# NAUTILUS DYNAMICS

**Offshore Engineering Solutions**

COMPANY PRESENTATION (WEB EDITION)

SCROLL DOWN

October 2024

# The Company.

# About the Company.



*NAUTILUS DYNAMICS brand creation*

Established in 2017 in France, NAUTILUS DYNAMICS brand initially focused its activities on the Dutch and Northern European market

*NAUTILUS DYNAMICS HK ltd incorporation*

In 2019, Registration of NAUTILUS DYNAMICS headquarter in Hong Kong to meet growing Asian business

# About the Company.

*Partnerships and network expansion*

Since 2020, multiplication of partnerships to provide more and more services to our clients

*NAUTILUS DYNAMICS FRANCE SAS incorporation*

In 2022, opening of NAUTILUS DYNAMICS FRANCE SAS in Nice

*NAUTILUS DYNAMICS UK LTD incorporation*

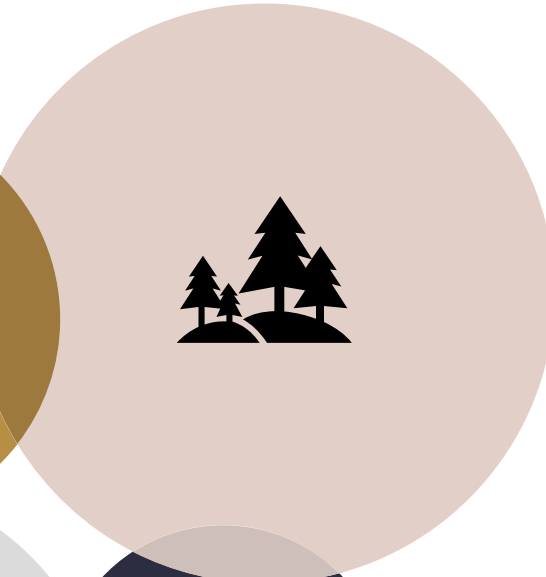Feb. 2024, opening of NAUTILUS DYNAMICS UK LTD in England

# Core Values.

## People
Engineering and technologies at human scale for clients and employees.

## Innovation
The strength of a start-up, born and remain at the cutting edge.

## Environment
Respect and fight for the only planet we have.

## Accountability
Decisions through experience, committing to our engagements.

**In**
# Figures

**120+**

OFFSHORE PROJECTS
COMPLETED

**20+**

HAPPY
CLIENTS

**3**

LOCATIONS
WORLDWIDE

A SCALABLE
TEAM OF EXPERTS

HIGH PERFORMANCE
COMPUTING CREATOR

THEY TRUST IN US:

SBM OFFSHORE
ENERGY. COMMITTED.

Qair

EIFFAGE MÉTAL

PRINCIPIA

JIFMAR OFFSHORE SERVICES

MAERSK SUPPLY SERVICE

INTERMOOR

BOURBON SUBSEA SERVICES

BUREAU VERITAS 1828

# Sectors and Services.

OIL
& GAS

OFFSHORE
RENEWABLE

NAVAL &
OPERATIONS

# Services.

*Services at all stages of your design*

## Client Advisory Services

› ITT
› Specifications
› Bid-evaluation
› Design Review

## Engineering

› Conceptual to Detail Design
› Package Engineering
› CLOUD High Performance Calculations

## O&M

› Specification
› Interpretation
› Inspection

## Installation Supervision

› Installation Engineering
› Offshore / Site supervision
› On-site decision making

## Project Management

› Engineering Project Management
› Package Management
› Vendors / Sub-contractors Management

# OFFSHORE RENEWABLE.

*In details,*

### Stability, Sea-keeping

Performing stability and hydrodynamic calculations on offshore structures like floating **wind foundation, solar panels, waves energy converters**, ...

*Stability, RAO/QTF, motions and accelerations*

### Mooring System

Static and dynamic **coupled** calculations to determine the most suitable and cost-effective anchoring system according to the specificities of the project.

