

Asset Integrity

Case study: Accurate mooring chain inspections

Overview

Measurement of chain dimensions is critical for verifying chain corrosion and wear rate design assumptions, checking that chains maintain minimum strength requirements throughout their lifetime.

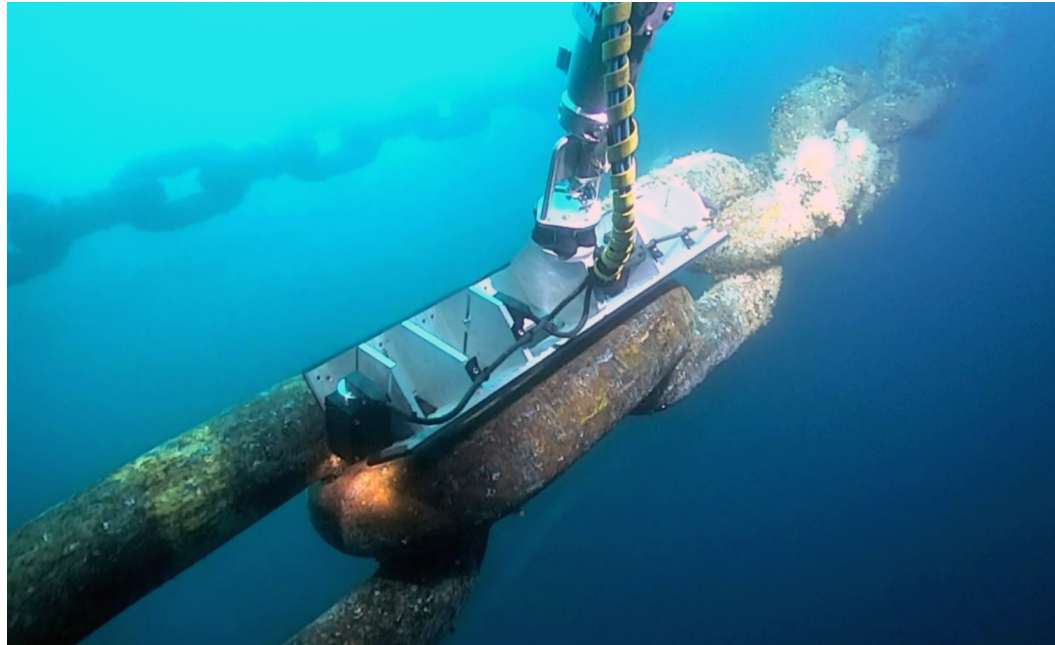
Ashtead Technology's Asset Integrity team provides trained inspection personnel and purpose-built tools to capture high quality inspection and dimensional data of in-situ mooring components.

Solution

Available globally, the Chain Measurement System (CMS) is an optical caliper measurement technology that uses machine vision to measure specific mooring chain dimensions and view material condition of links.

The CMS is made up of multiple high-resolution video cameras (depth rated to 3000m), integrated LED lighting control and a topside digital recording system. The system uses specialised software to identify critical chain geometry, providing accurate, repeatable, and reliable chain measurements.

This in-house designed and engineered solution can measure intergrip (grip zone) bar stock diameter and link length, as well as mooring line angle measurements for tension verification.



Benefits and value

The CMS is accurate to 0.5mm and has no moving parts, making it exceptionally robust. Measurement time per chain link is as fast as 10s and moving from one measurement site to the next only requires the ROV to slide the tool down or up the chain.

Furthermore, this solution is specifically designed to be deployed in high-heave environments where mechanical measurement is impractical. Recent chain measurement campaigns in high-motion environments have included the PSVM FPSO (Angola) and Erha FPSO (Nigeria).



The CMS offers exceptional versatility as it takes three measurements at once.

“Specialised software ensures measurements are accurate and reproducible, thereby providing reliable and meaningful measurement data that can be used to track corrosion and wear rates.

“The CMS uses an optical system to collect measurement data, enabling high-quality images and video to supplement the actual dimensions. This capability is a key differentiator of the CMS, and it's one that we are proud to deliver to clients worldwide.



Govinda Jagdeo, Senior Project Manager