

Engineering, R&D solutions

Detailed Engineering | FFS /RLA /RLE | FEA /CFD / Pipe Stress
Project Advisory | Failure Analysis | Digitalisation

Oil & Gas Sector

Off-shore | Refineries | Sub-sea | Petrochemicals | Bio-Fuels | H₂O



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OUR OFFERINGS

We provide inter-disciplinary engineering and collaborative R&D services

1. Detailed Engineering

- 3D Modeling
- **Mechanical Equipment**
 - **Static Equipment** – pressure vessels, heat exchangers, tanks, reactors, filters, valves, processing equipment etc.
 - **Rotary Equipment** – compressors, gear boxes, pumps, motors etc.
- **Piping Engineering**
 - Pipe design, pipe sizing & pipe stress analysis
 - Supports & hanger design, evaluation & optimization
 - Anchorage & baseplate design, qualification & optimization
 - Pipeline rerouting
 - Pipe GA, isometric extraction
 - Preparation of As-Built Drawing and Extraction of BoQ
 - Floating Production, Storage, and Offloading (FPSO)
- **Civil Structures**

foundations, pipe racks, cable trays, stacks, offshore structures, etc.
- **Electrical, Instrumentation & Control Engineering**

OUR OFFERINGS

2. Structural Integrity Assessment

- Fitness for Service (FFS),
- Remaining Life Assessment and Extension (RLA/RLE)

3. Design Verification and Optimization of equipment, components, and systems by multi-physics simulations

- Finite Element Analysis (FEA)
- Computational Fluid Dynamics (CFD)
- Materials and Damage Modeling

4. Engineering Consultancy and Advisory

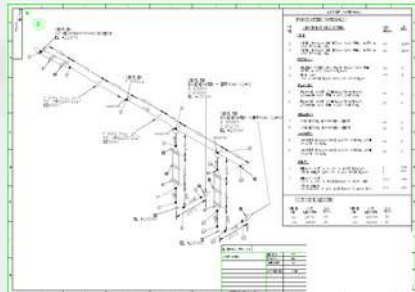
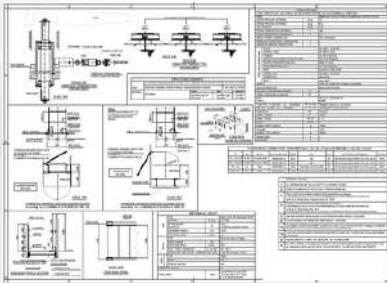
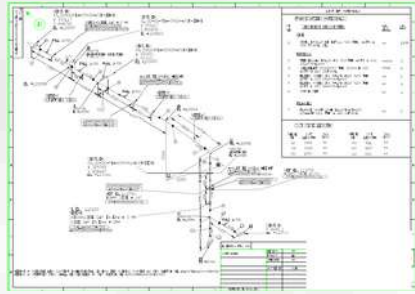
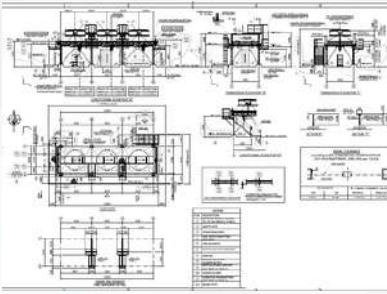
- Owner's Engineering
- Forensic Engineering and Legal Arbitration Support as Engineering Experts
- Pre-bid Engineering Support to EPC Contractors
- Third-party Review of Designs and DBRs
- HAZOP Studies, etc.

