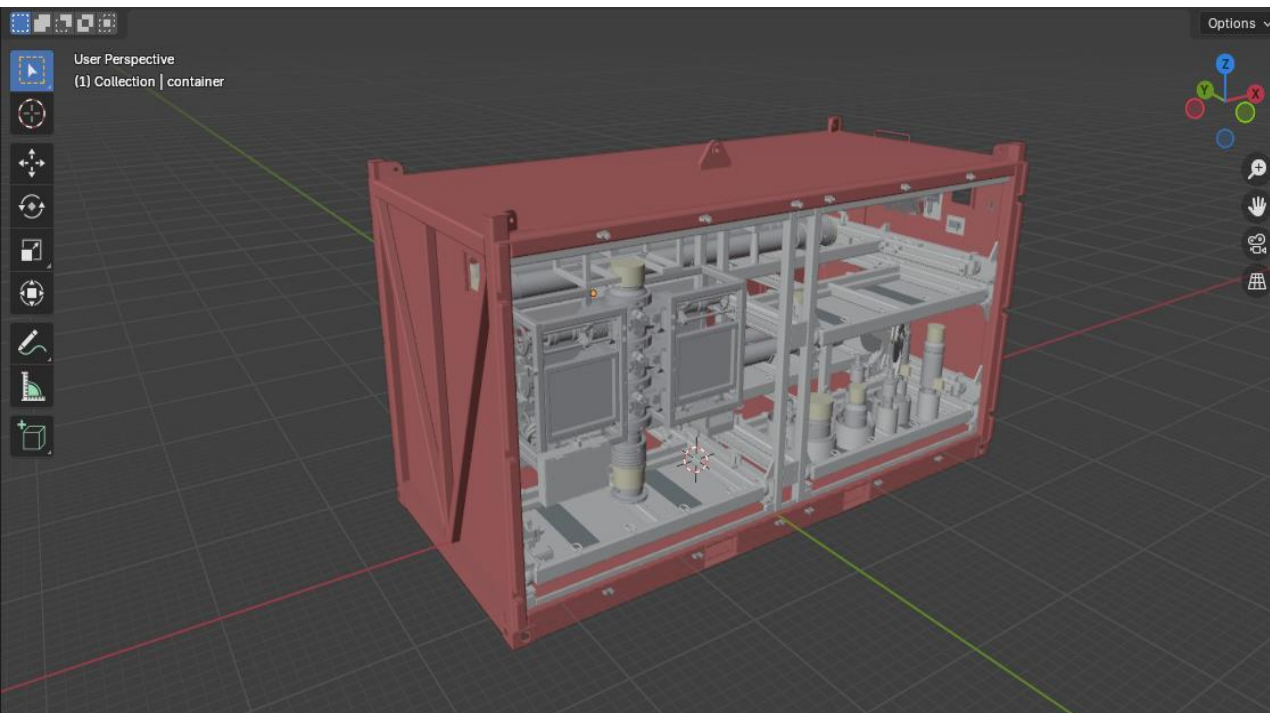


OFFSHORE CONTAINERS AND MODULES

ENGINEERING AND TECHNICAL ASSISTANCE



INGENIAT
ESTUDIOS Y PROYECTOS SL

C/ VENEZUELA 62-64 ENT.6
15404 FERROL, SPAIN

PHONE
+34 663 700398

PHONE
+34 644 321320

EMAIL
CONTACT@INGENIAT.ES

WEBSITE
WWW.INGENIAT.ES



offshore cargo carrying units

compliant with DNV Standard for Certification No. 2.7-1

Offshore containers play a vital role in the oil and gas industry, serving as the primary means of cargo transport between onshore facilities and offshore installations.

These specialized units, certified under DNV's Standard for Certification No. 2.7-1, are engineered to withstand the harsh marine environment and the unique challenges of offshore operations.

DNV 2.7-1 represents the most widely recognized standard for offshore containers, establishing comprehensive requirements for design, manufacturing, testing, and certification.

This standard ensures that containers can safely handle the dynamic loads experienced during lifting operations and marine transport, while maintaining structural integrity in corrosive offshore environments.

