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TOPSIDES

Concrete substructures

Steel jacket substructures

Floating structures

Onshore facilities

Offshore topside facilities

Concrete GBS and floating concepts for offshore structures. LNG terminals. Offshore wind turbine foundations.

Steel jackets for offshore platforms and wind farms.

Floating production systems for oil and gas.

Onshore upstream facilities.
Kvaerner delivers complete oil and gas offshore platforms and onshore process plants to operators and other customers.

Kvaerner is an expert in executing engineering, procurement and construction (EPC) projects. We are recognised as a world leader in delivering projects in challenging environments, within strict budget frames and demanding schedules. On time, with the right quality.

**Predictable project execution**

The expertise of Kvaerner’s substantial and highly experienced workforce covers all phases of a project’s life cycle. If required, we can also call on further skilled personnel from strategic partners, subcontractors and suppliers, with whom we have well-established relationships.

We have a long track record of enabling oil companies to realise some of the world’s most demanding and amazing projects. In doing so, we strive to add value to our customers and shareholders, as well as to the countries and local societies in which we operate. Our Project Execution Model (PEM™) ensures efficient project execution and risk management. Read more about PEM™ on page 16.

**HSSE**

All Kvaerner employees are the keystone in the work towards our ultimate goal of an injury and illness free workplace that does zero harm to the environment. Read more about our HSSE approach on page 23.

**Engineering**

Our multi-discipline organisation covers all of the technical and administrative functions needed to execute demanding engineering tasks for upstream oil and gas projects.

**Procurement**

Some of the platforms and onshore plants we deliver include more than 100,000 unique, tagged items plus vast amounts of bulk materials, sourced from top-quality suppliers all around the world. Our procurement and supply management organisations have the expertise to handle procurement and manage suppliers on behalf of our customers. They take a systematic, proactive approach to optimising the total cost, risk, quality, lead-time and HSSE of all procured products and services.

**Construction**

By combining our modern in-house facilities in Norway with cost effective fabrication from our high quality partner yards globally, we offer delivery of complete platforms and onshore plants with optimised cost, high quality and fast track schedules.
Kvaerner is a leading contractor for EPC delivery of topsides for offshore platforms. We have been the key supplier to some of the world’s most demanding projects, and have proven our ability to execute even the most complex field developments with cost efficiency and predictability. Kvaerner has extensive experience from all types of topsides that may be required on an offshore facility.

Kvaerner’s capabilities includes:
- oil and gas treatment
- oil and gas storage, offloading and export
- utility and process support systems
- drilling facilities
- living quarters
- Converter platforms for offshore wind

Kvaerner’s modern yard at Stord, Norway, plays a major role in the majority of our topside projects. Kvaerner can also offer completion, hook-up and commissioning of floating platforms and platform topsides through our highly experienced operators and construction managers. We design and build topsides for installation on a broad range of platform substructures, including:
- steel jackets
- gravity base structures (GBS)
- semi-submersible floating production platforms
- floating production, storage and offloading units (FPSOs)
- drilling rigs
- tension leg platforms (TLPs)

Johan Sverdrup ULQ (utility and living quarters) to be delivered in 2019.

Kvaerner’s engineers and project managers have extensive experience in developing effective concepts and reliable execution plans.
Topside weight: 22 500 tonnes

Delivered “punch free” from Stord facility

“You could hardly make an oil platform more Norwegian than Edvard Grieg. And the quality of the delivery is likely just as hard to beat. The platform was finished according to schedule and on budget. We have maintained platform uptime at an impressive 95% during the start-up period. That says a lot about the quality of the platform.”

Kristin Færøvik
Managing director of Lundin Norway
17 February 2016

Combined process facility utility module and living quarters
Concrete substructures

For concrete offshore installations, Kvaerner’s capability and track record cover the full EPCI value chain.

Our deliveries span from:
› conceptual and feasibility studies
› front-end engineering and design (FEED)
› detailed engineering, global procurement
› project management through construction and outfitting to commissioning and installation offshore

For concrete substructure developments, Kvaerner can offer concepts for:
› platforms with a concrete substructure sitting on the seabed (GBS)
› floating production platforms with a concrete hull (semi-submersible, TLP, SPAR)
› terminals and facilities with process equipment installed on a concrete foundation
› Concrete gravity base structures for LNG production and receiving terminals
› Concrete gravity base offshore wind turbine foundation

Kvaerner has delivered more offshore platforms for Arctic and sub-Arctic conditions than any other contractor. Constructing platforms with concrete offers clear advantages in harsh climates, while allowing for cost-effective project execution and local construction.
Kvaerner delivered the LUN-A and PA-B concrete gravity based structures, which were successfully installed off the east coast of Russia, as part of the Sakhalin-II project.

