

Bridge Inspection

Hammerhead Mechanical Sonar

Application of sonar technology in bridge inspection, as a method for improving the efficacy of bridge surveying.



Image courtesy of Cumbria County Council

Features & Benefits

- Quick and easy to deploy
- Up to 100m range
- High resolution imagery
- Safe alternative to diver deployment

Hammerhead mechanical scanning sonar installation on mobile bridge inspection vehicle.

Location: Cumbria, UK

Overview:

The 'BridgeCat' is a technically advanced and specially customised inspection vehicle, featuring a hydraulic arm with a pan and tilt device which allows for accurate positioning of the sonar beneath the water. With the capability to be deployed from a bridge, the arm houses sensory equipment that comprises:

1. SeaKing Hammerhead Sonar

A mechanical scanning sonar with a wide transducer aperture and fine mechanical step size. This creates high resolution imagery of the bridge foundations beneath the water level so that potential issues such as scouring can be identified.

2. Super SeaSpy Video Camera

A compact and rugged underwater camera incorporating a ring of LEDs providing uniform illumination over the field of view. The camera can also inspect the bridge on the way down as it is being deployed, as well as providing high-resolution video imagery of the foundations beneath the water.

3. PA500 Digital Altimeter

A high performance, compact and robust altimeter providing accurate height off the riverbed and other subsea distance measurements.

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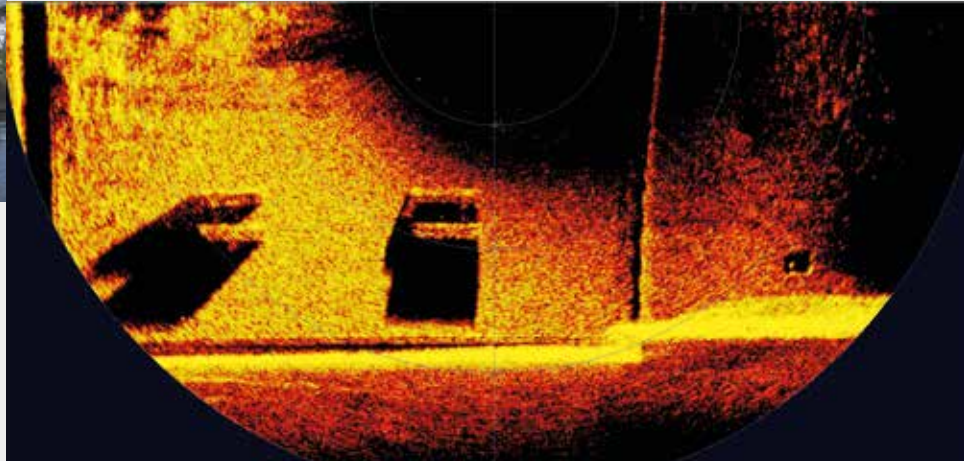
1. SeaKing Hammerhead High-resolution Survey Sonar
2. Super SeaSpy Underwater Video Camera with LED Array
3. PA500 Digital Precision Altimeter



Image courtesy of Gaist Solutions

▲ The BridgeCat vehicle – a development through a partnership between the Department for Transport and Cumbria County Council

▼ High resolution data from the Hammerhead sonar



Applications

- Static seabed / riverbed surveys
- Object location
- Diver monitoring
- Law enforcement and recovery
- Civil engineering inspections
- ROV deployable

Client feedback

Specialist consultancy services for the multi-agency project was provided by Lancaster University based Gaist Solutions.

Jenny Roberts, Senior Project Manager for BridgeCat, commented, *“BridgeCat is a highly innovative system comprising cutting-edge technology, aimed at identifying bridge degradation and scour quickly and effectively. Each element of the system has been carefully selected to ensure it enhances the overall capability. Collaborating with local industry experts, such as Trittech, has been invaluable and BridgeCat is testament to the knowledge and expertise that we have in the North West of England.”*

“Trittech have provided an excellent service, advising on technology, setting up field demonstrations and providing training and ongoing support. Their locality has been a real benefit, expediting progress and reducing project risk.”

Specification subject to change in line with Trittech's policy of continual product development

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