*Design Load Report, coupled simulations, fatigue*

### Cable Configuration

Analyzing the static and dynamic parts of data and/or power cables. Designing the submarine configuration considering site, supplier and class data.

*On-bottom Stability, subsea configuration*

### Specification & Package Follow-up

Following from Specifications to delivery the fabrication of mooring components such as connectors, accessories, chains and ropes as well as subsea cables.

*Specification, fabrication, FAT, SAT*
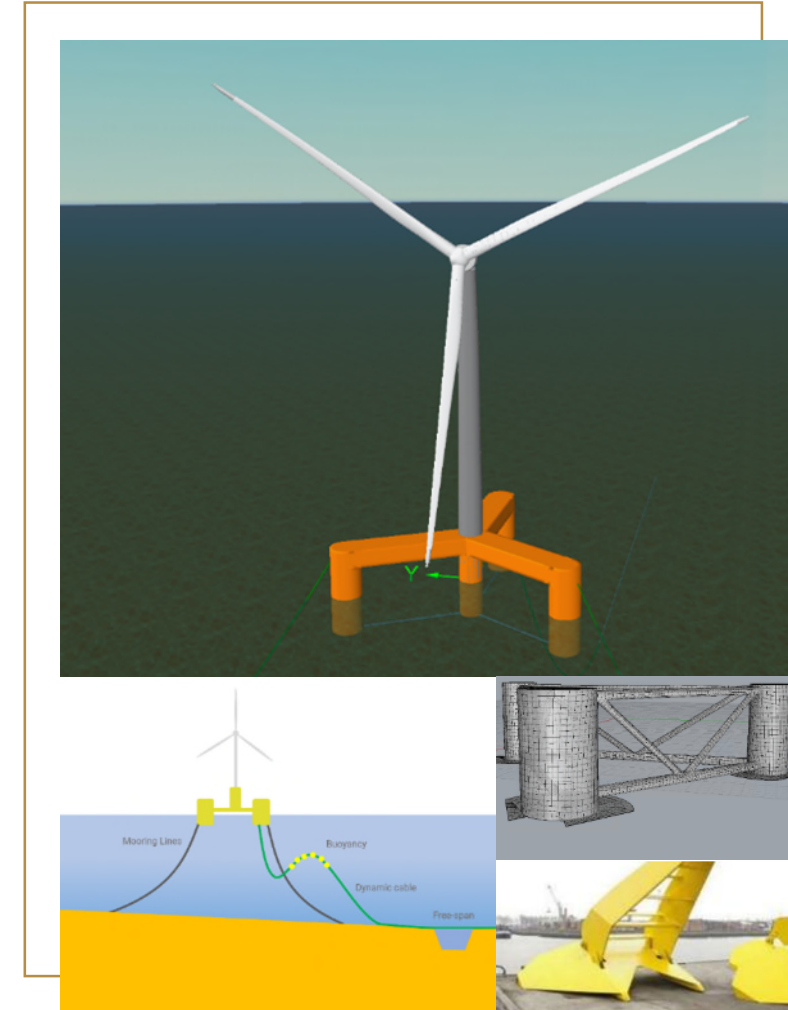
*We can manage larger, fully integrated engineering projects. We are experienced in managing industrial engineering project and can rely on a network of experts in disciplines such as structural, piping, mechanical, process, geotechnical. Contact us for more details !*

# OIL AND GAS.

*In details,*



### Stability, Sea-keeping

Performing stability and hydrodynamic calculations on offshore structures like **F(P)SO, platform, tankers, installation vessels, CALM buoy**, …

*Stability, RAO/QTF, motions and accelerations*

### Mooring System, Offloading

Static and dynamic calculations to determine the most suitable and cost-effective anchoring system according to the specificities of the project.

*Design Load Report, turret/spread, fatigue, offloading*

### SURF Configuration & On-Bottom

Designing submarine configuration for umbilical, (suction) hoses and risers considering metocean, soil, lines data and certification requirements.

*On-bottom Stability, subsea configuration*

### Specification & Package Follow-up

Following from Specifications to delivery the fabrication of mooring components such as connectors, accessories, chains and ropes as well as SURF components.

