptor sleeves to allow a wide range of ADCPs, including RDI Rio Grande and Sontek M9 units to be used.
- > Operates with industry standard remote control with a minimum range in excess of 200 m.
- > Incorporated Bluetooth link for data transmission to an onshore laptop.
- > Twelve month warranty from the date of delivery.

Current applications

The Environment Agency is using a fleet of ARCboats to monitor water depth and flow up and down the UK, including the River Tyne in Newcastle where the peak tide flow of 903 m³ per second is the highest yet recorded by ARCboats in the Yorkshire and north east region.

A further boat has also been deployed to successfully measure tidal velocities over 1 km long transects in the Wirral estuary, in the north west of England.

ARCboats have been used successfully in Germany, United States, Canada, New Zealand and Ireland.



Key features

can carry a variety of ADCPs and other instruments

high quality data collection with minimal under-hull air entrainment

robust and reliable design

excellent manoeuvrability

designed with operator safety in mind

lightweight and easy to transport

unique detachable bow

can also be used to measure environmental conditions in lakes

About HR Wallingford

HR Wallingford is an independent engineering and environmental hydraulics organisation. We deliver practical solutions to complex water-related challenges faced by our international clients. A dynamic research programme underpins all that we do and keeps us at the leading edge. Our unique mix of know-how, assets and facilities includes state of the art physical modelling laboratories, a full range of numerical modelling tools and, above all, enthusiastic people with world-renowned skills and expertise.

More information

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ARCboat



ARCboat Lite



Key features

Light - weighs just 15.9 kg

Easy to transport - just 1.3 m long, with a detachable bow.

Clean and quiet - powered by electric motors

Fast - top speed of over 3 m/s

Efficient - continuous operation of up to four hours

Safe - easy deployment and operation by a single person

The ARCboat Lite has evolved from our award-winning ARCboat. This new, smaller lighter solution shares many of the features of the original vessel, but we have optimised it to carry out bathymetric and river current surveys in lower flow environments.

With a robust, lightweight hull, the ARCboat Lite has been specifically designed for use by a single person. Its detachable bow and grab rails make it easy and safe to handle, deploy and recover from survey sites.

High manoeuvrability and shallow draft combine to allow the ARCboat Lite to reach more of a survey site than has been previously possible.

The ARCboat Lite is built around a central moon-tube, which not only provides strength at the core of the vessel, but can also accommodate a wide range of sensors, such as SBES and ADCP, from a wide range of manufacturers. Other survey instrumentation, such as the top-box and communications equipment, is housed in the purpose designed hull recess.

The ARCboat Lite is a highly effective alternative to larger, more expensive survey vessels.



Specification

Dimensions

Overall length	1.33 m
Length without bow	0.98 m
Draft (with skids)	0.22 m
Beam	0.55 m
Sensor deployment depth	0.07 m

Weight

Total unladen weight	15.9 kg
Total unladen weight with batteries	16.9 kg
Largest sensor fitted	7.6 kg

Robust and reliable

The ARCboat Lite's strengthened fibreglass hull was designed by naval architects to minimise air entrainment and deliver consistent, high quality data collection.

The ARCboat Lite shares many features with the original ARCboat, from the bright yellow-green hull that makes it easy to spot on the water, to the detachable bow for easy transport. The lighter weight of the ARCboat Lite, however, has allowed us to fit a quick release catch, and a self-guiding and draining slot so even with cold, wet hands the bow is easy to attach.

Powerful, clean and quiet

The ARCboat Lite's thrusters are battery-powered so the vessel produces no emissions and is extremely quiet during operation.

The fixed external thrusters with aft mounted rudders make it highly manoeuvrable. Using differential thrust delivered by electric motors, it can turn in its own length. The rudders allow smooth ferry gliding with precise levels of control.

The externally mounted thrusters are easy to maintain or replace, and eliminating the propeller tubes means that the hull can be completely sealed.

The ARCboat Lite will be available with two thrusters designed for slower flow environments of up to 2 m/s, or with four thrusters optimised for faster flows of up to 3 m/s.

ARCboat Lite is supplied with a remote control with a range of up to 2 km, and displays the on-board battery voltage.

Innovative development

We continue to develop and enhance our range of ARCboats to meet the needs of our end users. The next phase of developments will include:

- > On-board cameras; to provide situational awareness and live feed back to the onshore surveyor
- > Autonomous control; plan a mission and the boat will drive its own survey, allowing the surveyor to concentrate on the data.
- > Water quality sensors; so users can sample water quality simultaneously with water flow data.

More information



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