

pliant
OFFSHORE

FMS

Flange Measurement System



Designed for accurate
as build flange measurements



01 INTRODUCING FMS

Pliant Offshore developed the Flange Measurement System (FMS) for safe and accurate generation of as built measurements of mono pile and transition piece flanges. The remote operated tool enables safe and accurate as built measurements without accessing the flange.

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02 FEATURES

01

No people needed
on the flange

02

Reliable and extremely
accurate

03

Proven in offshore
(weather) conditions

04

Flange Flatness

05

Flange Ovality

06

Debris visualization

07

Verticality



03 CONFIGURATION

The Flange Measurement System (FMS) is built for accurate specification-based measurements on the diameter of the pile.

Current configurations are:

- 6,5m
- 8,0m



04 DETAILS

Robust

The FMS is built using only high-grade offshore-proof materials to ensure durability. The device is built to withstand the harsh offshore conditions.

Safety

Eliminates the need of personnel on the flange.

Plug & Play

The FMS is a remote operated device. Once lifted on the flange, a simple start with the remote control is all that is needed to start the measurement sequence. After the measurements are performed a report is automatically generated.

Non-Destructive Measurements

Precision measurements of ovality, flatness, inclination and direction of the monopile will be available within 15 minutes after starting the measurements.

Landing assist

The FMS is equipped with a landing assistance functionality. RGB cameras are mounted on each of the legs enabling the operator to have a clear view while stabbing the tool. The FMS is also equipped with protective bumpers to minimize contact with the flange.

Visual debris inspection

FMS is equipped with a RGB camera to inspect the surface of the flange for any debris.

Water removal

The integrated water removal will ensure that water won't interfere with the measurement. The water removal fans are also capable of removing most of the visual debris from the flange.

05 SYSTEM ACCURACY

Parameter	Value	Unit
Bolt hole center position accuracy*	0.25	mm
Flange ovality accuracy	0.5	mm
Flange flatness accuracy	0.5	mm
Flange position accuracy ‡	30	mm
Flange inclination angle accuracy ‡‡	0.05	deg
Flange inclination direction accuracy ‡‡‡	0.5	deg

Table 1 System accuracy

Disclaimer: This is optimal system performance. Specific situation, monopile tolerances and application on a monopile will affect the accuracies.

- * Relative to the flange center
- ‡ Using GPS and all bolt hole center positions
- ‡‡ Using MRU and plane through all flatness position measurements
- ‡‡‡ Low tension on the driving belt reduces positioning accuracy on the flange reference line

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