At Wärtsilä, we are passionate about optimising lifecycle value by offering precisely what each of our customers need. We can deliver on this promise because we provide integrated solutions, products and services for every phase of oil and gas exploration, production, transportation and refining worldwide — both onshore and offshore.

Even though this brochure is just a beginning to learn why we are involved in bringing more than 5 million barrels per day to the market, which is more than 6% of the total world oil production, it still demonstrates how we are able to customise our comprehensive offering in order to give customers a crucial competitive edge. Whatever the conditions, we deliver world-class efficiency, fuel flexibility and environmentally sound solutions.

PERFORMANCE AND FLEXIBILITY FOR BETTER RESULTS

Wärtsilä has the unique capability to provide the essential services for offshore support vessel (OSV) projects during all the various phases; from initial design throughout the entire lifecycle of the vessel. We deliver proven designs, engineering, products and concepts, which we integrate into environmentally and economically sound total solutions. Once the vessel is launched, our worldwide service network provides service and support for as long as it remains in operation.

Wärtsilä provides integrated solutions for OSVs, including:
- AHTS — Anchor Handling Tug Supply Vessels
- OCV — Offshore Construction Vessels
- PSV — Platform Supply Vessels
- DSV — Diving Support Vessels
- Seismic research vessels
- Jack-up vessels

The varying OSV operational modes require a unique design in order to achieve high fuel efficiency. Smart integration of the propulsion systems is needed to optimise the performance of the thrusters and prime movers.

With Wärtsilä’s Low Loss Concept, the diesel-electric machinery in the propulsion systems of OSVs is optimally utilized, thus reducing fuel consumption and emissions. Through careful attention to the hull lines, and by optimising the propulsion system according to the vessel’s operational profile, we can reduce fuel consumption and lifecycle costs by up to 30%.

Within the Offshore Support Vessel market, we provide condition-based maintenance with excellent spare parts availability from a wide range of manufacturers. We also offer training services.

UNIQUE FUEL FLEXIBILITY

Wärtsilä’s unique dual-fuel (DF) engine technology provides the flexibility to switch between low pressure natural gas, light fuel oil (LFO), and various other liquid fuels. This flexibility in fuel choice offers numerous tangible benefits, both economic and environmental. For example, with DF engines OSVs with dynamic positioning (DP) class have no need for additional backup fuel/power systems to meet redundancy requirements.

With oil prices fluctuating and environmental regulations becoming increasingly stringent, the operator has the freedom to select the most cost-effective and readily available fuel, while also retaining the ability to utilize natural gas in order to comply with emission limitations.

At Wärtsilä, we are passionate about optimising lifecycle value by offering precisely what each of our customers need. We can deliver on this promise because we provide integrated solutions, products and services for every phase of oil and gas exploration, production, transportation and refining worldwide — both onshore and offshore.

Even though this brochure is just a beginning to learn why we are involved in bringing more than 5 million barrels per day to the market, which is more than 6% of the total world oil production, it still demonstrates how we are able to customise our comprehensive offering in order to give customers a crucial competitive edge. Whatever the conditions, we deliver world-class efficiency, fuel flexibility and environmentally sound solutions.

PERFORMANCE AND FLEXIBILITY FOR BETTER RESULTS

Wärtsilä has the unique capability to provide the essential services for offshore support vessel (OSV) projects during all the various phases; from initial design throughout the entire lifecycle of the vessel. We deliver proven designs, engineering, products and concepts, which we integrate into environmentally and economically sound total solutions. Once the vessel is launched, our worldwide service network provides service and support for as long as it remains in operation.

Wärtsilä provides integrated solutions for OSVs, including:
- AHTS — Anchor Handling Tug Supply Vessels
- OCV — Offshore Construction Vessels
- PSV — Platform Supply Vessels
- DSV — Diving Support Vessels
- Seismic research vessels
- Jack-up vessels

The varying OSV operational modes require a unique design in order to achieve high fuel efficiency. Smart integration of the propulsion systems is needed to optimise the performance of the thrusters and prime movers.

With Wärtsilä’s Low Loss Concept, the diesel-electric machinery in the propulsion systems of OSVs is optimally utilized, thus reducing fuel consumption and emissions. Through careful attention to the hull lines, and by optimising the propulsion system according to the vessel’s operational profile, we can reduce fuel consumption and lifecycle costs by up to 30%.

Within the Offshore Support Vessel market, we provide condition-based maintenance with excellent spare parts availability from a wide range of manufacturers. We also offer training services.

UNIQUE FUEL FLEXIBILITY

Wärtsilä’s unique dual-fuel (DF) engine technology provides the flexibility to switch between low pressure natural gas, light fuel oil (LFO), and various other liquid fuels. This flexibility in fuel choice offers numerous tangible benefits, both economic and environmental. For example, with DF engines OSVs with dynamic positioning (DP) class have no need for additional backup fuel/power systems to meet redundancy requirements.

With oil prices fluctuating and environmental regulations becoming increasingly stringent, the operator has the freedom to select the most cost-effective and readily available fuel, while also retaining the ability to utilize natural gas in order to comply with emission limitations.
**LNG SOLUTIONS**

Wärtsilä is the world leader in supplying design and propulsion solutions for LNG powered OSVs. Wärtsilä has delivered approximately 300 gas engines for various vessel applications, and designed more than ten LNG powered offshore support vessels contracted or in service. With LNG as fuel, carbon-based greenhouse gas emissions can be reduced by at least 15%, while sulphur and nitrogen oxide emissions are virtually entirely eliminated.

