Fugro’s uncrewed surface vessel (USV), Blue Essence, incorporates industry-leading expertise to form the next generation of uncrewed vessels for inspection, construction support, hydrographic and geophysical surveys. Blue Essence’s modular design means that it can be used for a wide range of industry tasks within the energy sector and others. It’s a solution for both nearshore and over the horizon operations.

**MORE EFFICIENT**
Fugro’s Blue Essence brings a fully optimised solution for inspection and survey tasks with real-time data transfer to a team onshore. Staff can analyse and interpret acquired Geo-data in near real-time, without having to mobilise offshore and spend time on complex logistics operations. Faster data-processing and data delivery leads to faster and more efficient decision-making. With more and better-quality data to analyse, we can provide better advise to our clients.

**REMOTE CONTROLLED OPERATIONS**
Fugro’s Remote Operation Centres (ROC) leverage innovative technology, internet and cloud-based services to connect offshore survey vessels to the onshore ROC teams. The Blue Essence USV is fully operated from any ROC around the world, enabling access to a broader range of expertise, 24/7 monitoring and support, including real-time client access to vessel operations and Geo-data through a secure web interface.

**UNCREWED ROV OPERATIONS**
The USV is installed with Fugro’s Blue Volta, electrical remotely operated vehicle (eROV) and launch and recovery system. This is a unique solution for efficient inspection with no personnel involved offshore. The eROV has a high definition camera and sensors installed for capture of high-quality images of pipeline and subsea structures. Clients can be in their office, observing the operation and inspection data in near to real-time, removing the need to be offshore.

**BENEFITS**
- Reduced HSSE exposure and risk
- Increased sustainability by reducing fuel consumption up to 95% of conventional vessels
- Optimised and efficient Geo-data acquisition and reporting
- Real-time insights, faster data-processing and data delivery, leading to more efficient decision-making
BLUE ESSENCE 12 M USV

SAFER AND MORE SUSTAINABLE
As an uncrewed vessel, it eliminates the risks associated with human involvement in offshore operations. With an up to 95% reduction in fuel consumption compared to conventional vessels, it also lays the foundations for more sustainable inspection and survey operations.

Technical Specifications

General

- **Names**: Blue Essence
- **Designer / builder**: SEA-KIT
- **Owner**: Fugro

Dimensions

- **LOA**: 11.75 m
- **Beam**: 2.2 m
- **Draft**: 2.6 m (c/w gondola & USBL)

Control and navigation

- Remotely controlled and semi-autonomous
- **Positioning**: GNSS Starpack and Starpod AIS / comms
- **Motion**: Ixblue Hydrins
- **Communication**: VSAT: Sea Tel/Cobham 5012 (5MB/s) & Iridium Certus, 4G, Wi-Fi, VHF

Propulsion

- **Engine**: Electric directional thrust motors
- **Generators**: 2 x 18kW 48 V DC
- **Propulsion**: 2 X 10 kW / 1200 rpm
- **Survey speed**: 4 knots
- **Fuel capacity**: For up to 30 days offshore (depends type of operation)
- **Batteries**: Marine batteries, for lower emission

Safety

- **Dual radar**: Simrad
- **Additional**: Emergency anchor
- **AI**: Collision Avoidance System

Survey equipment

- **GNSS positioning**: Fugro G4+ with SatGuard Message Authentication
- **Navigation package**: Fugro Starfix Suite
- **Motion reference unit**: Ixblue Hydrins and StarPOD
- **Multi Beam Echo Sounder (MBES)**: R2Sonic 2024 / Kongsberg EM2040
- **Echo Sounder (SBES)**: Teledyne Echotrac E20
- **Sound Velocity (at MBE head)**: Valeport UV-SVP
- **Acoustic underwater positioning**: Sonardyne Mini Ranger 2 USBL

Features

- Containerised for rapid mobilisation
- Remote, over the horizon operations via satellite to operation centres situated anywhere in the world
- Installed with a Fugro Blue Volta eROV inspection ROV for operations down to 450m
- Optional autonomous underwater vehicle (AUV) operations with Low Logistic AUV and up to Hugin size AUVs
- Optional autonomous underwater vehicle (AUV) operations with Low Logistic AUV’s and up to Hugin size AUV’s
- Large gondola installed with multi beam echosounder
- Estimated endurance for survey or AUV operations up to 30 days
- Estimated endurance for ROV inspections up to 10 days
- Maximized situational awareness: radar, weather station and 360° camera (including infrared)
- Vessel-control software with autonomous obstacle avoidance capability and radar repeater
- Fugro Sense.Pipeline unique software service for remote subsea inspection

Uncrewed surface vessel operations being monitored from our ROC

Near real-time visual display of cable asset

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