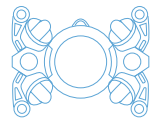# Boxfish
ALPHA

ROV Summary

- Setup and deploy within minutes of arriving on-site, easily done by a two-person team

- Eight 3D-vectored thrusters give true six degrees of freedom of movement to ease work and viewing

- Dynamic stabilisation for easy control of the ROV even in significant currents

- Hover time of 12 hours per charge with actual run time dependent on operational conditions plus fast in-field charging options

- Ultra-lightweight fibre-optic tether with patented fibre-optic connector

- Compact and lightweight design, weighing only 23kg in freshwater or 24kg in seawater

- A 4K UHD 17-inch and sunlight readable monitor options for perfect viewing on-site

- Simple to maintain with a low total cost of ownership

- A powerful, 10,000-lumen high-CRI lighting system

- Operates down to a depth of 300m

- Operating temperature: -10°C to +45°C.

BOXFISH® RESEARCH
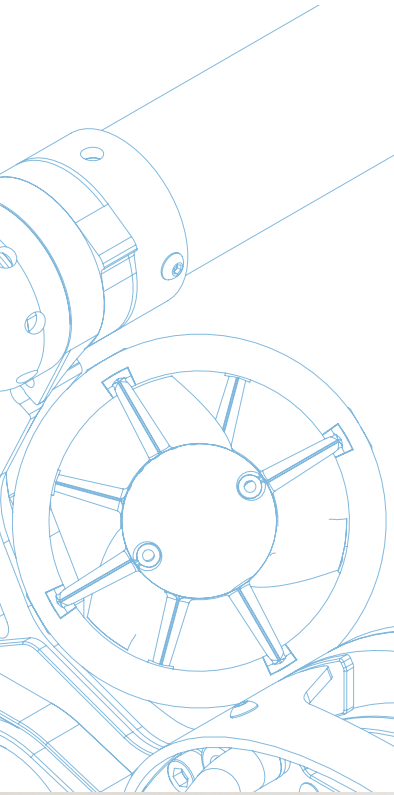
Boxfish Alpha

Asset Inspection Drone

An Indispensable Tool for Commercial Divers

The Boxfish Alpha is our next generation underwater drone for asset inspection, observation and light intervention work. Built using many of the same components as our 1000m Boxfish ROV, Alpha is an indispensable tool for commercial divers, a versatile and reliable remotely operated vehicle (ROV) for getting work done. We have customised the product to streamline underwater inspection tasks and reduce costs while retaining functional flexibility.

Precision controls enable the Boxfish Alpha to navigate underwater structures (and cumbersome Health and Safety regulations) easily, allowing the operator to see better than if they were on a dive. Additionally, the Boxfish Alpha's uncompressed video stream makes it possible to create detailed digital twins of underwater assets (photogrammetry). Imaging and scanning sonars can assist when water clarity is less than ideal, and profiling sonars enable the creation of detailed 3D models.