Designed and constructed for **arctic environments** with heavy ice loads.

- Designed and constructed to withstand seismic activity.
- Two platform substructures developed with a total high-performance concrete weight of 150 000 tonnes.

Kvaerner’s concrete installations can be fabricated all over the world, creating jobs and value to the local community.
The 26 000 tonnes Johan Sverdrup riser platform jacket, named “Ægir”, is the largest that has been constructed in Europe for the North Sea. It was completed according to schedule.

Jacket height: 140 metres

Jacket weight: 26 000 tonnes

Bottom elevation: 94 x 64 metres

Water depth: 110 metres
Steel jacket substructures

Kvaerner is Europe’s leading provider of heavy steel jacket substructures for offshore oil and gas platforms. Our specialised yard in Verdal in mid-Norway, is highly skilled in delivering cost-effective project execution combined with high quality.

**Kvaerner’s capabilities span from:**
- conceptual and feasibility studies
- front-end engineering and design (FEED)
- detailed engineering and procurement
- project management, through construction to final delivery of complete jacket structures

Based on decades of experience in executing projects, Kvaerner offers a wide range of fit-for-purpose solutions – from light and innovative structures as Subsea on a Stick® and unmanned wellhead platforms, to heavy jackets designed for crane lift or launched installation.

Building on decades of experience from demanding offshore oil and gas projects, Kvaerner has since 2008 delivered numerous steel jacket substructures for offshore wind farms.
Equinor has contracted Kvaerner to deliver the topside modules for the Johan Castberg floating production vessel (FPSO). Kvaerner will also provide hook-up and integration of the topside modules with the hull.

To be deployed: 240 km north of Hammerfest

Arrives at Stord: 2020

Production phase: 30+ years

Length: 295 metres

Width: 55 metres
Floating structures

Kvaerner is one of the world’s most experienced contractors for delivery of floating oil and gas installations, and has had a key role in the delivery of more than 15 of the world’s most recognized projects for floating platforms.

Kvaerner is one of the few companies globally with proven expertise in delivery of the full spectre of floating platforms.

**Kvaerner’s capabilities includes:**
- semi-submersible production platforms
- floating, production, storage and offloading units (FPSOs)
- drilling rigs
- tension leg platforms (TLPs)

Kvaerner’s unique experience in floating platforms enables us to offer our customers the solution which will best solve the specific project requirements.

Kvaerner can also offer hook-up and commissioning of floating platforms through our highly experienced operators and construction managers.
Onshore facilities

Kvaerner is a leading provider of onshore receiving and processing facilities.

We offer:
› feasibility and conceptual engineering studies
› turn-key EPC services for new facilities and upgrades of existing facilities

We have delivered a number of large projects, including:
› processing plants
› gas export or reception terminals
› CO₂ capturing systems and facilities
› subsea-to-shore solutions
› LNG facilities

The LNG facility at Melkøya receives gas via seabed pipelines linked to subsea well at the Arctic Snøhvit field in the Barents Sea. In the development of this subsea-to-shore project, Kvaerner was the installation contractor for onshore facilities on the island of Melkøya, just outside Hammerfest, the northernmost town in the world.
Kvaerner was the EPCM contractor for the development of the Nyhamna onshore gas facility. The company is the key contractor on the ongoing major expansion project at the plant.

More than 400 suppliers

Total module weight: 22,500 tonnes

More than 5,000 workers at peak

54 modules have been delivered

Fabrication of modules in 6 different places
Kvaerner has delivered offshore platforms, substructures and onshore facilities for upstream oil and gas projects for nearly 50 years. Our list of references includes many of the world’s most demanding projects. Several of these developments have set new standards in production rates and cost savings. From breaking barriers in water depths, installation methods and annual up-time, to solving extreme reservoir complexity – our list of world records is extensive.

Kvaerner is recognised as a leading contractor due to our long record of consistently delivering added value, with predictability.
An effective execution model for global deliveries

Concepts and studies based on practical knowledge, combined with advanced technologies
Kvaerner has decades of experience in delivering complete offshore platforms, whether fixed or floating installations, and onshore oil and gas plants, constructed of either steel or concrete.

We deliver technology, products, front-end, system definition and project execution through our in-house engineering staff and global engineering partners. We offer understanding of the full field development from concept development to completion, covering all key products and technologies.

