



dogram

Experts in **metrology 4.0 & 3D digitization**



About us

Dogram is an engineering company specialised in the management and implementation of **metrology 4.0** and **3D digitisation** projects

"Our projects reflect our technical expertise, our investments in innovation, quality, and safety, the well-being of our team, as well as the rigour and professionalism we dedicate to serving our clients."

Innovation & Events



Professionalism at the service of the client



Offshore Wind: Multidisciplinary Solutions

Dimensional control of foundations:
**Transition pieces, Monopiles, Pin Piles,
Jackets**

Review & verification of existing
QA/QC dimensional control
procedures

Adaptation & validation of
measurement procedures, both
onshore & offshore

Technical assistance & definition of
metrological **procedures**/requirements
for the manufacturers

Our technologies



Mobile laser scanners



Terrestrial laser scanners



Handheld 3D scanner



Photogrammetry



Easy laser



Drone



Laser Tracker



Total Station



GPS



Absolute Arm

Our progress from 2021

Holistic methodology to improve traceability and communication between parties: design, manufacturing, transport, assembly and installation.

Verification & Validation of measurement procedures adapted to conditions and integrating different technologies

Execution of dimensional inspections of critical parts of the connection flanges

Development and implementation of an offshore measurement methodology and validation through Mock Up.

What we do?

Complete 3D digitization of the items at the end of the manufacturing process:

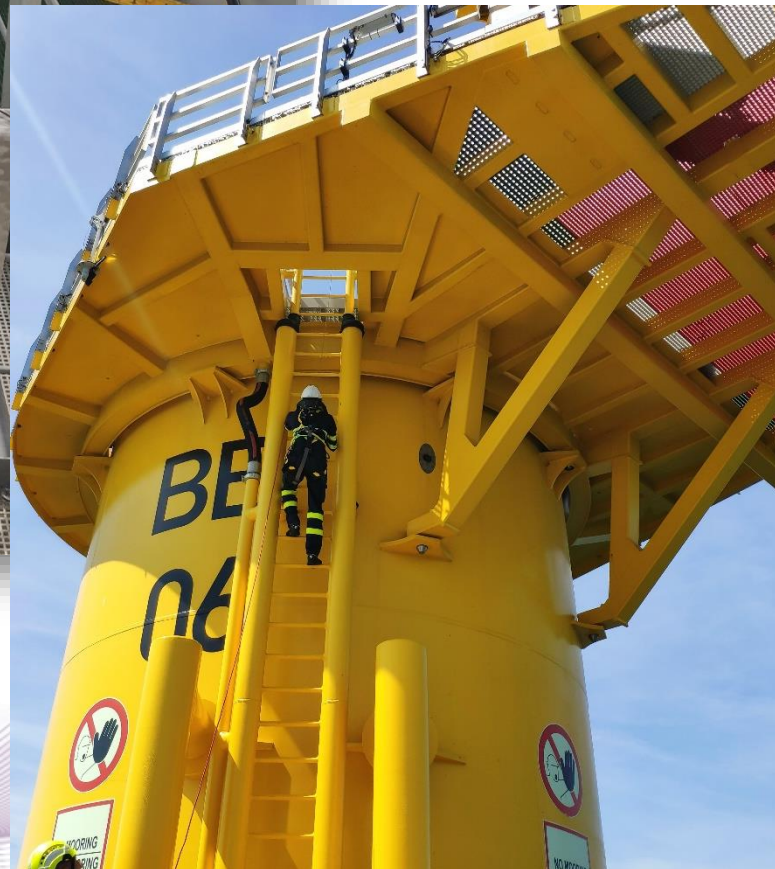
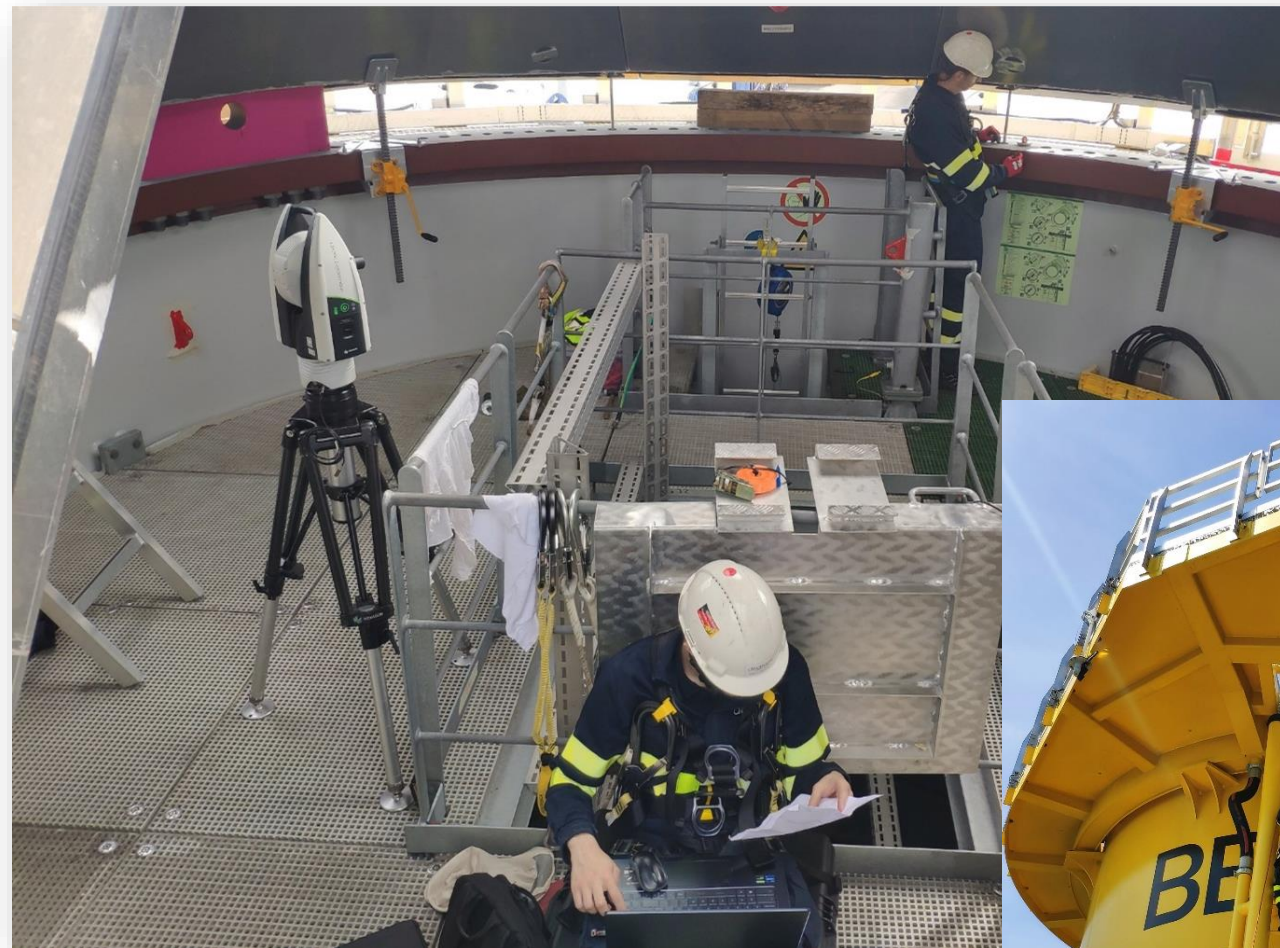
✓ Accuracy of 1 mm

