

MONOPILE JACKING POINT INSPECTION

Application Brief

Non Destructive Testing (NDT) Inspection of Monopile Jacking Point Welds

MISTRAS conducted inspection and testing of jacking points located within the base of offshore wind turbine transition pieces at the monopile / transition piece interface below the air tight deck.

Problem

Thought to be a design issue, the grouted connection between the wind turbine monopile and the transition piece of the turbine structure came into contact due to loading.

In order to determine if this contact has a detrimental effect on the jacking point welds, MISTRAS was contracted to carry out NDT, mechanical inspection, and a photographic survey.

Solution/Process

MISTRAS reviewed the client's scope of work to determine the best inspection method(s) to assess the condition of the jacking points requiring inspection / NDT.

We offered the client various options and developed the necessary project specific procedures, method statements, and risk assessments.

The Client's Preferred Option Was:

- Magnetic Particle Inspection (MPI)
- MPI of jacking point fillet welds

Dimensional Survey

Gap measurement at various points including the radial grout gap between the transition piece interface with the monopile at each jacking point.

Photographic Survey

A photographic survey provided a representation of the general condition and specific defects at jacking point locations.

The photographs were annotated with the client's turbine and jacking point location details to facilitated accurate reporting of features / defects.



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Results

MISTRAS provided a 3 man multi-disciplined rope access team, PCN / IRATA / GWO, confined space compliant to deliver the scope of work.

The team performed inspections and delivered detailed reports.

These NDT inspections will help assess the structural condition of wind turbines and the reports will provide the client with the evidence to justify the continued, safe operation of the windfarm or identify any significant defects.

More about MISTRAS Wind Energy Services

MISTRAS Wind Services offer a full and complete suite of inspection, repair, and monitoring services from structural monitoring of blades to condition monitoring of nacelle and monopile to visual, photographic, and video inspection. Our experienced teams have worked alongside the world's largest energy providers on projects that include London Array, Gwynt y Mor, Walney, LINCS, West of Duddon Sands, Horns Rev, and Lillgrund.

MISTRAS works in partnership with the best wind technicians in the industry to service blades, towers, and monopiles with solutions including:

- Internal, external and EOW inspection
- Ultrasonic rotor blade scanning
- Laminate and coating repair

- Construction assembly support
- Inspection and installation of LPS
- NDT
- Global Wind Training Center
- Structural Monitoring of piles, foundations and towers
- Condition monitoring of low-speed bearings
- Repair and installation of blade protection and aerodynamic systems

Products and Services Supplied

- Rope access IRATA / GWO
- Magnetic Particle Testing (MT)
- Visual Testing (VT)
- Photographic Survey
- Confined Space.

Customers Benefits

- To ensure the wind turbine shaft(s) are fit for continued service and have not substantially deteriorated over the wind turbine's lifetime.
- The outcome of the inspection reports determine the client's action plan for remedial works and inspection monitoring strategy.