5. Digitalisation

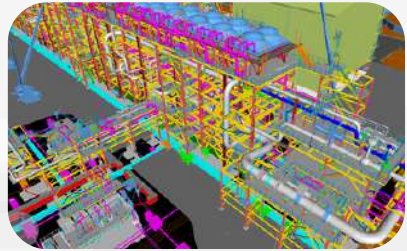
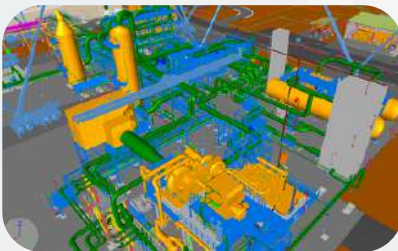
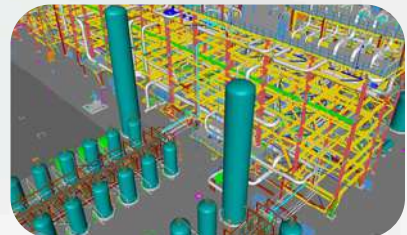
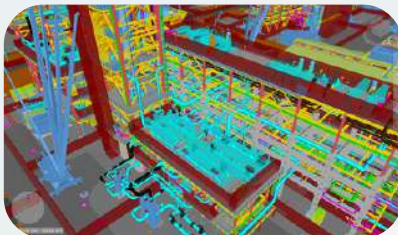
- Digital Twins: AI/ML Models, IIoT integration, Hybrid models
- Physics-Informed Neural Networks (PINNs)
- Reduced Order Model (ROM) development
- Building Information Models (BIM)

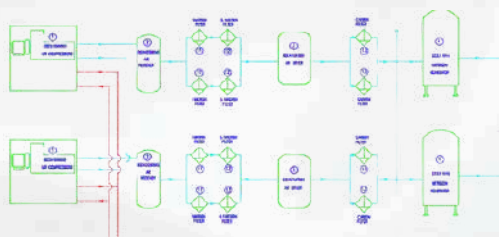
Piping Engineering

Isometric & GA Drawings



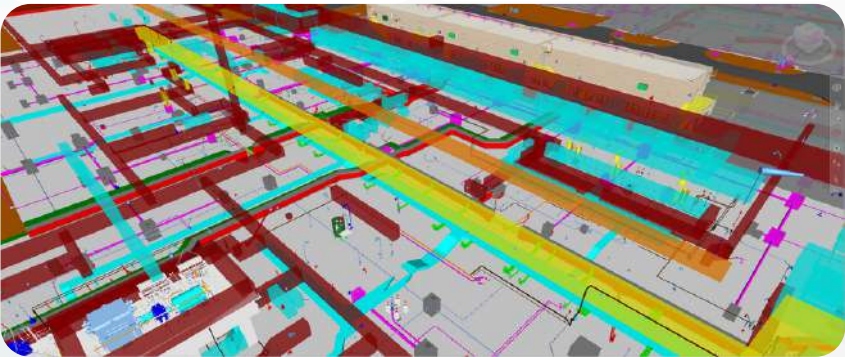
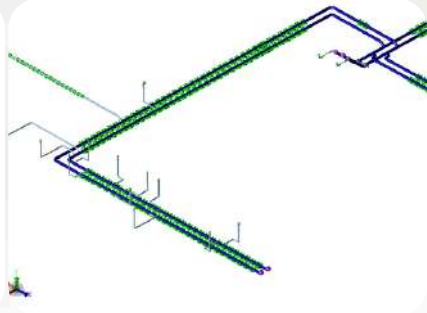
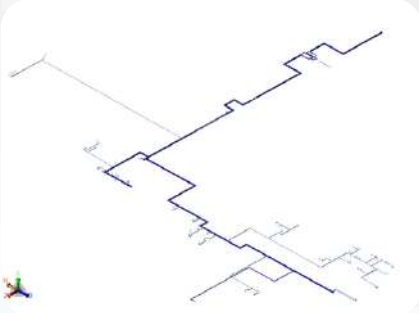
3D Modelling of Piping Systems





