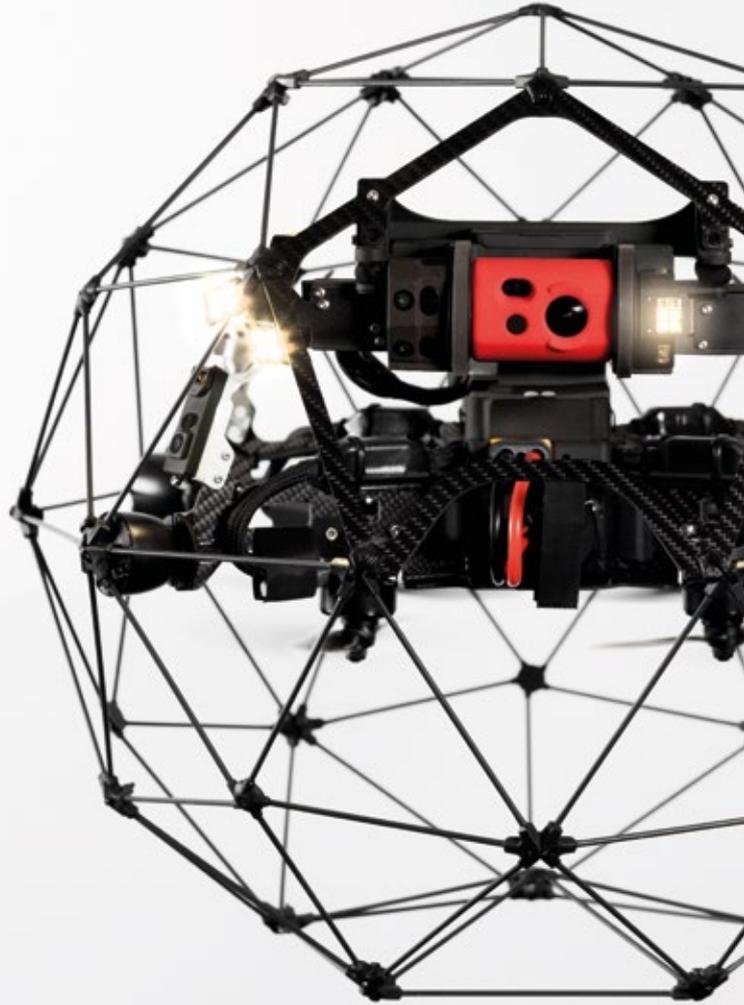


# Flyability Elios 2 Case Study Petrobras Tank Inspection



## Industrial Inspection

Carrying out industrial inspections in confined spaces is a hazardous task. Health and Safety Journals and HSE statistics show unacceptably high (yet now avoidable) casualty rates for workers entering enclosed spaces.

Falls from height are the single biggest cause of fatalities and the dangers are most acute when workers are operating on scaffolding or using rope access in confined and often dark inaccessible areas.

When entering confined spaces many workers are killed from oxygen depletion or from exposure to toxic gases and chemicals. For decades this has just been a fact of life for the inspection engineer. COPTRZ believe that robots should be sent into hazardous places and dangerous situations instead of humans.

***“Robotics will become the standard method to inspect, monitor, and explore confined spaces.” Flyability***

The Confined Spaces Act establishes the fundamental principle to reduce risk to ‘As Low As Reasonably Practicable’ (ALARP) and it’s a legal responsibility you must observe. You’re not alone in facing these challenges as they’ve been the industry standard for many years, simply because there was no other option.



## Flyability Elios 2 Case Study: Petrobras use an Elios 2 for a tank inspection

### The Need

Terra Drone Brazil, are part of a group company with Japan-based Terra Drone Corporation. Terra Drone Brazil have recently announced the successful completion of Brazil's first-ever drone inspection of an offshore FPSO tank (Floating Production, Storage and Offloading). The unmanned FPSO tank inspection was undertaken for Brazil's state-owned oil company Petrobras, a corporate in the petroleum industry headquartered in Rio de Janeiro, Brazil.

Petrobras required a tank inspection aboard the P-66, a FPSO unit operating in the Pre Salt Area at Santos Basin, an offshore sedimentary basin located in the south Atlantic Ocean 300km southeast of Santos, Brazil. Petrobras require the cargo and ballast tanks to be inspected regularly in order to comply with healthy and safety regulations as well as stay on top of any maintenance needed.