Best value engineering
For detail engineering, we secure cost-effective project execution for our customers through in-house resources and global engineering partners.

Local partnerships, local value creation
By focusing on developing local partnerships and local value creation, we enhance our capacity and boost a project’s local content. All projects are overseen by Kvaerner project and construction management expertise.

Cost-effective, high quality fabrication capacity
In addition to operating two facilities in Norway, Kvaerner is highly experienced in executing projects at third party yards with recent experience from Canada and Russia. Kvaerner also has solid experience in setting up fabrication sites in new locations.

Maximum productivity is obtained by combining our own experts and fabrication facilities with cost-effective fabrication from our high-quality partner yards.

Proven Project Execution Model
Our Project Execution Model (PEM™) which is presented on the next page, is based on best practice from the industry’s most challenging projects. The PEM ensures efficient project execution and risk management. Our experienced project managers and project services personnel ensure that all projects, big or small, are executed in accordance with the PEM and project specific execution philosophies.
Associated services

In addition to planning and executing EPC projects for topsides, concrete substructures, steel jacket substructures, floating structures and onshore facilities, Kvaerner provides the following services to help our clients realise their projects and field developments.

Kvaerner’s highly experienced teams of managers, engineers and operators offer the following:

- **Completion**: Complete project management systems, including in-house project completion system (MIPS) to bring projects to mechanical complete.
- **Commissioning**: Planning, preparation and execution of complex commissioning projects, plus tools, equipment and temporary systems for commissioning and start-up assistance.
- **At-shore and in-shore facilities**:
  - Deepwater quay facilities at Stord to perform at-shore commissioning and offshore preparation activities.
  - Deepwater sites in Klosterfjorden close to Stord to execute ballasting tests, inclining tests, DP tests, and relevant sea-trial testing.
  - Digernessundet deepwater site with 300+ metres water depth and mooring points on nearby islands to conduct inshore hook-up.
- **Hook-up**: Complete project organisations, systems and equipment to perform inshore or offshore hook-up.

Kvaerner’s marine operations team manages stand-alone client projects as well as providing support to Kvaerner’s in-house EPCI projects. It offers the following marine operations services:

- **Tow-out and installation of gravity base structures (GBS), semi-submersibles, spar platforms and FPSOs**
- **Float-overs and deck mating**
- **Marine operations related to decommissioning of platforms (topsides and substructures) and subsea equipment**
- **Marine operations support to Kvaerner’s projects within offshore wind and offshore fish farming**

Kvaerner works independently of vessel operators and conducts vessel sourcing and selection based on our clients’ specific installation requirements, using third party or client chartered vessels.
Kvaerner provides turnkey EPCI services to modify and upgrade platforms to increase their field life and/or install new large modules and functions to facilitate new satellite tie-ins.

Feasibility and conceptual engineering studies are also part of Kvaerner’s offering to extend the lifetime of our clients’ assets.

Kvaerner can safely and cost-effectively provide upgrades and modifications of the following types of offshore platforms:

- Fixed production platforms
- Semi-submersible floating production platforms
- Floating production, storage and offloading units (FPSOs)
- Drilling rigs
- Tension leg platforms (TLPs)

Kvaerner has extensive experience from decommissioning of offshore oil and gas installations. We offer the following decommissioning services:

- Platform preparation for offshore decommissioning including heavy lifts
- Subsea removal: reverse installation and removal of subsea infrastructure
- Onshore demolition, disposal and recycling, including mapping, removal handling and disposal of different waste types

Kvaerner’s onshore demolition and recycling activities are run from our base at Eldøyan, Stord. The facility in brief:

- Approximately 80,000m² demolition area
- 188m quayside: 128m with 26-30m water depth and 60m with 8-16m water depth
- Large tower crane (80m, 240 tonnes)
- High capacity equipment park including excavators
- Large capacity stationary shear
Kvaerner is headquartered in Oslo, Norway, and has offices and fabrication facilities in several of the world’s main oil and gas regions. The Kvaerner brand is associated with some of the world’s most advanced technologies, providing our customers with maximum oil and gas production.

At Kvaerner, our focus is on the fundamentals. Health, safety, security and environment (HSSE) is essential for our activities. We see cost control and efficiency as key to successful project execution. At the same time, we know that quality and schedule have to be managed to achieve our ultimate goal: that every project is delivered predictably.