✓ Colorize dese point cloud

✓ Virtual visits

✓ 3D CAD compare

✓ QA/QC Dimensional control



Dimensional Control of flanges:

- ✓ Accuracy of 0.1 mm
- ✓ Detailed reports
- ✓ Flange verification during manufacture
- ✓ Methodology adapted to the environment



Advantages

- ✓ **Reduce** unnecessary costs during **transport** and **assembly** phases
- ✓ **Ensure** the geometry of the final product
- ✓ **Increase accessibility** to information through 3D digitalisation: training, engineering, maintenance...
- ✓ Settle **responsibilities**
- ✓ **Reduce** project delays

Contribution to the manufacturing and installation process of offshore wind farms



Saint-Brieuc Wind Farm

- Onshore verification before transfer
Implementation of new technologies
 - 62 Jackets DC
 - 186 Pin DC verification



Baltic Eagle Wind Farm

- Technical Assistance consolidating dimensional control procedures across relevant suppliers
- Wind farm Transition Pieces Third party DC verification
- Wind farm Transition Pieces Third party DC verification in the assembly phase (offshore)
- Third party Monopiles DC verification



Vineyard Wind 1

- 50+ Transition Pieces Third party DC verification

Thank you very much for your attention

Abel Guerrero Gómez / BDM
+34 611 03 24 65 / abel@dogram.es



33428 Llanera, Asturias - Spain
T +34 985 980 951