Pipeline Engineering

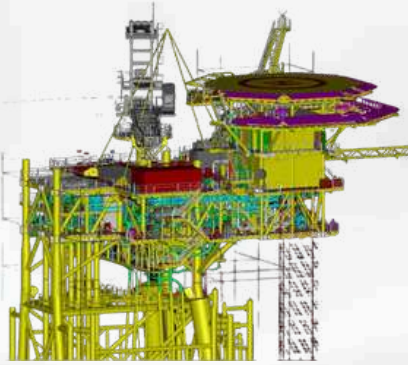
Buried Pipelines



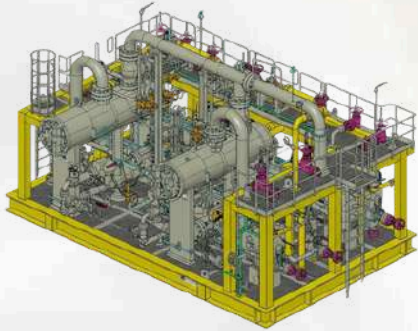
Subsea Pipelines

A photograph of a subsea pipeline on the seabed. The pipe is a large, grey, cylindrical structure lying horizontally. Several small, rectangular objects, possibly sensors or markers, are placed along the length of the pipe.

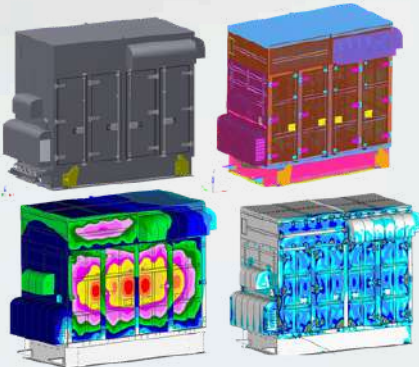
Floating Production, Storage, and Offloading (FPSO)



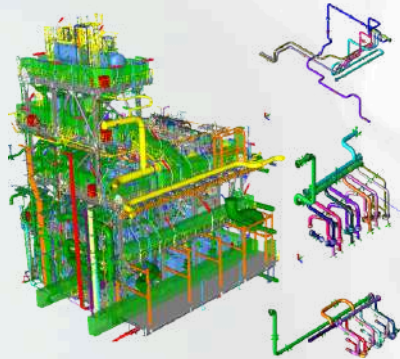
**Production &
Utilities Module**



**Gas Compression
Package**



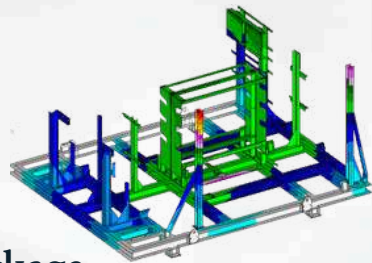
Compressor Package



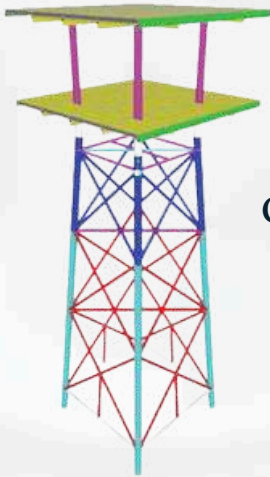
**Water Production
System**



Dryer Package



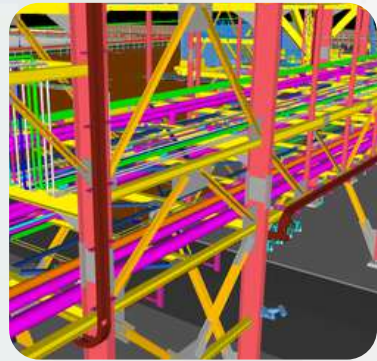
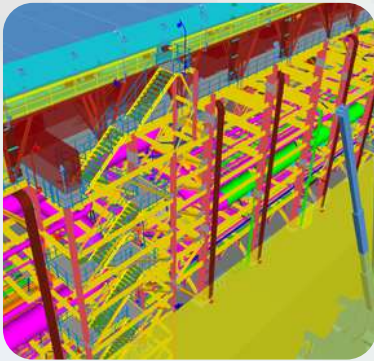
Civil & Structural Engineering



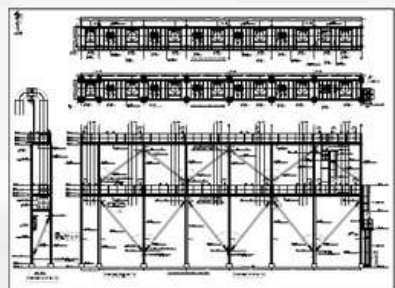
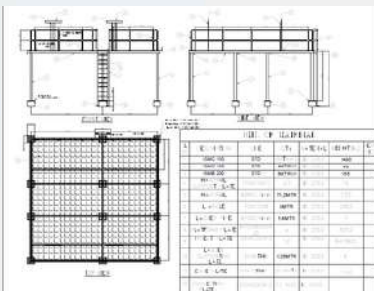
**Offshore Platform
Steel Structures**



