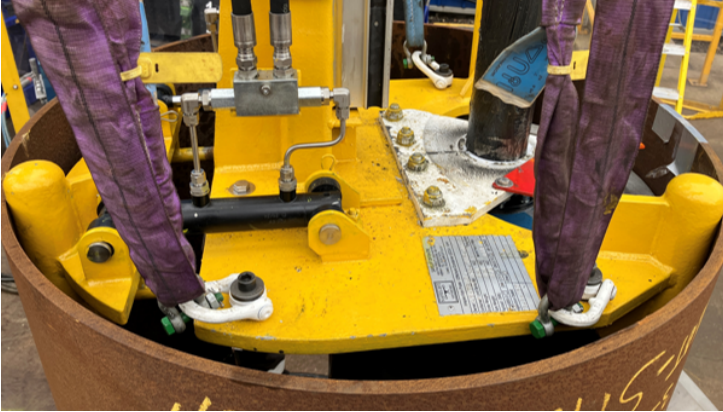


Case study: Bespoke Cutting Tool for Internal Caisson Cutting



Challenge

Ashtead Technology were tasked with the removal of an intersecting pipe from within an offshore caisson as part of a broader asset integrity program. This removal was essential to allow the installation of a new caisson liner to mitigate structural degradation.

Access to the cutting location was restricted, with no overside work permitted. As such, the solution had to be fully internal and remotely operated, eliminating any manual intervention at the cut face.

Additionally, the intersecting pipe was made of super duplex material, known for its toughness and resistance to cutting. The customer required a sub-10mm remaining lip after the pipe was removed, demanding exceptional precision.

Solution

To address the complex requirements, Ashtead Technology designed, fabricated and delivered a custom cutting system.

At the heart of the solution was a custom-engineered drill frame that incorporated:

- 500mm diameter cutting broaches
- Hydraulic clamping system for secure anchoring
- Gearbox, motor and feed system to drive cutting operations

The hydraulic clamp system was designed for remote operation, enabling the tool to engage securely with the caisson wall without requiring personnel to be present at the work site, crucial for both safety and compliance.

Deployment was executed using a bespoke lifting frame that allowed the entire system to be installed in a single lift. This simplified logistics and reduced offshore handling time. Once in place, the Ashtead Technology technicians worked in shifts to complete the cut efficiently.

Ashtead Technology also supplied a full suite of topside support equipment, including:

- Hydraulic Power Unit (HPU)
- Control cabin
- Real-time camera system
- Umbilical and reeler

Results and Impact

The project was successfully completed under challenging offshore conditions. The intersecting pipe was removed cleanly and safely. Importantly, the operation met the precision requirements, achieving a lip of under 10mm.

Key outcomes included:

- Zero overside work required, improving safety and simplifying operations
- Precise, high-quality cutting despite caisson tilt and material hardness
- Reduced offshore time through efficient deployment and round-the-clock operation

As the **underwater cutting specialists**, this project highlights Ashtead Technology's ability to engineer and execute complex internal tooling solutions for constrained offshore environments. With the intersecting pipe removed, the asset was fully prepared for liner installation, ensuring continued structural integrity and extending operational life.