*Specification, fabrication, FAT, SAT*
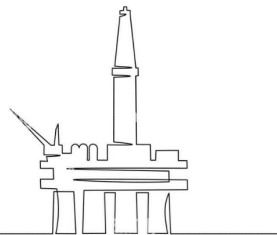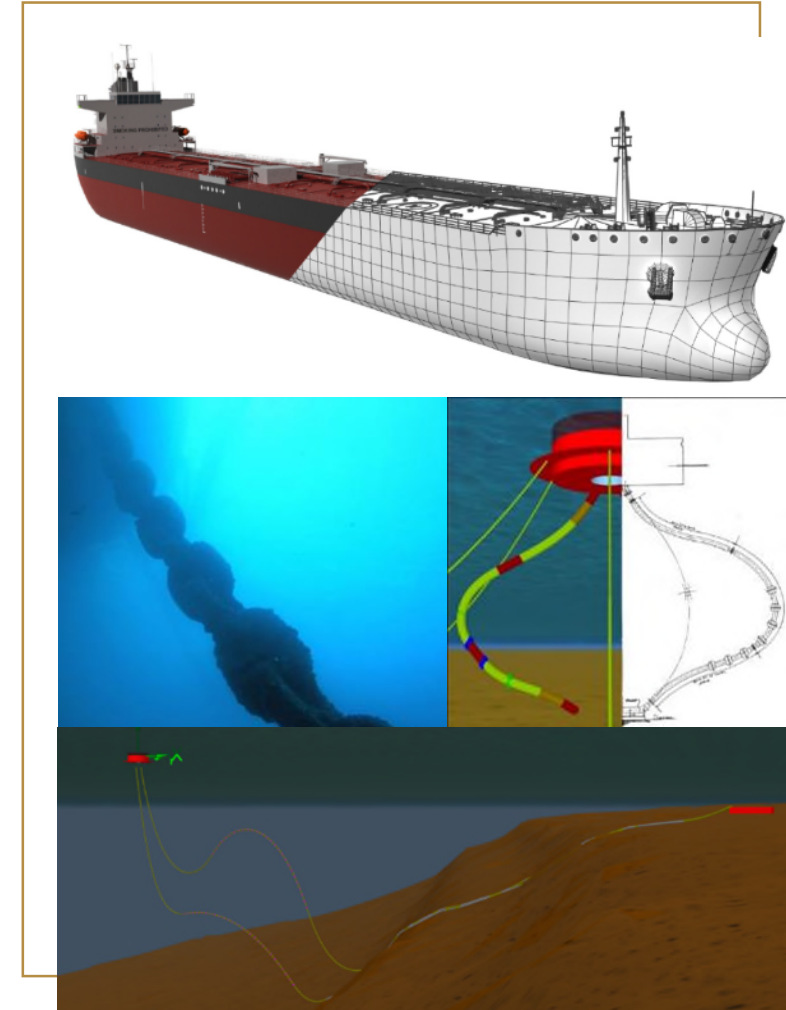
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# NAVAL & OFFSHORE OPERATION.

*In details,*

## Sea-keeping, Towing, Ship control

Performing hydrodynamic calculations on installation vessels, material barges or tugs. Sizing tugs and other vessel for operations. Heading control analysis.

*RAO/QTF, motions & acc, bollard pull, control*

## Mooring hook-up, cable & flowline

Dynamic analysis of marine operations such as mooring hook-up, heavy lift, surface crossing, laydown. Determination of weather windows.

*Installation analysis, storyboard, laying, weather limit*

## Stability Booklet, Structure check

Generating, or updating Stability Booklet of your ships. Incorporating operation scenarios and performing related structural checks.

*Stability, trim, scantling, free surface effect*

## Operations Support, Decommissioning

Live assessment of a situation using numerical models. Forecast and risk assessments based on simulations. Modeling decommissioning scenarios.

