



**HALFWAVE**



## OFFSHORE CASE STUDY

*HIGHLY ENGINEERED  
BASELINE ILI FOR  
MULTI-DIAMETER OIL  
EXPORT ROUTE*

### Challenge

An experienced operator faced the challenge of connecting a deepwater oil export line to an existing multi-diameter oil export route.

### Solution

An intensive development program focusing specifically, on safe passage through the entire pipeline system.

### Results

A customized tool enables future inspections while delivering the operator a thorough view of the integrity of this and future lines.

## Challenge

An experienced operator faced the challenge of connecting a deepwater oil export line to an existing 24"/28" multi-diameter oil export route to its pipeline infrastructure in the US Gulf of Mexico. There was a strong desire to use a 16" export pipeline to reduce project cost.

With these extreme conditions, pigging through varying geometries was considered impossible with any commercially available ILI tools. To successfully inspect the line would require a tool to reliably travel through the new 16" pipeline into an existing 24" pipeline and then a 28" pipeline. Aside from unprecedented diameter variations, the system includes several challenging wye geometries.

Overall, it was confirmed that a customized inspection tool for this challenging pipeline system was required.

## Solution

To inspect this complex line, Halfwave together with the operator launched an intensive development program focusing specifically, on safe passage through the entire pipeline system, while maximizing measurement accuracy. The end result is a lightweight and low-drag ILI ART Scan™ tool for extreme diameter changes.

Halfwave's ART (Acoustic Resonance Technology) successfully overcame the pigging challenges, while also providing best-in-class accuracy for both internal and external metal loss features, and geometry.

Typical stand-off requirements for ART sensors range from 100 mm to 250 mm. A typical ART Scan tool has two main sections separated by a single flexible joint. The tow section includes seal discs and batteries, while the second section houses the transducers and electronics, all in a single pig body. The key to the success of ART technology is ensuring that the tool is always centralized to enable the accurate measurement of wall thickness, geometry and any metal loss. This is achieved using dedicated spring-mounted wheels between each tool section.

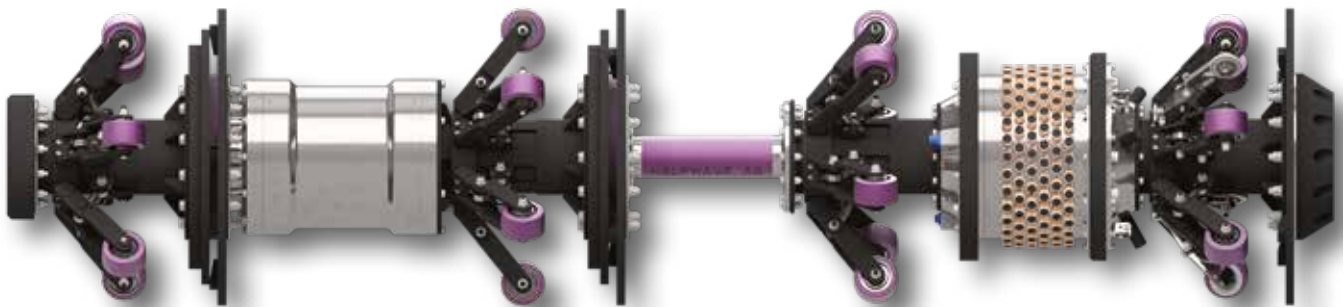
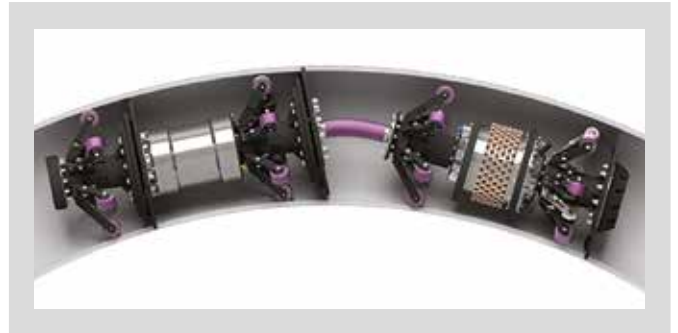
*THROUGH DETAILED ENGINEERING,  
TESTING AND SUPERIOR EXECUTIONS,  
WE CONTINUE TO PUSH THE  
BOUNDARIES OF THE ILI ENVELOPE.*

## Results

🔧 **A highly customized ILI tool** was designed, built and qualified to overcome the challenges posed by this pipeline system with an extensive range in pipeline diameters, as well as numerous challenging wye piece sections.

🔧 **Future integrity program:** This customized tool has paved the way for future inspections and enabled the operator a thorough view of the integrity of this and future lines.

🔧 **Successful baseline inspection:** Due to the successful completion of this customized tool, this asset in the Gulf of Mexico is expected to start production in 2021, from a new floating production platform, installed in about 4,500 ft water depth. Oil production from the facility will be routed via a new 16” pipeline into an existing 24-28” section.



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