Cable Tray & Supports

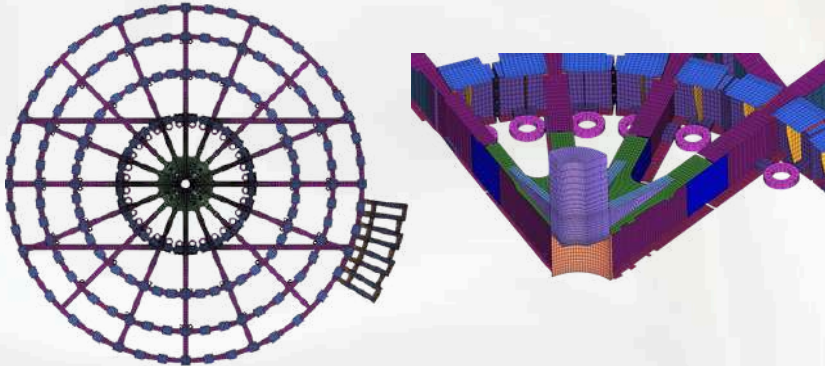


Steel Structures Fabrication & Erection Drawings

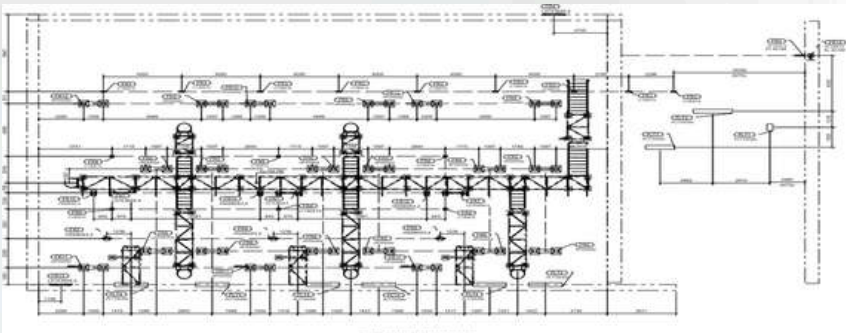


Civil & Structural Engineering

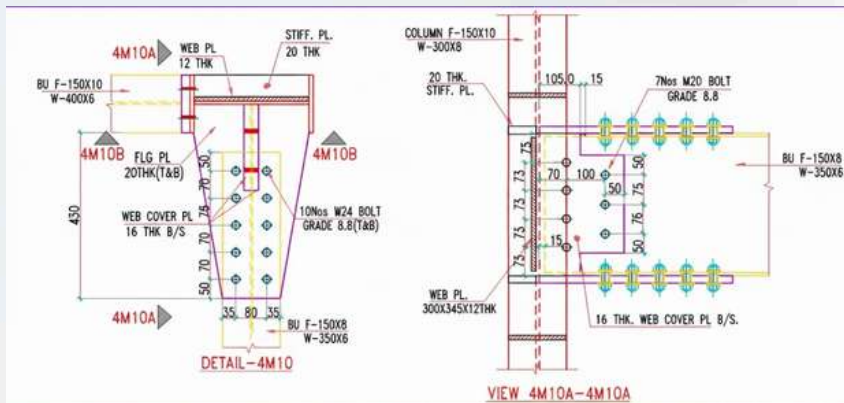
Offshore Grillage Structure



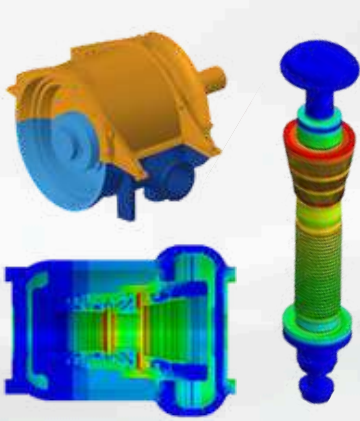
Steel Structure GAD



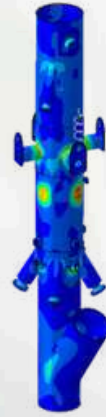
Steel Connections



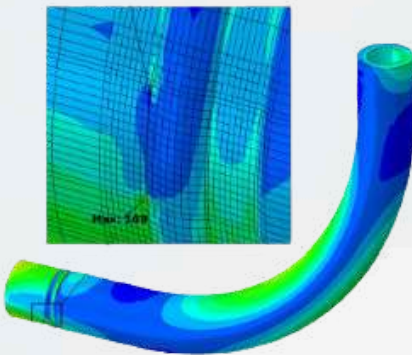