*Operations, offshore decommissioning, abandon & recovery*
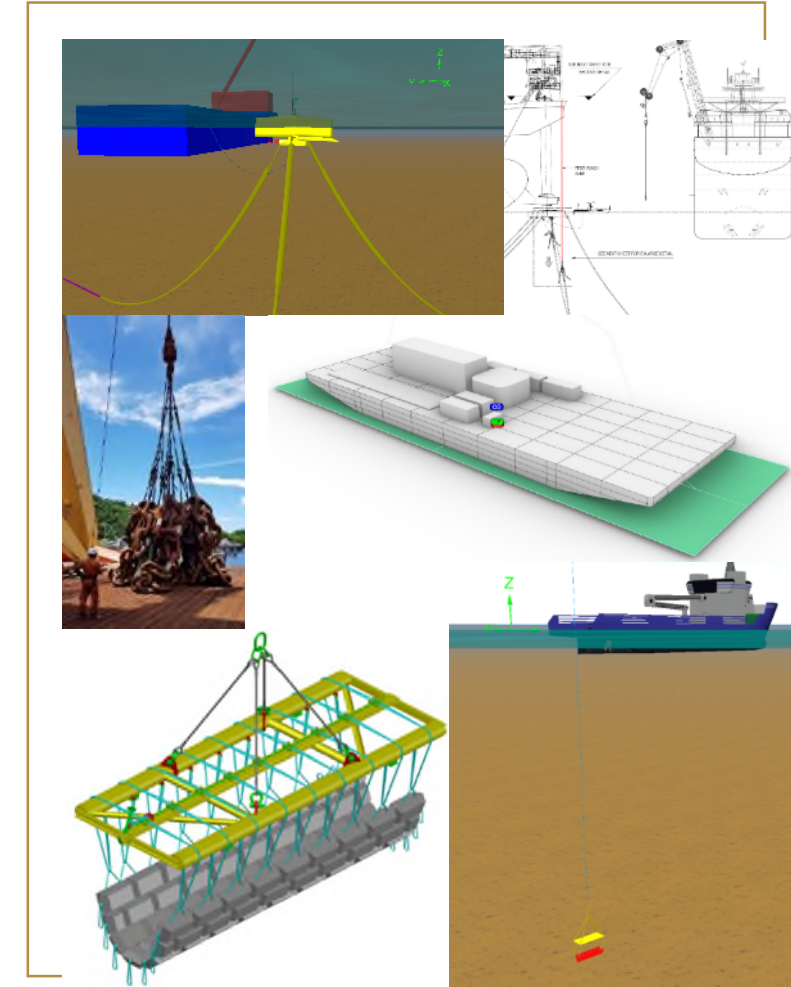
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# DUE DILIGENCE AND ADVISORY.

*In details,*

## Floating Wind technology

Analysis of floating wind technologies for M&A operations (seller or buyer). Floating Wind concepts screening and evaluation for Project developments.

*Product Technical Due Diligence, Risk Assessment*

## Industrialization & Port suitability

Screening and evaluation of ports capabilities.
Review of Construction/Installation execution plans for Floating wind projects.

*Ports & Harbours suitability, Project technical due diligence*

## Owner Engineering / Advisory

Support to project developers for elaboration of execution plan, scope preparation, engineering management & supply chain management.

*Floater & Turbine Packages management activities*

## Levelized Cost Of Energy (LCOE)

Technical LCOE modeling (Devex, Capex, Opex). Project Business case analysis and sensitivity analyses to highlight key parameters and drive project scenarii.

