



FUGRO

BLUE ESSENCE 12 M USV

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

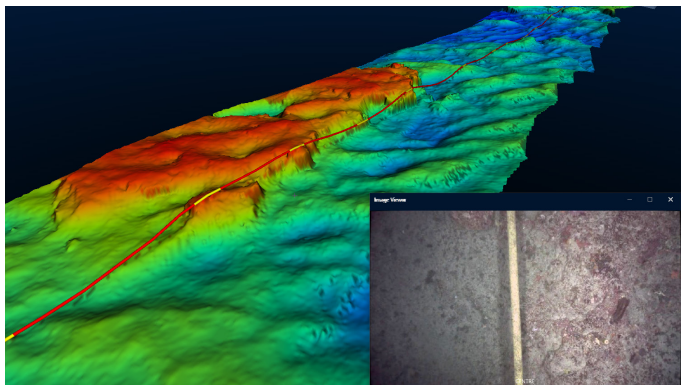
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SAFER AND MORE SUSTAINABLE

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.



Uncrewed surface vessel operations being monitored from our ROC



Near real-time visual display of cable asset

Technical Specifications

General

Names	Blue Essence
Designer / builder	SEA-KIT
Owner	Fugro

Dimensions

LOA	11.75 m
Beam	2.2 m
Draft	2.3 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 17 days offshore (depends type of operation)
Batteries	Marine batteries, for lower emission

Safety

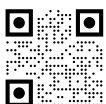
Dual radar	Simrad
Additional	Emergency anchor
AI	Collision Avoidance System
Loud speaker, night vision, 360° camera, VHF radio	

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 or similar
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
Large gondola installed with multi beam echosounder
Estimated endurance for survey or AUV operations up to 17 days
Estimated endurance for ROV inspections up to 10 days
Maximised 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



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