Corrosion, cracks, fractures and welding anomalies must be identified quickly so that they don't cause long-term damage to the structural integrity of the ship. Traditionally this confined space inspection is conducted by a team of up to four men with the use of scaffolding and rope access. This would usually take the team up to a full day and the process would pose serious threat to the workers inside the tank. Petrobras wanted to explore using a drone instead to conduct the inspection.

### The Solution

Terra Drone Brazil conducted the inspection of the ballast tank using the Flyability Elios 2 inspection drone. The full inspection process took little over an hour to complete with a team of two men. The photo and video data captured was High Definition and insured a high quality delivery report for all 40 points pre-defined for the close-up inspection.

***“Not only is unmanned FPSO tank inspection safer, but it is also much quicker and more precise than manual inspection. Further, drone inspections for cargo tanks can lead to potential cost-savings as well.”***

Marcelo Belleti, Executive Director, Terra Drone Brazil

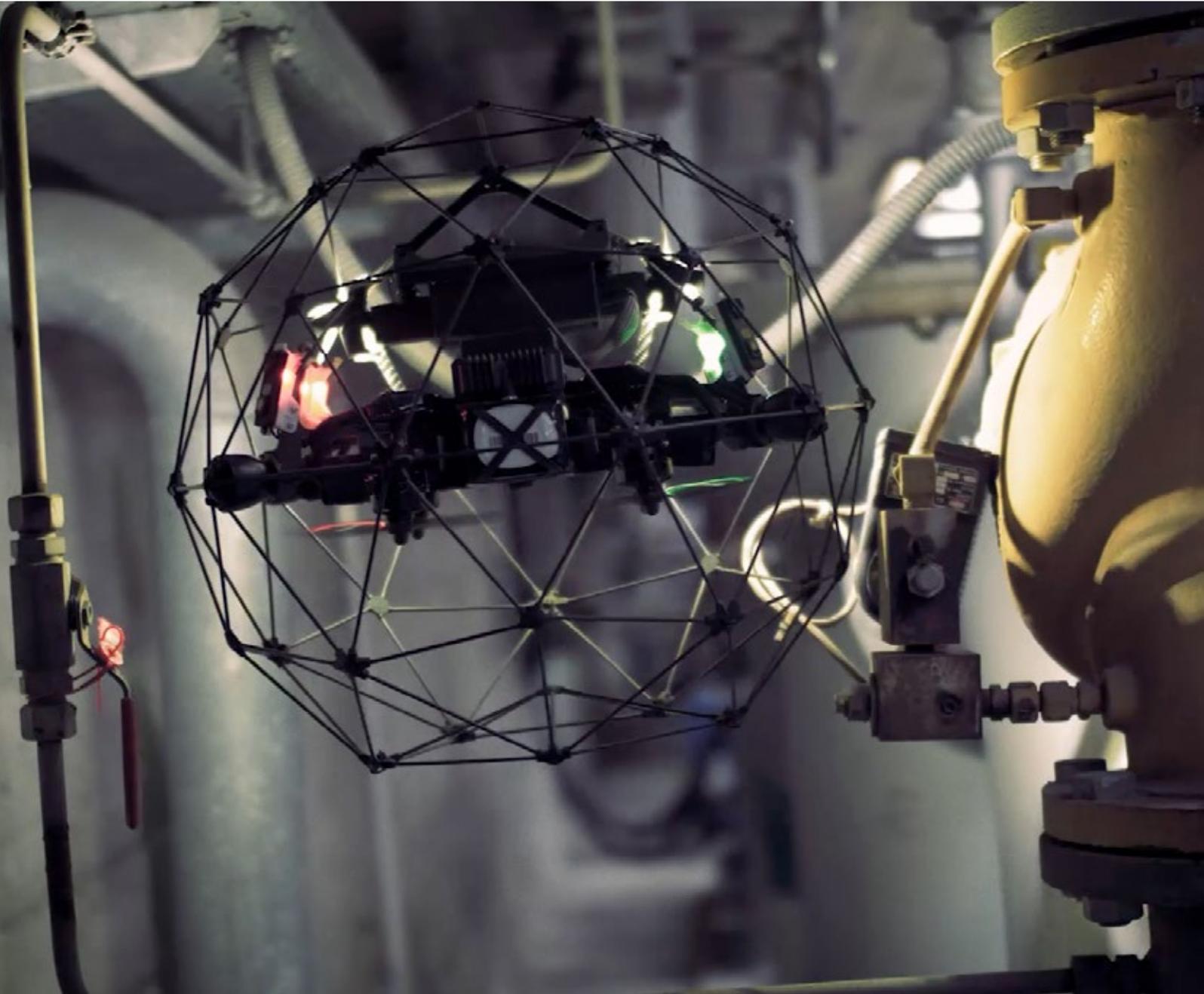
Terra Drone Brazil are an approved supplier for surveying using Remote Inspection Techniques (drones) as an alternative means for a close-up survey of the structure of ships and mobile offshore units.

