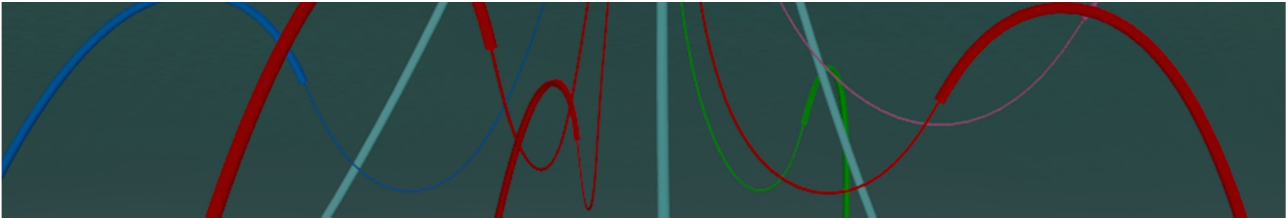


OrcaFlex

Software for Global Dynamic Analysis



OrcaFlex is a general purpose dynamic analysis software program suitable for a wide range of global dynamic analysis applications. Its user interface, functionality, productivity features, wide range of applications, along with very active program development and technical support, make it the leading option in its peer group.

OrcaFlex's generality, power and flexibility means that a wide range of systems can be modelled, and it is routinely used in the analysis of the following applications:

Riser Systems

- Flexible risers • umbilicals • offloading & floating hoses • short-term production systems • top-tensioned risers • steel catenary risers • hybrid systems such as riser towers.

Transport, Installation & Decommissioning

All types of marine operations (inc. crane ops):

- topsides • risers • moorings • anchors • subsea packages, etc. • passive & active heave compensation
- topside floatover & removal • jacket launch, positioning & removal • sea-fastening • load-out
- offloading.

Moorings & Global Performance

- Coupled or uncoupled analysis • permanent & mobile systems • single point moorings • tension leg platforms • SPARs • spread or turret moorings
- oceanographic systems • jetty moorings • floating islands.

Pipelay & Pipelines

- S-Lay (rigid, hinged and articulated stingers) • J-Lay
- lay over chutes • on-bottom stability • spanning
- VIV assessment • trawl impact.

Renewables

- Compliant wave power systems • offshore wind farm installation • floating wind turbines • power cable take-off • installation of tidal devices.

Towed Systems

- Bundles • seismic arrays • towed fish (birds) with controlled depth modelling • tug operations.

Other applications

- Aquaculture • booms • cable-stayed structures (including stadia roof installation) • floating bridges
- jack-ups & liftboats • on-shore power line installation • factory cable routing • minesweeping
- dropped object analysis • shore-side heavy lift
- simple truss structures • earthquake loading.

Features

At the core of OrcaFlex is a robust and well proven finite element model for long slender 'line-type' structures. OrcaFlex is not modular, with all functionality, including multi-threading, accessible through the user interface and / or the productivity and automation features. A full spec can be found at orcina.com/SoftwareProducts/OrcaFlex/Features/OrcaFlexFeatures.pdf

Loads

- Robust line compression / snatch modelling
- External line-on-line clash & sliding contact
- Internal line-in-line impact & sliding contact
- Comprehensive vessel load modelling
- Multi-body hydrodynamic coupling
- Full sum and full difference QTFs
- Vessel wave shielding (sea state RAOs)
- Water entry & exit slam loads
- Full description of wind, wave and current
- Line slug flow and free-flooding effects
- Linear elastic, non-linear hysteretic & P-y soil
- Flat, 2D or 3D seabed profile

Structure

- 3D, nonlinear, large displacement analysis
- Fully coupled tension, bending & torsion
- Accurate, efficient and proven FE formulation
- Linear & nonlinear elastic contact stiffness
- Constraints to fix or impose individual DoFs
- Connect any point on a Line to other objects

Analyses

- Extremely quick and robust static analysis
- Nonlinear Time Domain (implicit & explicit)
- Linear Frequency Domain (1st & 2nd order)
- Fully coupled vessel - line analysis
- Extreme value statistics
- Modal, VIV, clearance and Interference analysis
- Regular, rainflow & spectral Fatigue analysis
- Pipelay and Riser code checks
- Modelling of post-contact behaviour
- Full wave kinematics, or 3 optimisations

Productivity

- Binary and / or text input files
- Comprehensive range of automation tools
- Complete Matlab, Python & DLL interfaces
- Parallel processing on multi-core hardware (at no extra cost)
- Batch processing for volume analyses
- Distributed OrcaFlex optimises multi-licence use
- Full GUI with wire frame and shaded views

Commercial

OrcaFlex's commercial structure is widely recognised as the most cost-effective in its peer group:

- OrcaFlex is not modular - all features are integral to the program, including multi-threading
- Comprehensive Maintenance, Upgrade & Support (MUS) contract, including very responsive client support
- Highly competitive pricing with very advantageous multi-copy discounts on purchases and MUS
- Group Agreements allow pooling of licences to achieve greater multi-copy discounts
- Purchases always include a free MUS period
- Very flexible leasing, inclusive of MUS, with a 1 month minimum lease period
- Lease-to-purchase option with majority of last 3-years' lease charges counting towards purchase
- All licensing is on a world-wide basis— clients are free to move licences at will to best suit their purposes

Contact

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