**WIDE PROPULSION RANGE**

Wärtsilä offers a wide range of propellers and thrusters with excellent performance and manoeuvrability. Wärtsilä propellers are custom-designed for each ship, and are available in both controllable and fixed pitch design.

Wärtsilä also offers a standard family of durable and reliable transverse thrusters (controllable and fixed pitch) in power ranges up to 3300 kW.

Wärtsilä steerable thrusters are the optimal choice for ships needing responsive manoeuvrability, dynamic positioning, and propulsion efficiency.

For heavy duty vessel applications in particular, Wärtsilä thrusters and propellers come with a high performance nozzle that improves the delivered thrust, even under demanding circumstances.

**HIGH REDUNDANCY, RELIABILITY AND SAFETY**

The Low Loss Concept (LLC) is a new low voltage system for supplying power to the frequency drives in electric propulsion. LLC offers high efficiency and enhanced redundancy, as well as lower weight and volume with very few components. LLC has very specific advantages for OSVs with DP classification, including a reduced total installed power requirement, increased redundancy, fewer consequences in case of failures, and higher DP capability. Wärtsilä designed OSVs also have the highest possible Environmental Regularity Number (ERN) 99.99.99.99, which represents the vessel’s capability for maintaining its position and normal operations under certain weather conditions.

LLC technology increases the levels of redundancy in the vessel’s electrical system, and — by eliminating the need to install several large and heavy transformers — requires less space onboard. As it also reduces system losses, both fuel consumption and emissions are correspondingly lower.
Siem Symphony will be Siem Offshore’s first LNG-powered vessel, and is under construction at Hellesøy Verft in Norway. This is the eighth LNG-powered vessel with Wärtsilä design, and the fifteenth delivery of dual-fuel machinery from Wärtsilä. In 2011, Wärtsilä expanded its offering to include LNG storage and gas handling systems. This vessel marks the fifth LNG powered PSV vessel to use Wärtsilä’s gas handling system.

VIKING ENERGY: TEN YEARS OF LNG OPERATION

Viking Energy was the world’s first LNG-powered Platform Supply vessel. In April 2014 we celebrate its ten years of LNG-operation. The vessel is owned by Norwegian owner Eidesvik, and chartered to Statoil for delivering supplies to oil and gas platforms in the North Sea.

The VS 4403 PSV ‘Viking Energy’, designed by Wärtsilä ship Design and built at Kleven Verft AS in Norway. The vessel has a diesel-electric propulsion plant with four Wärtsilä 6L32DF dual-fuel engines.

REDUCTIONS IN FUEL CONSUMPTION ACHIEVED BY SHIP DESIGN OPTIMISATION

7000 dwt, 12 knots
Fuel consumption reduced from 11 to 6 tons / 24 h

2500 dwt, 12 knots
Fuel consumption reduced from 30 to 15 tons / 24 h

1500 dwt, 12 knots
Fuel consumption reduced from 15 to 7 tons / 24 h
EXPERIENCE AND RECENT SUCCESSES

**ARMADA OFFSHORE**
Wärtsilä scope of supply: Wärtsilä is supplying an integrated design and equipment solution for Malaysian owner Armada Offshore MPSV. The comprehensive solution comprises the basic customized design, the main power generation system, the propulsion system, the Wärtsilä Low Loss Concept (LLC) electrical system and the automation system.

Shipowner: Armada Offshore MPSV
Shipyard: Fujian Mawei Shipbuilding Ltd, China

**HARVEY GULF**
Wärtsilä scope of supply: Wärtsilä is delivering an integrated system including the dual-fuel machinery, an electrical and automation package, the complete propulsion system and the LNG fuel storage and handling components to a series of LNG-powered U.S flagged vessels.

Shipowner: Harvey Gulf
Shipyard: TY Offshore Yards, US

**SUBSEA 7**
Wärtsilä scope of supply: Wärtsilä is providing a state-of-the-art, technologically advanced vessel design for a highly sophisticated Diving Support Vessel to be built at the Hyundai Heavy Industries (HHI) shipyard in Korea.

Shipowner: Subsea 7
Shipyard: Hyundai Heavy Industries (HHI)

**DEEP ENERGY**
Wärtsilä scope of supply: VS 4240 PLV design for one of the world’s largest rigid pipelay vessels.

Shipowner: Technip
Shipyard: STX yard, China/Norway
Delivery: 2013

**SIEM PEARL**
Wärtsilä Scope of supply: VS 491 AHTS CD ship design, two Wärtsilä 16V32 engines, two gearboxes (SCH 105), two controllable pitch propellers and Wärtsilä Low Loss Concept.

Shipowner: Siem Offshore
Shipyard: Kleven Maritime

**VESTLAND CETUS**
Wärtsilä’s scope of supply: VS 485 Mk III ship design, four Wärtsilä 9L20 diesel generator sets, the electric propulsion system, and integrated automation systems, including PMS.

Shipowner: Vestland Offshore
Shipyard: Fjellstrand Verft AS
Delivery: 2012

---

WÄRTSILÄ® is a registered trademark. Copyright © 2013 Wärtsilä Corporation.