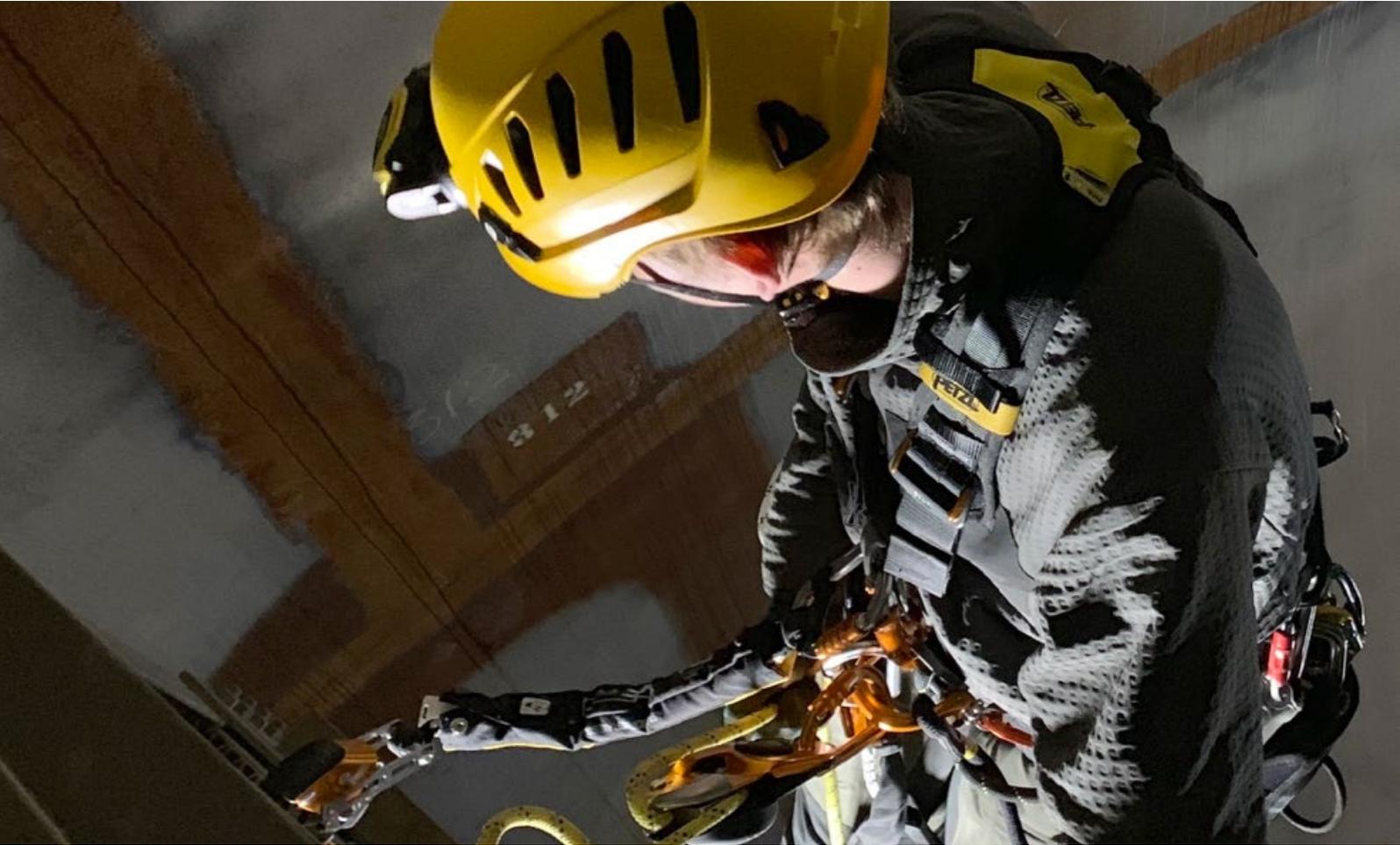


## Introducing the Flyability Elios 2

The Elios 2 has changed the confined space inspection world, making inspections safer, faster and lower cost as the only true ALARP solution. By using the Elios 2 businesses are keeping their workforce out of harm's way while performing flawless inspections right from the first flight using cutting edge drone data capture capabilities.

Reinventing collision-resilience, Elios 2 allows you to capture every corner and inch of the most complex and confined assets, from a safe location. This feature of the Elios 2 enables Inspection engineers to gather intricate data from hostile places where customers are searching for insights or faults.





## The benefits of using drones for inspection

### Strategic

Adopt best practice as an organization by exercising the highest possible duty of care to your employees under the confined space regulations 1997.

### Financial

Cut the cost of inspections by avoiding the need for scaffolding and staging. Moreover, faults will be discovered quickly meaning further savings are made by avoiding maintenance shut-down periods to discover them.

### Operational

Keep on top of maintenance by deploying the Elios 2 in minutes without the need for extensive rope access and scaffolding set ups. This too will impact savings and time further by reducing the man-power required for the inspection.

### Health & Safety

Using Elios 2 aligns perfectly with alarp methodology and negates the need for personnel entering confined spaces or working at height for inspections.





## Features of the Elios 2

### **The worlds most collision resilient drone**

A spherical cage protects moving parts from impact, and stability is maintained through AI powered lightning-fast corrections to the propellers' speed and direction of rotation.

### **The only drone designed to maximise access**

With an overall dimension just below 40 cm (15.7 in) Elios 2 fits into standard manholes and can enter any space where an inspection is needed. At no point do workers need to enter the space during the inspection.

### **The most stable gps-free flight ever invented**

Elios 2 features 7 stability sensors which ensure it can hover in place and navigate through unstructured spaces beyond line of sight. Automatic distance lock function ensures smooth inspections of welding or beams.