Commercial divers can accomplish many maintenance tasks by adding optional manipulators to Boxfish Alpha, such as line cutters, grabbers, and jaws. It's essential to have complete control of the host vehicle when using these tools, especially in unpredictable underwater conditions such as current and low visibility. Boxfish Alpha's 3D vectored thruster layout, which gives the ROV six degrees of freedom of movement, enables this.
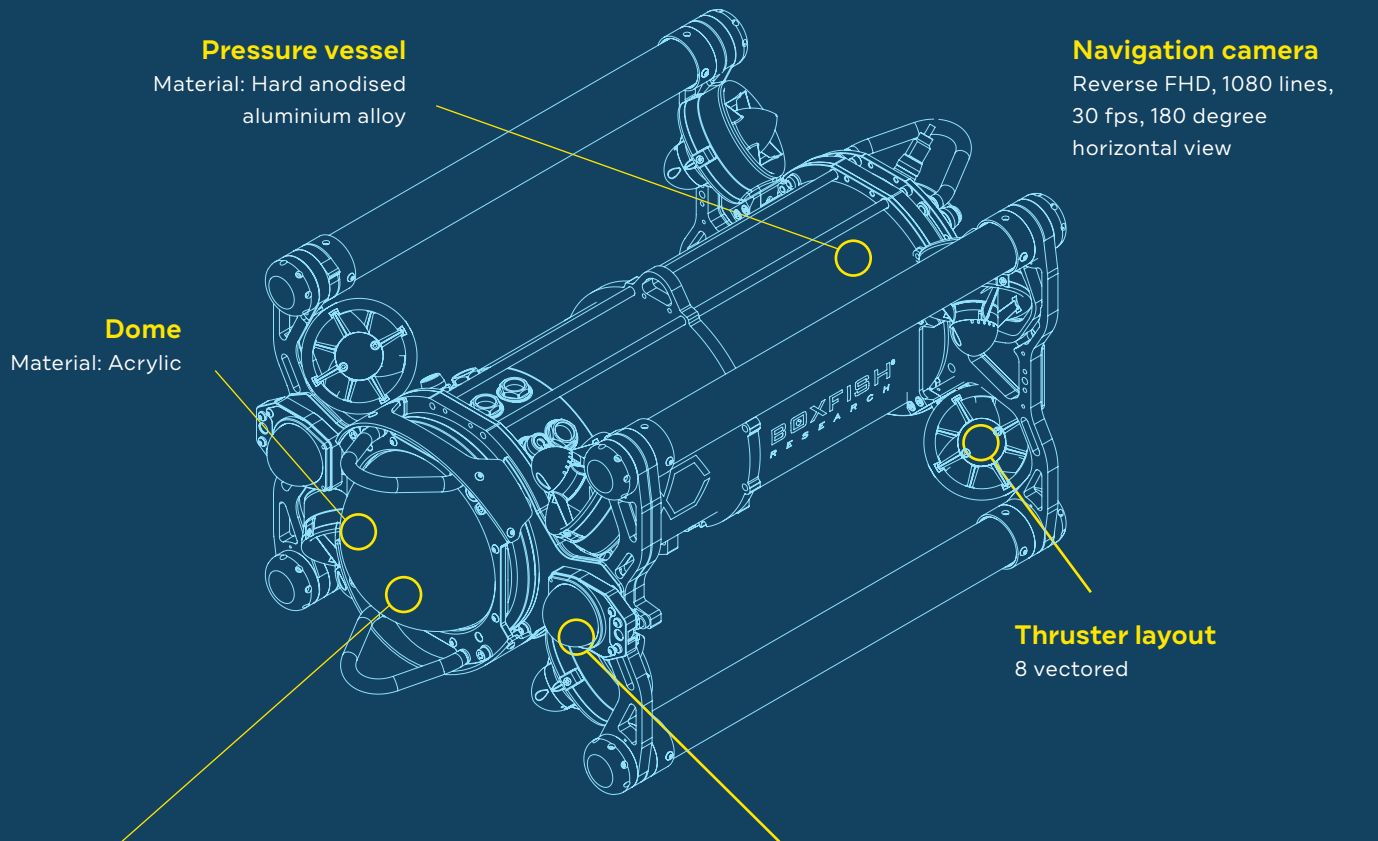

> "The Boxfish Alpha provides commercial divers with an efficient and affordable method to perform underwater asset inspection tasks and deliver customer reporting."

Craig Anderson, Co-Founder, Boxfish Research

+64 9 600 1910 | info@boxfish.nz | www.boxfish.nz

Boxfish Alpha

Technical Specifications

UN38.3

Pressure vessel
Material: Hard anodised aluminium alloy

Navigation camera
Reverse FHD, 1080 lines, 30 fps, 180 degree horizontal view

Dome
Material: Acrylic

Thruster layout
8 vectored

Main 4K camera

- 4K live uncompressed video recorded at the surface
- 20MP RAW and JPG stills
- Large 1" sensor
- 16-48mm equiv. f/1.8 - f/2.8 lens: 6x zoom capable
- Zoom control
- Focus control (automatic and push-to focus)

Integrated sensors

- Depth
- Internal humidity
- Battery and supply voltages
- Thruster telemetry
- 9-axis IMU
- Leak detection

Lighting

- Forward option: 2 x 5,000 lumen, high CRI, dimmable
- Adjustable arms and ball mounts for excellent lighting in all orientations
- Reverse lights
- Additional forward lighting options available