*LCOE model, Costs comparisons & analyses*
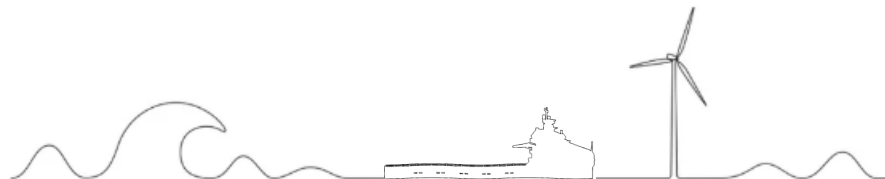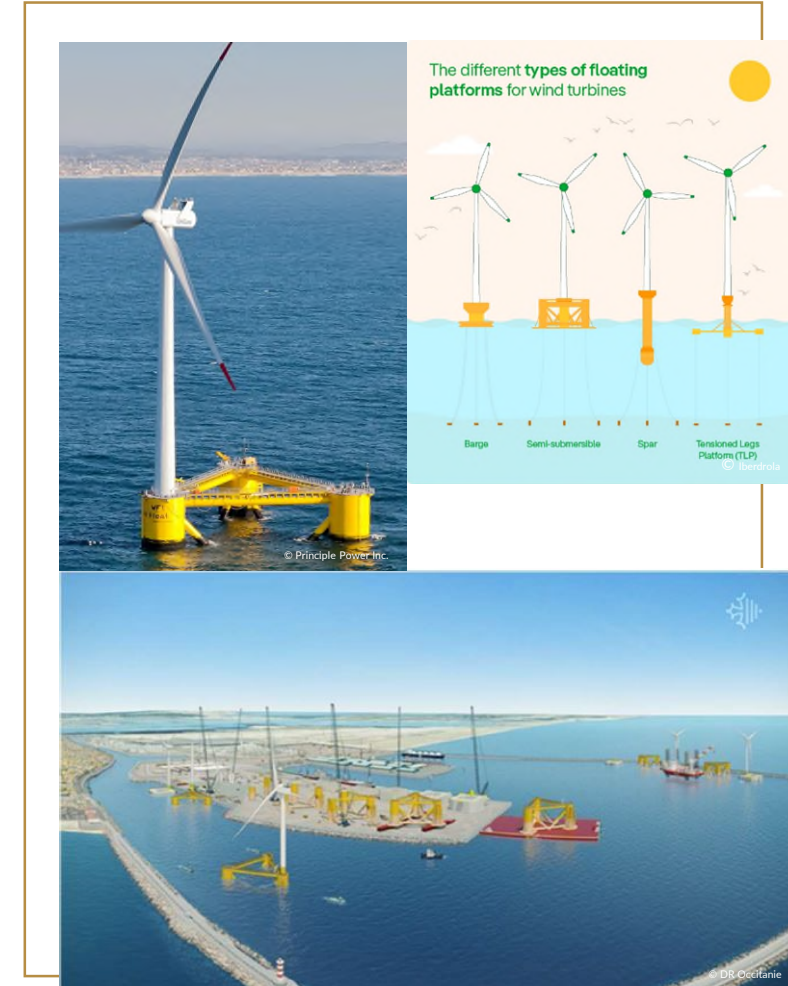
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# OTHER DISCIPLINES.

*In details,*

## Structural & Mechanical

Performing structural and mechanical FEA calculations following standards. Verifying structures, mechanical parts, welds and bolting.

*FEA analysis, FEMAP, ANSYS*

## Piping

Piping system design and routing, flexibility assessment, flange leakage verification, support load analysis, and pump design optimization considering head loss.

*Installation analysis, storyboard, laying, weather limit*

## Geotechnical

Generating specifications for geotechnical campaigns, designing foundation for anchors or structures, managing vendors and following inspections.

*Foundation design: Piles, Drag Anchors, Gravity base*

## 2D and 3D drafting/modelling

Generating 2D drafting, 3D modelling, and mesh for comprehensive engineering design and analysis. (Detailed Design drawings, Storyboard, Fabrication drawings, etc)