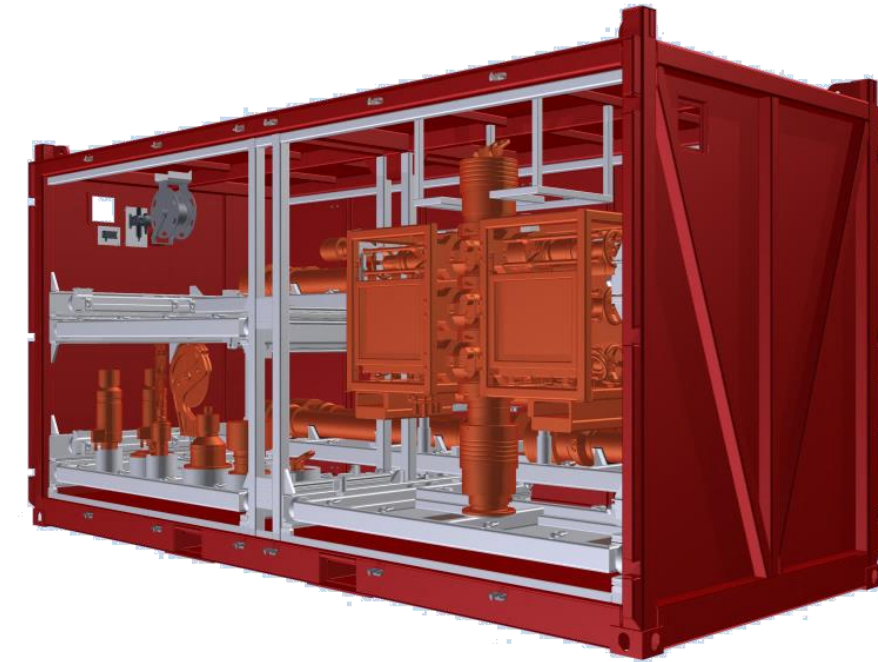
These containers differ significantly from standard ISO containers used in commercial shipping. They feature reinforced structures, specialized lifting points, and enhanced safety features specifically designed for offshore operations.

The standard covers various container types, from general cargo units to specialized equipment boxes and tanks for dangerous goods.

The implementation of DNV 2.7-1 requirements has significantly improved safety in offshore logistics operations.

By providing a standardized approach to container design and certification, it has enabled efficient cargo handling across different vessels and installations worldwide, while minimizing operational risks and ensuring personnel safety.

As the offshore industry continues to evolve, particularly with developments in renewable energy and deep-water operations, DNV 2.7-1 compliant containers remain essential infrastructure components, facilitating safe and efficient offshore operations across the energy sector.



DESIGN AND ENGINEERING OF OFFSHORE CONTAINER FOR WELL SERVICE

Design compliant with DNV 2.7-1 and NORSOK Z-015, suitable for operation within Zone 1 classified area.



DESIGN AND ENGINEERING OF WORKSHOP MODULE

Design compliant with DNV 2.7-1 and NORSOK Z-015



offshore workshop containers

compliant with DNV Standard for Certification No. 2.7-1

Basic designs can be customized to provide a number of added features not usually found in cargo carrying units, or designed from scratch to accommodate special dimensions or payloads.

Bespoke units can be customized internally or externally to custom requirements, enabling the installation of shelves or intermediate decks and the storage or transportation of special cargo.

The units can also be configured with appurtenances such as light fixtures, or complete installations (HVAC, gas detection, fire detection and extinction, etc).

DESIGN OF OFFSHORE CONTAINER FOR STORAGE OF FLAMMABLE FLUIDS

Design compliant with DNV 2.7-1 and NORSOK Z-015

Design and engineering of bespoke units suitable for specific needs and applications.

- Design Compliant with DNV Standard for Certification No. 2.7-1 Offshore Containers, and optionally with NORSOK Z-015 Temporary Equipment.
- High tensile carbon steel design suitable for design temperature of -20°C, lower temperature (-40°C) as option.
- Coating system compliant with Norsok M-501 Surface Preparation and Protective Coating and ISO 12944.
- Stackable up to two heights without requiring to detach the lifting slings.
- Internal tie down points for secure cargo fastening.
- Custom designs for special cargo or load configurations, and stable lifting arrangements.
- Custom designs include shelves, intermediate decks, workbenches, crane, etc.
- Custom designs include lighting, HVAC, fire detection/suppression, insulation (A60) suitable for operation in Zone 2 classified areas.
- Dimensions and ratings as required.



DESIGN OF OFFSHORE CONTAINER FOR STORAGE OF FLAMMABLE FLUIDS

Design compliant with DNV 2.7-1 and NORSOK Z-015



DESIGN OF OFFSHORE TANK CONTAINER FOR TRANSPORTATION OF FLAMMABLE FLUIDS

Design compliant with DNV 2.7-1, ISO 1496, IMDG and ADR.