Surface Control Station

- 17" 4K UHD main display
- Camera zoom control
- Three joysticks for easy control
- Weatherproof design

ROV

Depth rating 300m

Dimensions
(l/w/h): 714mm (28in)/ 435mm (17in)/ 351mm (14in)

Weight
23 kg (freshwater)
24kg (seawater)

Operating temperature
-10°C to +45°C

Battery capacity
500 Wh battery endurance: 3-12 hrs (typical use)

Battery recharge time
Overnight charge AC (typical) Fast 1 hour charge optional

Standard external connections
Boxfish tether connector
Boxfish charge connectors

External sensor integration
Up to three Boxfish standard ports (other options available)

Power to external connections
12V or 24V DC (50W / 50W)

Tether

Type: Fibre optic with synthetic strength members
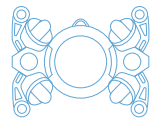**Buoyancy:** Neutral in sea water

Weight: 6kg per 1000m

Length options: 100m, up to 5,000m optional
Diameter: 2.7mm, 4.3mm optional
Colour: Yellow
Breaking strength: 110kg breaking, 525kg optional

Boxfish Alpha

Features and Benefits

Easy to Setup, Deploy & Operate

The Boxfish Alpha is portable, user friendly, and easy to operate, meaning the vehicle can be quickly deployed underwater for asset condition assessment with minimal preparation and setup time. While small and lightweight, its stable, well-balanced design and eight vectored thrusters ensure Boxfish Alpha has the perfect pairing of power and manoeuvrability to navigate strong currents in challenging underwater conditions.

Like Boxfish Research's other ROVs, it offers complete auto stabilisation, pilot assist, precision control, and six degrees of freedom of movement, which means the agile drone can travel and orient itself in any direction. Boxfish Alpha gives commercial divers a powerful tool for getting into and working in tight spaces not accessible or visible with conventional ROVs.

Fully Digital 4K Control Console

The Boxfish Alpha incorporate a data overlay on live-streamed and recorded footage, allowing operators to seamlessly capture superior 4K video alongside essential log data, such as GPS coordinates and depth. Live uncompressed 4K video is displayed in real-time on a 17" 4K monitor together with the data overlay. The water-resistant console's intuitive layout allows even a novice to learn the controls quickly.

Endurance

Typical deployments of the battery-operated Boxfish Alpha can last for 3-12 hours, depending upon water conditions. The unit can be fully recharged in 6 hours using the standard AC charger. Quick access sealed ports mean the ROV can be charged easily and quickly in the field.

Superior Image Capabilities

Boxfish Alpha integrates a high-quality 4K front camera for inspection videography with a rear 180-degree navigation camera. The drone's front camera provides 6x optical and digital zoom, facilitating non-intrusive examination of underwater assets at a distance. Photo Mode allows operators to quickly snap detailed 20MP RAW and JPG stills.

Serviceability

The Boxfish Alpha is low maintenance. Any of the eight thrusters can be replaced in minutes with basic tools allowing you to keep working longer. While not necessary for normal operations, the lithium battery pack can be easily removed and swapped out if need be.

Ability to Upgrade

Users can add up to three accessories and sensors when required, including grabbers, sonars and ultrashort baseline (USBL) positioning. They can also upgrade the durable, lightweight 2.7mm fibre-optic tether from the standard 100m to 5,000m length.

Optimal Lighting

The lighting system, consisting of two 5,000 lumens lights mounted on moveable arms, offers optimal illumination for asset monitoring and photogrammetry up to Boxfish Alpha's depth rating of 300m.

High-Speed Tether

Our ultra-lightweight, neutrally buoyant 2.7mm diameter fibre optic tether is highly robust. It offers low drag and easy handling on deck and in the water. The standard tether length is 100m, but the option exists to upgrade tether diameter (4.3mm), length and reel capacity. A quick change spool allows easy replacement or changeover.

Find Out More

The Boxfish Alpha is available now, supporting commercial divers worldwide with inspection tasks for diverse assets, including water tanks, mines, jetties, bridges and pipelines. Contact us to learn more about our essential industry-optimised solution for underwater asset inspection.