A solid partner for customers around the world

› Well established organisation with 2,650 expert employees and tailor-made facilities focused on EPC deliveries
› Solid financial platform: debt free and annual revenues of NOK 6.5 billion in 2017
› Active long-term shareholders with strategic perspectives
› World-leading track record in delivering challenging projects globally
› More than 20 large topside projects delivered all over the world
› Market leader in executing projects in Arctic conditions
› Delivered approximately two thirds of all platforms on the NCS
› 47 steel substructure contracts in 46 years
› Provided all of Norway’s seven largest onshore oil and gas plants
Assembly and fabrication facilities

Stord

Kvaerner’s yard at Stord, Norway, is tailored for assembling large platform topsides and modules for onshore facilities. At the centre of the 318 000 square metre facility is Northern Europe's largest gantry crane, "Storen", which is 115 metres tall and 153 metres wide. Its 1 050 tonnes capacity and large runway enables the yard to receive large and almost complete modules from subcontractors and move them across large areas. In total, this reduces risk and enables the facility to execute projects quickly, predictably and more safely. Moreover, Kvaerner is currently building a new quay at Stord to make the facility even more flexible. The extension will increase the facility’s quayside with 266 metres, expand its construction area with 17 000 square metres and extend the crane lane by approximately 100 metres.

Verdal

The yard in Verdal specialises in fabricating fit-for-purpose steel substructures and jackets for offshore developments. The giant yard comprises 650 000 square metres, of which 30 000 square metres are indoor fabrication facilities. With its vast size and individual load out quays, the yard is ideally located for fabrication and delivery of large steel structures.

Single purpose yards

Local content is a key factor in many field developments. As concrete structures do not need established yard facilities, construction sites can be developed locally. Kvaerner has comprehensive experience from setting up single-purpose construction yards around the world and then recruiting, training and integrating local employees and subcontractors. Building the concrete structure locally, combined with local sourcing and workforce, has in some projects brought the local content up to 95 percent of the total project scope.
Performance built on proven expertise

The drive to search for further improvement
The high-tech Kvaerner corporation of today traces its roots back to the industrial revolution. While many industrial companies were established at the time, few of them are still in business today. It takes special qualities to develop and grow through large shifts in the market and international crises. This ability to continuously adapt to new demands is one of the strengths Kvaerner has demonstrated, not once or twice, but time and time again in over two centuries.

The Kvaerner culture is characterised by the will to perform at a global top level, and the drive to always search for further improvement. As we always have, Kvaerner works in a competitive global industry, and we are inspired by the fact that the only way to win our customers’ confidence is to deliver better than anyone else.

Building trust through common values
In any organisation, values are essential for building trust in each other, with our partners, with our customers and with society. All of the Kvaerner businesses share a common set of values; the compass that guides our policies, our operations and ultimately, our behaviour.

Our history:

Building strength through experience

1841
Aker founded in Oslo, Norway.

1853
Kvaerner founded in Oslo, Norway.

EARLY 1900s
Strong player in machinery, equipment, hydropower turbines, shipbuilding and other industries.

1960s
Entered the offshore oil and gas industry. Shipyard modifications to cater for the coming offshore business.

Common values

- HSSE mindset: We take personal responsibility for HSSE because we care.
- Open and direct dialogue: We encourage early and honest communication.
- People and teams: All our major achievements are team efforts.
- Hands-on management: We know our business and get things done.
- Customer drive: Building customer trust is key to our business.
- Delivering results: We deliver consistently and strive to beat our goals.
- Our mission: We realise the world’s most amazing and demanding projects through hands-on management.
Focus on HSSE performance

In Kvaerner, concern for health, safety, security and the environment is a core value. Our HSSE mindset is founded on the belief that all incidents can be prevented. We work systematically to ensure continual improvement of our HSSE culture and performance. We call this approach “Just Care™”:

› We strive continuously for zero harm to personnel, material and non-material assets.
› We focus on employee health and on continuously improving the work environment.
› We require every employee to take personal responsibility for our HSSE culture and performance.

For more information, please visit www.kvaerner.com/csr

1970s
Yards in Stord and Verdal founded. Developed and delivered pioneering concepts like the Aker H-3 drilling rigs and the Condeep platforms.

1980s
Key partner in North Sea field developments such as Gullfaks, Oseberg, Ekofisk.

1990s
Key partner in world-class projects in the North Sea and international markets.

2000s
Merger of Aker and Kvaerner. Key partner in some of the world’s most demanding field developments. Leading field development provider in Norway, both offshore and onshore. Global leader in deepwater developments and concrete GBS. Europe’s leading provider of big steel jackets. Strong position in North America within downstream oil & gas, energy & environmental and industrial construction.

2011