Tank Construction and Secondary Containment

- Double wall construction with monitored interstitial space
- Minimum shell thickness calculations based on design pressure and corrosion allowance
- Internal baffles/surge plates to minimize fluid movement
- Corrosion-resistant materials or coatings suitable for the cargo
- Relief valves sized according to IMDG requirements
- Bottom outlet protection with multiple closure devices
- Minimum capacity of 110% of the largest tank compartment
- Chemical resistant coating on containment surfaces
- Dedicated drain valves with lockable closure
- Spill collection sumps at filling/discharge points
- Non-spark materials for hazardous zones

Safety Features (where applicable)

- Explosion-proof electrical equipment where required
- Grounding points for static discharge
- Emergency pressure relief systems
- External level gauges and overfill protection
- Temperature monitoring devices
- Emergency shutdown systems
- Anti-sloshing devices

Operational Features (where applicable)

- Top and bottom loading/unloading capabilities
- Sampling points with safe access
- Vapor return lines where required
- Heating/cooling systems for temperature-sensitive products
- Specialized cleaning access points
- Inert gas system connections where applicable

offshore tank containers

compliant with DNV Standard for Certification No. 2.7-1, ISO 1496, IMDG and ADR

The offshore industry frequently requires transportation of fluids during operations, resulting in stringent needs for personnel safety and environmental caution during transportation.

Equipment used during transportation shall comply with the latest standards and regulations. The crash frame or impact structure of the tank container typically complies with the requirements laid out in DNV's Standard for Certification No. 2.7-1 whereas the pressure vessel inside, and its fittings, typically comply with the requirements in ASME Section VIII Division 1.

Other requirements can be identically accounted for as far as the unit is concerned (ie, ISO 1496 Part 3, ADR, etc) so as to ensure that fluids are stored and handled in a safe and secure manner.



DESIGN OF OFFSHORE TANK CONTAINER FOR TRANSPORTATION OF FLAMMABLE FLUIDS

Design compliant with DNV 2.7-1, ISO 1496, IMDG and ADR.



DESIGN OF OFFSHORE SERVICE MODULE SUITABLE FOR OFFICE AND WORK SPACE

Design compliant with DNV 2.7-1 and DNV 2.7-2.

Key Design Features

- Fire-rated walls, roof, and floor (typically A60 rated)
- Blast-resistant construction where required by risk assessment
- Heavy-duty steel framework suitable for offshore environment
- Pressurized internal environment with positive pressure monitoring
- Gas-tight construction with certified door seals
- Emergency escape provisions including secondary exit

Safety Features (where applicable)

- Automated gas detection system with multiple sensors
- Emergency shutdown system integration
- Fire and gas alarm systems with platform interface
- Positive pressure ventilation system with redundancy
- Air-lock entry system for high-risk areas
- Emergency breathing apparatus stations
- Fire suppression systems

Environmental Control (where applicable)

- HVAC system with gas-tight dampers
- HEPA filtration for inlet air
- Pressure monitoring and control system
- Temperature and humidity control
- Fresh air changes as per living space requirements

Electrical Systems

- Ex-rated electrical equipment and installations
- UPS system for critical functions
- Emergency lighting system
- Intrinsically safe communications equipment
- External electrical connections through certified glands

offshore service containers and modules

compliant with DNV Standard for Certification No. 2.7-1 and No. 2.7-2

Service containers designed for human occupancy in hazardous areas of offshore installations require specialized design features to ensure personnel safety, in compliance with international standards. These units serve as temporary offices, control rooms, or accommodation spaces while maintaining protection against potentially explosive atmospheres.

The fundamental principle governing the design of these containers is the creation of a safe haven within a hazardous environment. This is achieved through multiple layers of protection, including structural integrity, atmospheric control, and sophisticated monitoring systems. The design philosophy emphasizes redundancy in critical systems, fail-safe operation, and integration with the host facility's safety systems.

These modules can be used on fixed production and drilling platforms, in the most stringent offshore environments, and can also be designed so as to comply with additional local requirements, such as NORSOK Z-015 Temporary Equipment or IMO SOLAS.