*Autocad, Rhino, Meshing*
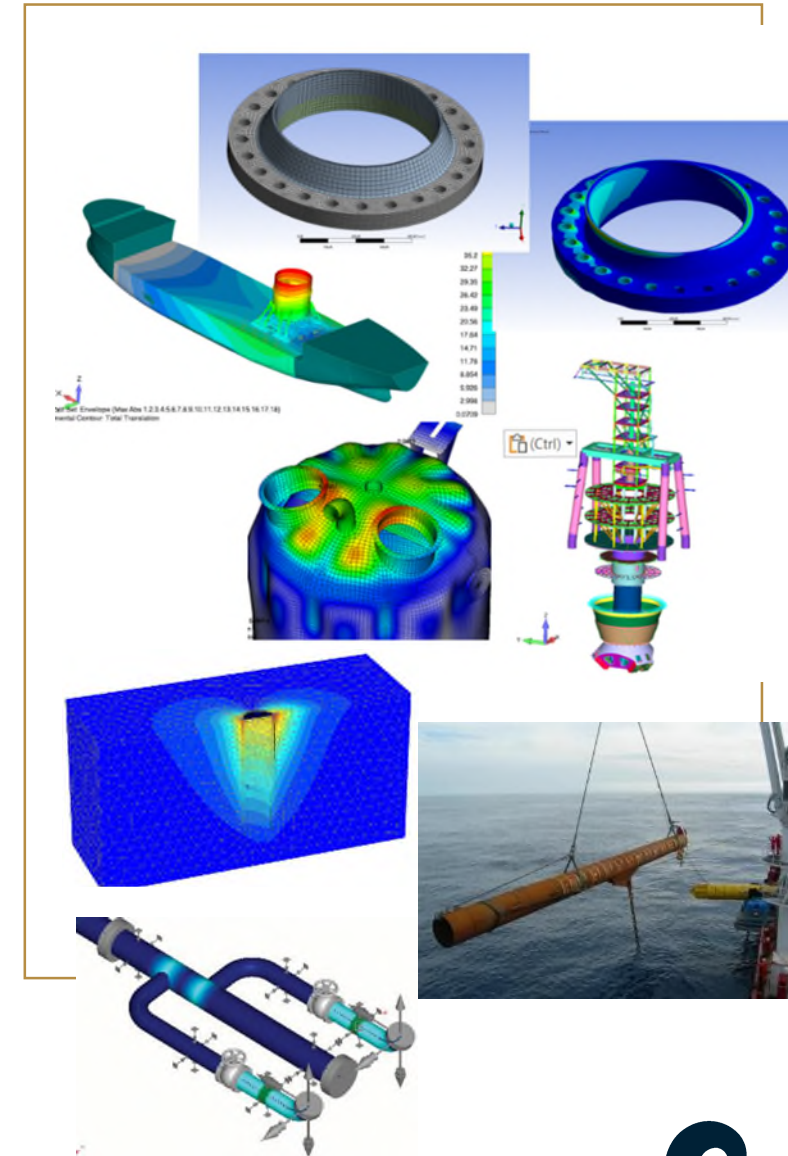
# Research & Development.

# Innovation & Means.

*stay at the cutting edge and go beyond ...*

## 2048

### Number of CPUs

NAUTILUS DYNAMICS, through its sister brand dynamicscomputing.com has invested in extensive computing resources to better serve its clients. All our HPC servers are located in our datacenter in France.

## 2+

### Internal Projects

Have constantly at least 2 internal R&D projects on going to develop for instance analysis methodologies or IT tools and become more efficient and qualitative in our future works.

## 7

### Software Licenses

NAUTILUS DYNAMICS invests in software to stay up to date and has licenses for the main software used. This includes : Orcaflex, Rhino 7, Orca 3D, BV Ariane, HydroStar, Deeplines ...
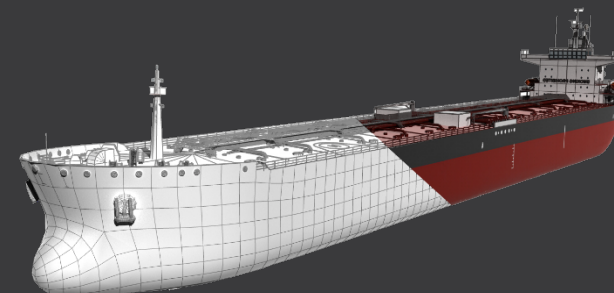
# *Nautilus Global Tankers Database*

*Live R&D Project #1*

# Innovation & Means.

### Description

The NAUTILUS GLOBAL TANKERS (NGT) DATABASE offers data on 30,000+ tankers and hydrodynamic models ready-to-use for marine and offshore industries, supporting engineering studies like mooring, berthing, CALM buoy design, and risk analyses. It's user-friendly and reliable.