Fitness For Service (FFS), Remaining Life Assessment & Extension (RLA/RLE)



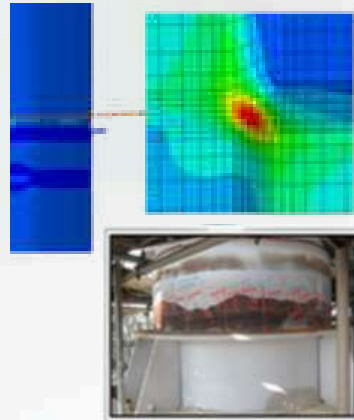
**3D Scanning to RLA
of Turbine Components**



**FFS & RLA of Riser
Reactor**

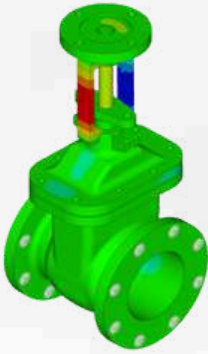


**FFS & RLA of Piping
Systems**

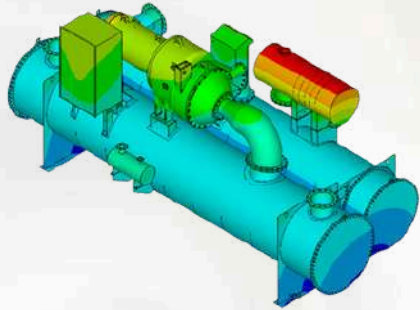


**FFS & RLA of Heat
Exchanger**

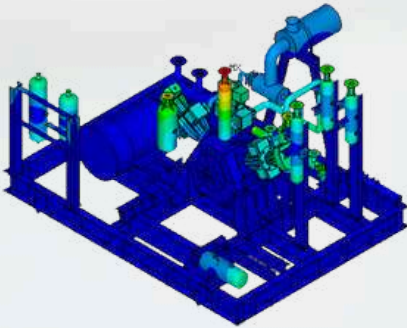
Finite Element Analysis (FEA)



