

TSC Subsea ART vPush | PPIM 2023 Innovation Award Submission

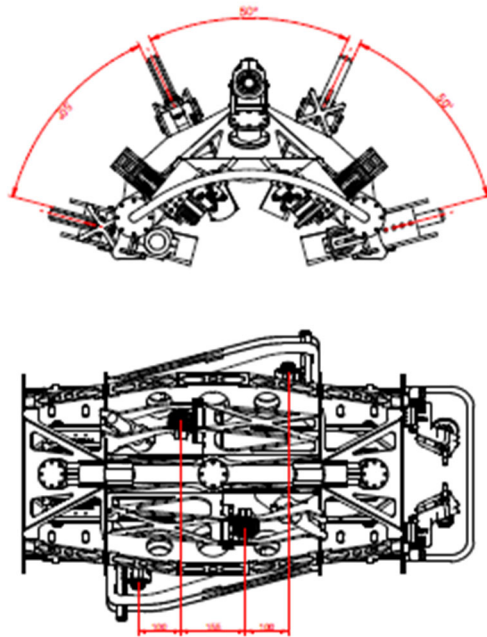
Hydrate formations can present a challenging flow assurance issue for subsea pipeline operators, particularly in gas lines. Hydrate accumulation along the pipe wall can reduce flow or even completely block the pipeline. Remediation of plugged lines can be challenging and costly.

One of the challenges in hydrate remediation is characterization of the plug – knowing where the plug is located and the extent of blockage of the plug.

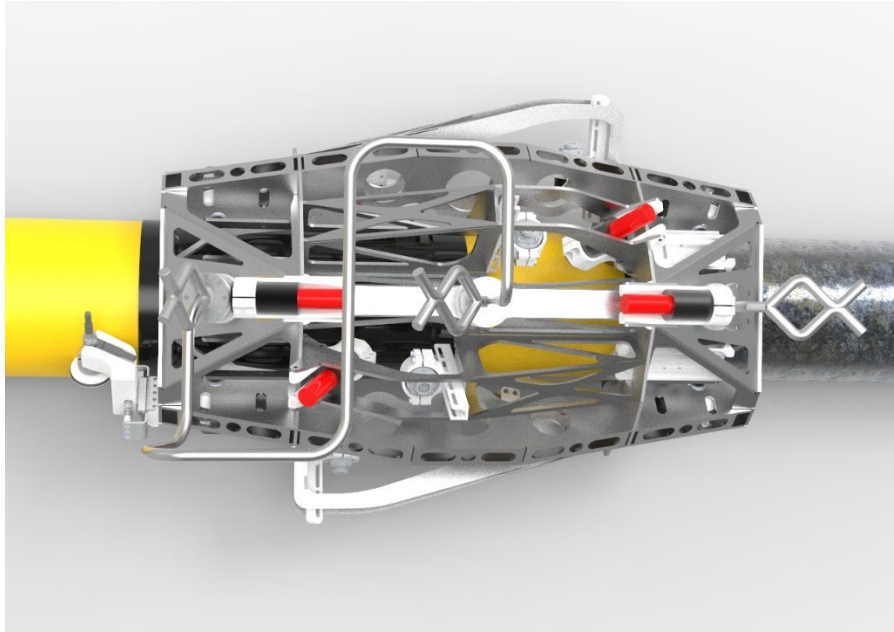
In early 2022, a TSC Subsea client faced a hydrate issue in a semi-buried 12 km gas line located in one of their West African fields. TSC Subsea were tasked with testing and qualifying a new technology to quickly find and characterize the blockage so the client could start remediation.

TSC Subsea's Acoustic Resonance Technology (ART) has proven itself to be a fast-scanning technology for wall thickness measurements through thick subsea coatings. Early R&D testing from 2006, showed that ART could be used to identify a hydrate within a pipe. However, a faster delivery method was needed to truly push the development forward.

In response, TSC Subsea developed the ART vPush. Deployed by ROV, the ART vPush is pushed along the top of the subsea pipeline quickly obtaining data from 4 sensors in real-time, providing hydrate detection as quickly as the ROV can travel the span of the pipeline.



Unlike existing technologies, the ART vPush only needs access to the top half of the pipe, greatly reducing or eliminating the need for dredging.



The ART vPush was mobilized to West Africa and scanned a 12 km pipeline in only 33 hours, locating a 250 m plug to exact measurements. Once the plug was found, the operator then deployed TSC Subsea's ARTEMIS® tool in several locations to completely characterize