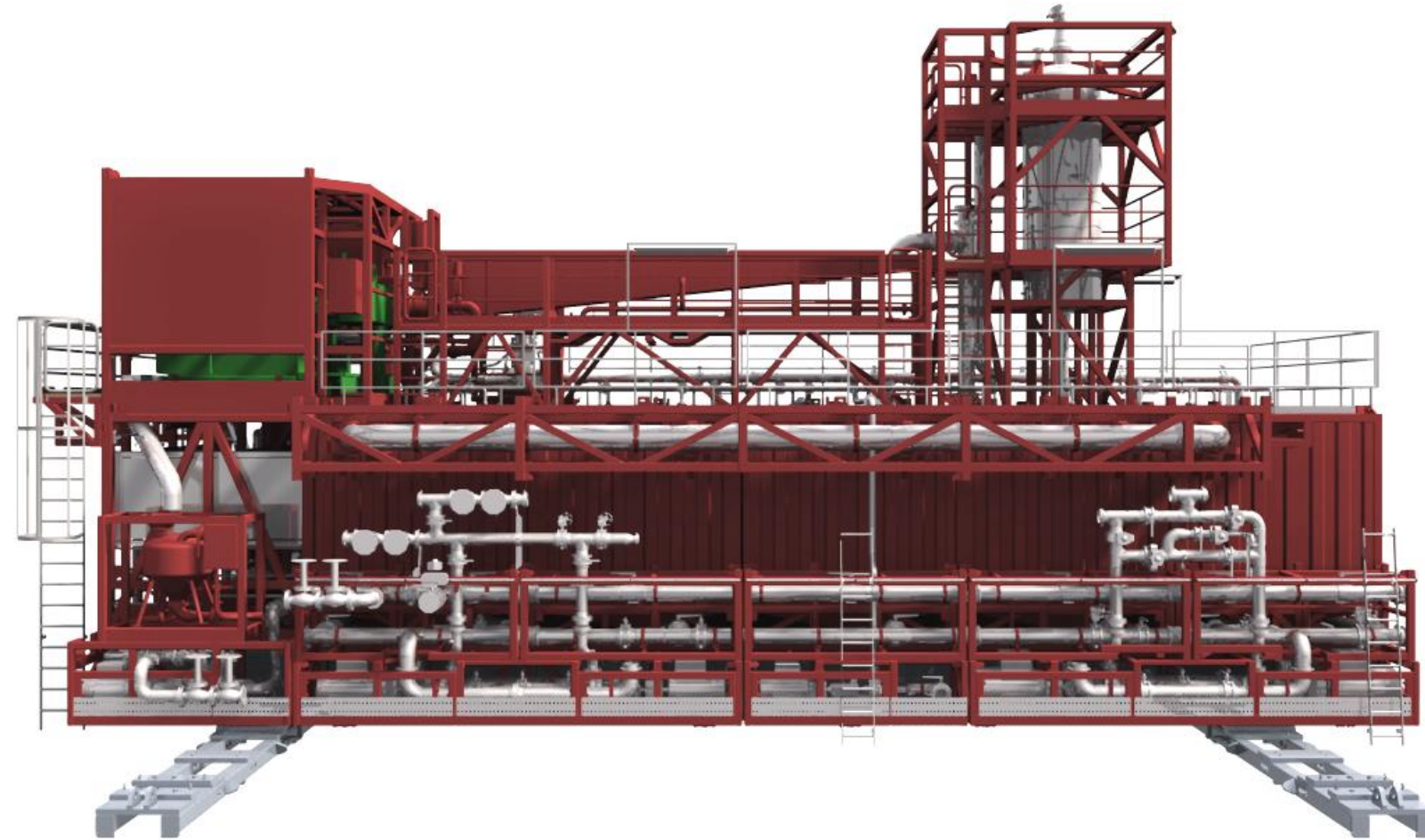


DESIGN OF OFFSHORE SERVICE MODULE SUITABLE FOR OFFICE SPACE

Design compliant with DNV 2.7-1 and DNV 2.7-2.

portable offshore units

compliant with DNV Standard for Certification No. 2.7-3



Portable Offshore Units (POUs) are critical assets in offshore operations, providing flexibility and functionality in demanding marine environments. These units, designed for temporary deployment on offshore facilities such as oil rigs and platforms, may serve various purposes, including being integrated and part of a more elaborate process system.

To ensure safety, reliability, and compliance, POUs are constructed and certified in accordance with standards such as DNV 2.7-3. This specification focuses on the design, manufacture, testing, and certification of portable offshore units to meet the rigorous requirements of transportation and handling under offshore conditions, including structural integrity, lifting safety, and environmental resistance.

DNV 2.7-3 emphasizes the importance of robust engineering practices, ensuring that all units are fit for purpose, withstand harsh marine environments, and adhere to international safety standards. Compliance not only safeguards personnel and equipment but also facilitates seamless integration and operation within diverse offshore environments.

INGENIAT
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15404 FERROL, SPAIN

PHONE
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PHONE
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WEBSITE
WWW.INGENIAT.ES