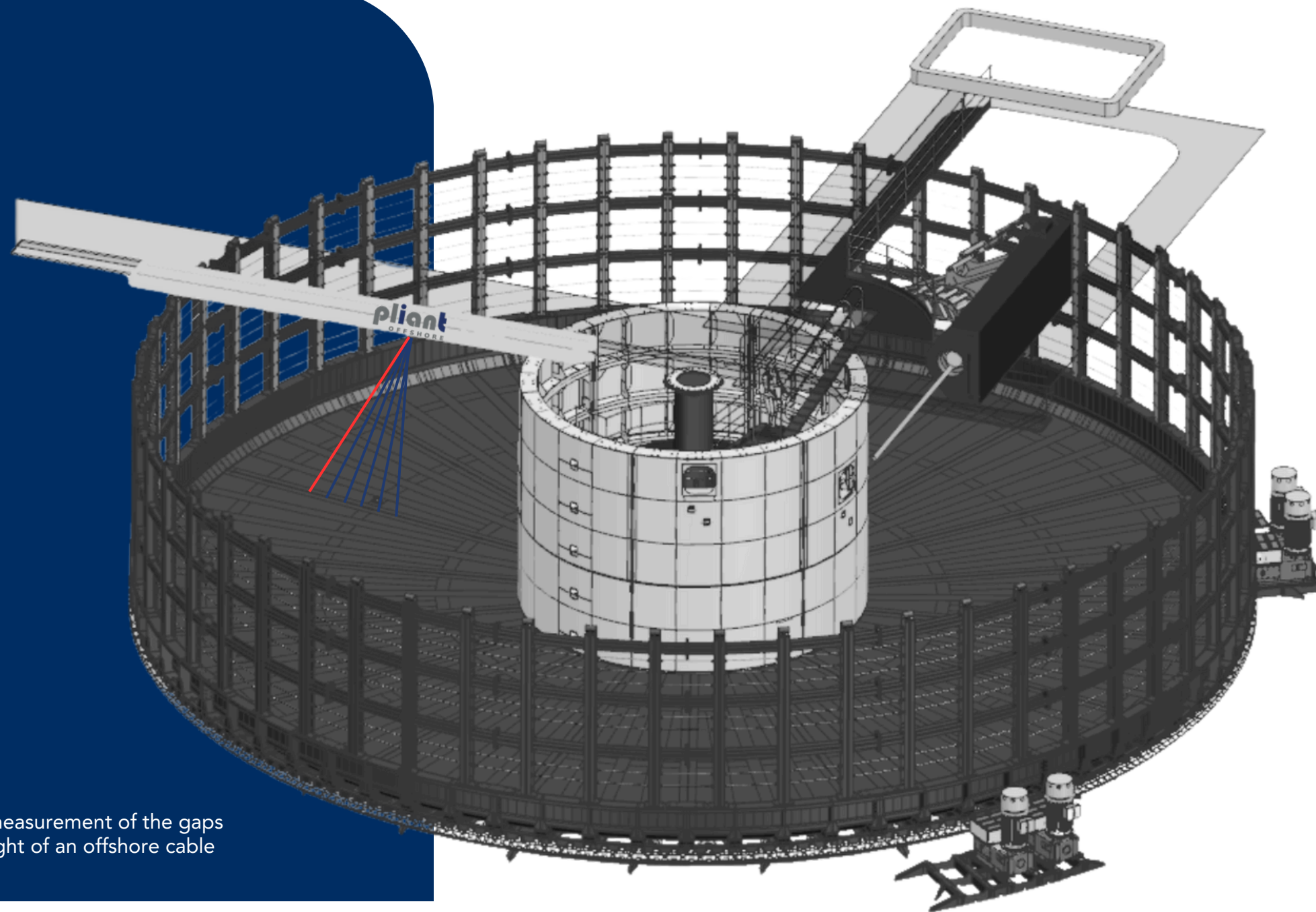