## 30 000+

Vessels

## Certification Ready

**DNV, ABS, BV**

## Made for Orcaflex & more

ready-to-use

orcaflex

# *Floating Wind Benchmark*

*Live R&D Project #2*
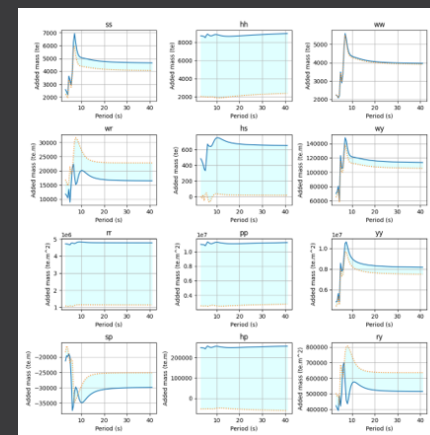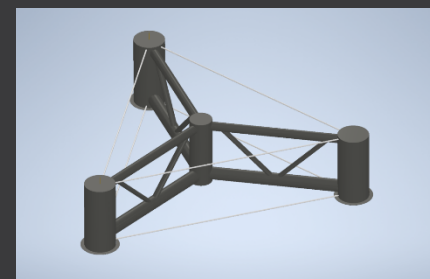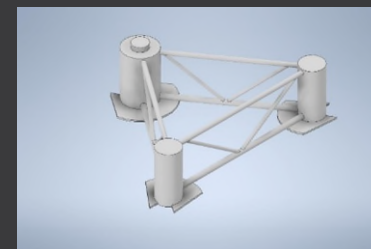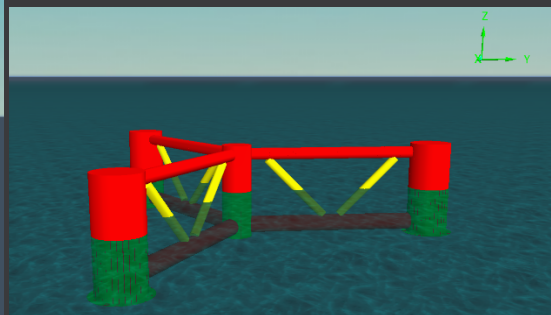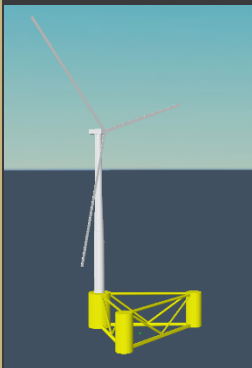
# Innovation & Means.

### Description

Generate and maintain an up-to-date database of the most popular offshore wind floaters for all turbine sizes. Develop a fast, reliable methodology that matches the designers' own models and results. Achieve technology-independent benchmarks with a unified methodology (consistent hydrodynamic approach, same load case matrix, same tools) to inform developer selection in the most reliable way possible.

## 5 to 20MW

**Technology**

## 10+

**Floaters**

## Pre-FEED & FEED READY

For hydrodynamics, mooring and cables

## *And even more*

# Innovation & Means.

- *HydroPanda : A post-processing program in Python able to manage large amount of data from different software.*

- *LookingForHmax : A pre-processing program in Python to identified waves max occurrence time in a batch of irregular seastates*

- *3D interference plotter: A post-processing program in Python in order to display in 3D interferences between lines, pipes, cables, etc*

- *FreeSpan Postprocessor: Python program to identify and classify free-spans along a laying route for cable, pipes or umbilicals.*

- *etc*

# Cases Study.

**_Email us for a presentation_**

contact@nautilusdynamics.com

# Contact.

# Our addresses

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## Information & Quotations on **nautilusdynamics.com**

« La mer est tout ! Elle couvre les sept dixièmes du globe terrestre. Son souffle est pur et sain. C'est l'immense désert où l'homme n'est jamais seul, car il sent frémir la vie à ses côtés. »

*Vingt mille lieues sous les mers, Jules Verne*