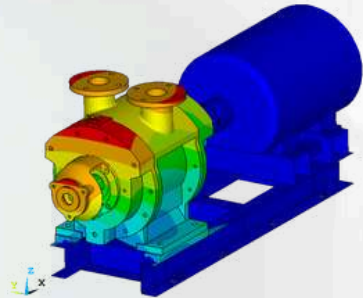
Valves



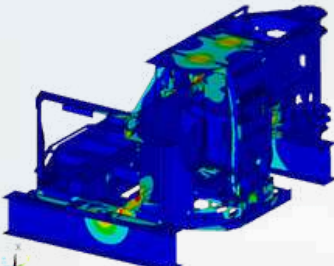
Chillers



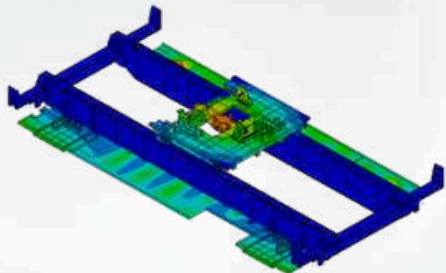
Compressor



Pumps

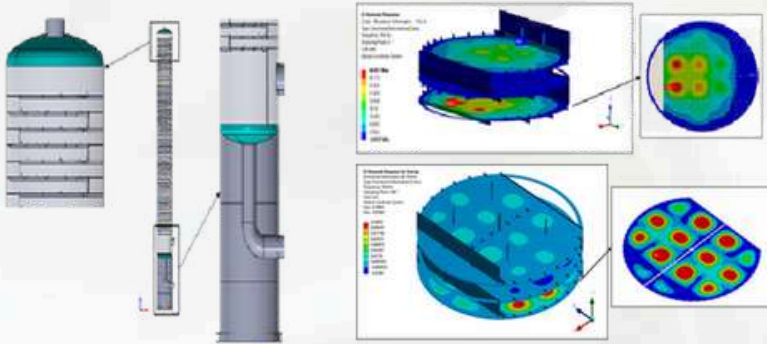


Roll Over
Protective Structure

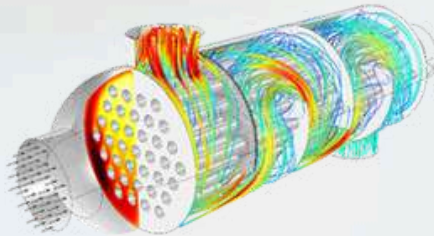


Cranes

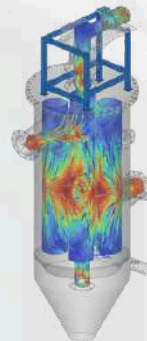
Computational Fluid Dynamics (CFD)



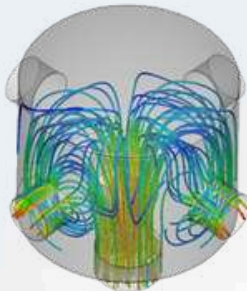
Column Tray



Heat Exchanger



Filter



**Multi - Phase
Flow**



Valves

Engineering Consultancy & Advisory

ProSIM provides variety of consultancy and advisory services to operators, EPCs, and technology companies

Owners Engineering

Technology selection, design basis reports, review of engineering design and documentation, balance engineering support, coordination with EPCs and vendors



Pre-Bid Engineering Support

Detailed technical inputs to prepare time and cost estimates, generate tech specs for vendors, interface with operator/ end user and EPCs

Engineering Expert Reports for Legal Arbitrations

Work as engineering experts and present detailed technical opinion in legal arbitrations. Conduct analysis of multiple scenarios and present to arbitrators



Failure Analysis / Root cause Analysis

Using physics based simulations to mimic variety of scenarios to mimic the failure and develop an understanding of failure

Such studies are used for optimizing the product/ process or in legal arbitrations; or to make the robust design free from failures



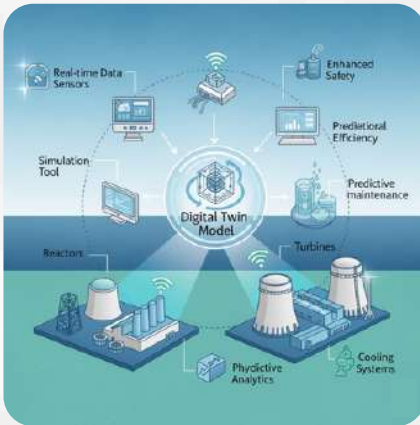
HAZOP Studies

Structured and systematic HAZOP studies to identify potential hazards and operability issues.

Hazards are identified, operability issues are detected, and safeguards are ensured for people, equipment, and the environment.



Digitalisation



- Digital Twins
- Reduced Order Model (ROM) development
- AI/ML model development and implementation (including IIOT)
- Hybrid model development (combination of Physics based models and data based models)
- Building Information Models (BIM)

Engineering, R&D solutions

Oil & Gas Sector

Off-shore | Refineries | Sub-sea | Petrochemicals | Bio-Fuels

**Detailed
Engineering**

Digitalisation

FFS/RLA/RLE

ProSIM
engineering your designs

**Failure
Analysis**

**Multi-Physics
Simulations
(FEA & CFD)**

**Project
Advisory**

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