### **The best full HD live streaming available**

Instant situational awareness in first-person view (FPV) with full HD live streaming.

### **The best indoor dual thermal & RGB camera**

It's data that matters. Dual thermal and a 4k camera side by side give you stunning detailed images down to 0.18 mm/px resolution to spot the tiniest faults.

### **The most powerful UAV lighting system**

The most powerful and intelligent lighting system ever built on a commercial drone with 10'000 lumens of light.

### **The first drone with dustproof lighting**

Dustproof lighting allows you to traverse dirty places without losing sight of your objective.

### **The first drone with oblique lighting**

To reveal textures and identify defects the oblique lighting system shows you pitting, cracks or build-ups.

### **The only drone with indoor 3d modeling**

Elios' unique software lets you prepare your inspection reports on the fly. Once your mission is completed you will be able to further investigate captured data, create reports and produce 3d models of your assets.

## In Summary

The Flyability Elios 2 is the best drone for “visual inspections in confined spaces” and allows you to safely conduct inspections where you wouldn’t want to risk your DJI. The Elios 2 protects workers from the inherent dangers to taking a human into dark and inhospitable places and allows you to collect data from all those hard-to-reach corners and dimly lit interiors. After all, inspecting the outside of pipes would only show the damage that’s already seeped through (or external wear and tear) whereas being able to get the inside view could help you identify and tackle potential maintenance before it becomes a problem.

With the Elios 2 you can safely operate within such locations and see places and gather data that would otherwise be unreachable. And when it comes to inspection work – and potentially saving your company vast sums of money and time – there’s no such thing as too much data...



To find out more about the Flyability Elios 2 then  
visit our website [www.coptrz.com](http://www.coptrz.com)

If you have a sales enquiry or would like to book a product  
demonstration with COPTRZ then get in touch with our UAV Inspection  
Experts on [info@coptrz.com](mailto:info@coptrz.com) or call us on 0330 111 7177



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