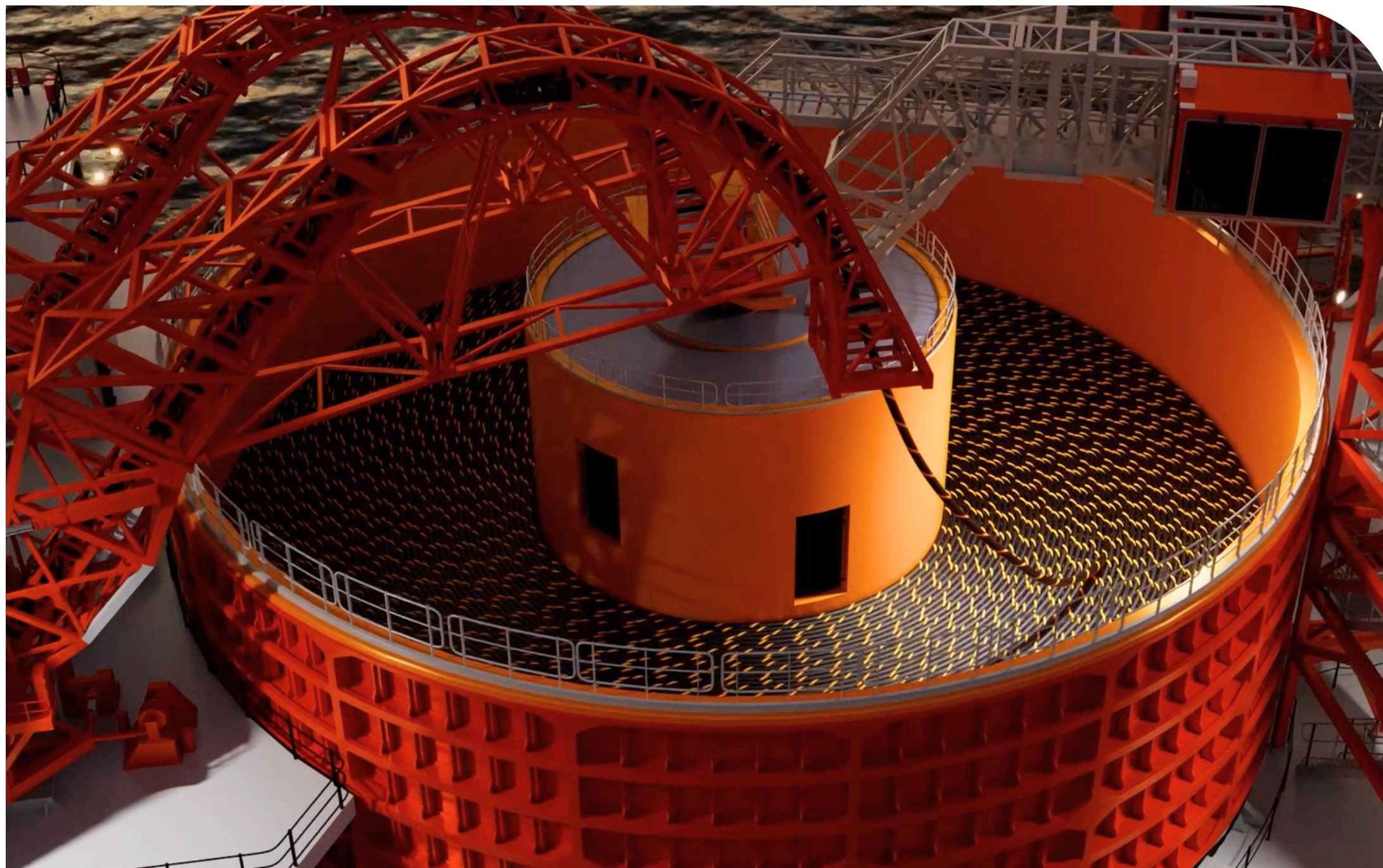# pliant
OFFSHORE

CAS
Cable Alignment System

Designed for accurate track and measurement of the gaps
between windings, radius and height of an offshore cable

01 INTRODUCING
CAS

The CAS (Cable Alignment System) is designed to accurately track and measure the gaps between the windings, radius and height of an offshore cable as it is spooled into a carousel. By providing real-time data of both the cable position and gaps, it ensures a safe, efficient and high-quality spooling throughout the operation, from empty to full carrousel.

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02 FEATURES

01
Measures gap between current fed-in cable and previous cable windings

02
Automatically track the last cable's radial position

03
Run in autonomous mode

04
Start measuring when powered on, automatically finding the last cable
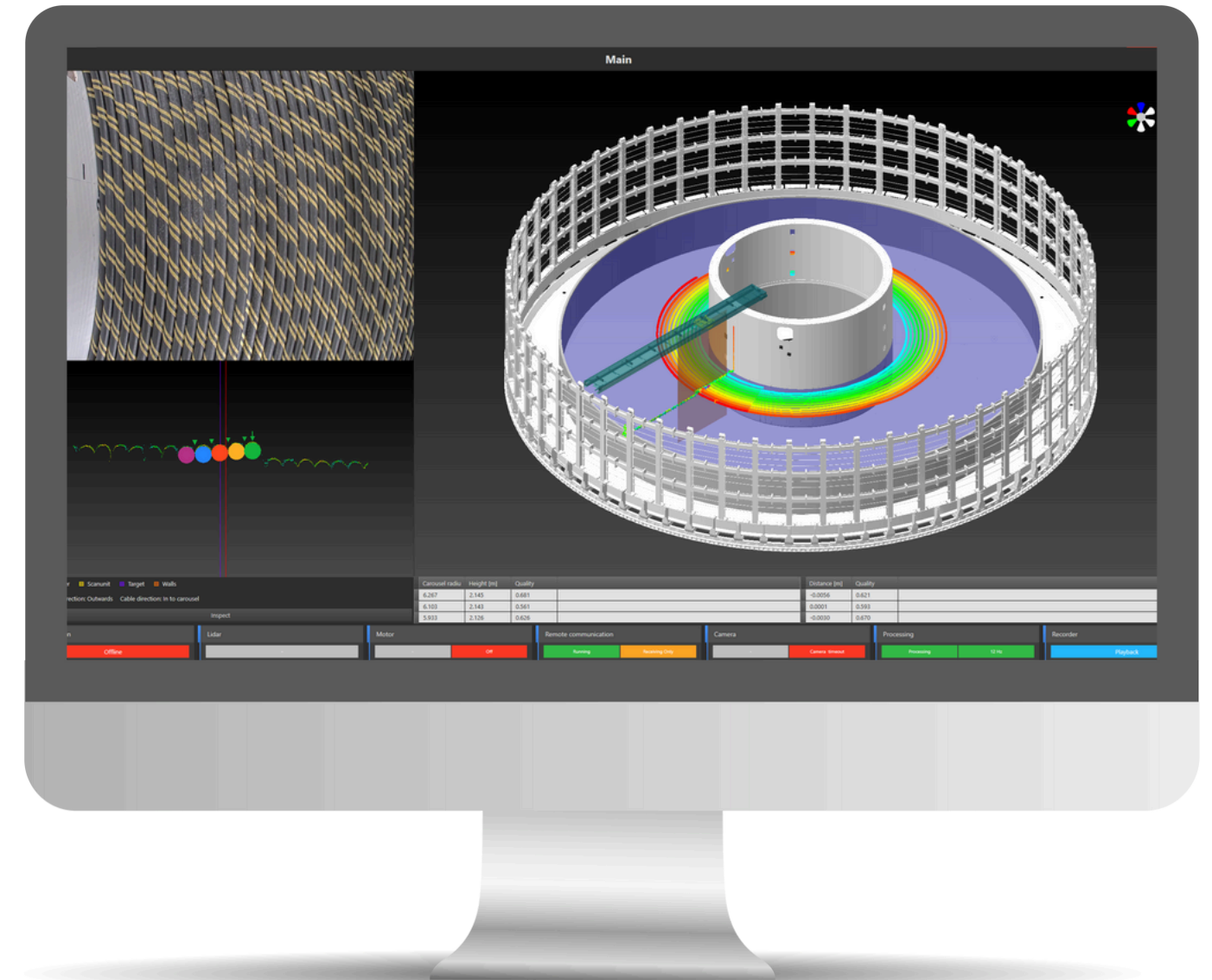
05
Controllable and configurable using a remote system

06
Filters out foreign objects in field of view to avoid incorrect measurements

07
Reliable and accurate

03 INFORMATION

A LiDAR scanner, mounted on a carriage, performs the measurements. This carriage travels along a guided track within the carousel, continuously following the latest winding of the cable to ensure optimal accuracy.

A dedicated server handles both data collection from the scanner and real-time processing of the measurements. Additionally, the server controls the movement and positioning of the carriage, ensuring synchronized operation for high-precision monitoring.
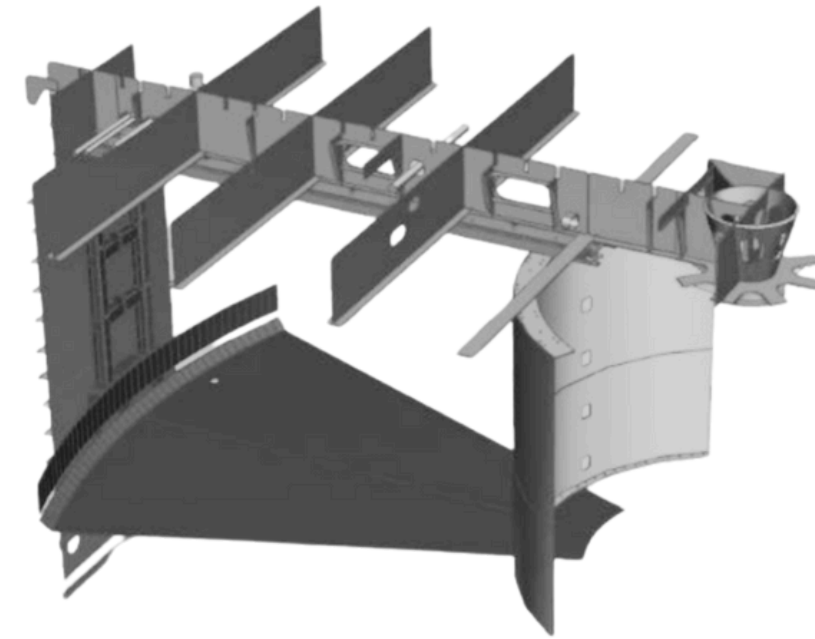

Figure 1 CAS mounting inside the carousel

04 SYSTEM PERFORMANCE

The Cable Alignment System (CAS) operates at a measurement frequency of 12.5 Hz, providing consistent and high-resolution data acquisition.

It is capable of measuring cables with outer diameters ranging from 100 mm to 400 mm.

The CAS has proven itself being tested on several cable types, covering a range of physical and material used for offshore cables.

Table 1 Measurements of cable with 138 mm diameter

Distance from the scanner (m)	4.4	3	1
Expected gap value (mm)	6	6	6
Measured gap value (mm)	6-7	8-9	8.2
Gap measurement error (mm)	**0**	**2**	**2.2**

Expected gap value (mm)	10-11	11-12	11-12
Measured gap value (mm)	9-10	13.5	15
Gap measurement error (mm)	**0**	**1.5**	**3**

Expected gap value (mm)	1-2	1-2	1-2
Measured gap value (mm)	2.5	4	7.5
Gap measurement error (mm)	**0.5**	**2**	**5.5**

Table 2 Measurements of cable with 250 mm diameter

Distance from the scanner (m)	4.4	3	1
Expected gap value (mm)	18-19	18-19	18-19
Measured gap value (mm)	17-18	17	16
Gap measurement error (mm)	**<1**	**1**	**2**
Expected gap value (mm)	9-10	9-10	9-10
Measured gap value (mm)	10	8-8.5	7-7.5
Gap measurement error (mm)	**0**	**<1**	**<2**

CAS