At the leading edge of engine and propulsion technology

There is a proud tradition behind the Rolls-Royce Bergen engine series. Since 1946 we have developed, manufactured and installed engines, meeting the requirements of shipowners and operators for robust, reliable and economical engines. These engines meet the most stringent environmental requirements while delivering high performance.

In the early 1980’s, the company developed a lean burn combustion system and applied it to engines using various types of gas as fuel. The system combines a high thermal efficiency with high power density and low emissions. The first Bergen gas engines went into service in 1991. This has given Rolls-Royce an unrivalled track record and expertise as the marine industry turns towards engines burning natural gas for propulsion, with the aim of drastically reducing exhaust emissions of carbon dioxide, NOx, SOx and soot.

Diesel engines are available in the 1,800 – 8,000kW power range and gas engines from 1,400 – 7,000kW.

Rolls-Royce provides complete diesel or gas-powered propulsion systems ‘from the bunkering flange to the propeller thrust’.

A number of Norwegian double-ended ferries are powered by Bergen natural gas engines.

Bergen engines are type-approved for operation as emergency generator sets on mobile offshore drilling units after successful testing at 25 degrees of inclination.

NOx emission for Bergen engines

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A force in marine propulsion

Rolls-Royce is a leading developer and producer of medium speed diesel and gas propulsion engines and generator sets. A supplier with the capability to meet your requirements regarding performance and cost-effectiveness.

Continual research and development is a key to Rolls-Royce success, with an investment in the whole product range exceeding GBP 6 billion in the last decade. This is combined with a technology and skill base built up over more than a hundred years. Today, Rolls-Royce provides the broadest range of marine products in the industry.

Our commitment to customer satisfaction is your assurance of the highest levels of quality, performance and applications expertise, and Rolls-Royce has a truly international presence providing service and maintenance support worldwide.

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NOx emission for Bergen engines
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NOx emission for Bergen engines

- R60 D35 for diesel engines
- W10/12 with exhaust heat recovery
- C12/13 dieselshaft/Shaft Bergen version
- R55 gas
- G53/33 gas

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Rolls-Royce diesel & gas engines

Bergen marine engines are supplied either for mechanical transmission driving the propeller through a reduction gear, or as complete generating sets for electric propulsion or power generation.

All Bergen engines are designed under a common philosophy:

- Optimum load response
- Environmentally friendly, IMO Tier II-compliant
- Optimum fuel economy
- High power to weight ratio
- Great durability and mechanical strength
- Easy maintenance
- Maximum reliability
- Super-resilient mounting option
- No leakage of fuel into the main lube oil system
- Minimised lube oil consumption
- Control system with redundancy
- Meets all major class requirements
- Proven low life-cycle cost

Bergen marine engines are supplied either for mechanical transmission driving the propeller through a reduction gear, or as complete generating sets for electric propulsion or power generation.

Optimum load response is based on the Pulse turbocharging system. This enables the engine to respond rapidly to load changes, and offers high performance under normal part load operation.

Typical applications:

- Offshore support vessels
- Offshore rigs and platforms
- Tankers
- Cargo vessels
- Fishing vessels
- Passenger ships
- Yachts
- Ferries
- Various types of naval vessels

No fuel leakage into the main oil lube system is due to the Bergen Cofferdam system which ensures safe and reliable operation.

Propulsion engines can be supplied with resilient mountings. This is standard on all generating sets.

Pulsation dampers effectively reduce fuel pulses for improved safety.

A pipe connection plate module carries all the fuel channels, for safe and easy installation and overhaul.
Rolls-Royce diesel & gas engines

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- Super-resilient mounting option
- No leakage of fuel into the main lube oil system
- Minimised lube oil consumption

- Control system with redundancy
- Meets all major class requirements
- Proven low life-cycle cost

Typical applications:
Suitable for:
- offshore support vessels
- offshore rigs and platforms
- tankers
- cargo vessels
- fishing vessels
- passenger ships
- yachts
- ferries
- tugs
- various types of naval vessels

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Bergen BL- and BV-series engines

The compact and powerful Bergen B-series engine range is produced in 6, 8 and 9 cylinder in-line, and V12 and V16 configurations to provide powers of 3,000 to 8,000kW.

All engines have a bore of 320mm with a 400mm stroke and deliver 500kW per cylinder at 750rpm.

The ‘Clean Design’ engines offer NOx emissions 20% below the IMO Tier II NOx curve. Stringent emission levels are met through careful control of combustion and on-engine measures, keeping the same power. Additional sub-systems are not required.

Bergen B-series engines are supplied either as generating sets or for mechanical transmission with reduction gear and controllable pitch propeller, allowing simple installation.

Benefits of selecting a Bergen B engine:

- World-leading fast load response
- Extremely stable frequency, important for frequency-sensitive equipment
- Low vibration/structural noise level due to super-resilient mounting
- Certified to meet IMO Tier II requirements
- Competitive fuel and lubricating oil consumption
- No fuel oil leakage from fuel injection pumps into the lubricating oil system, unique Bergen deflector/collector system
- Single-bearing alternator option for in-line engines with benefit of reduced genset length, and reduced cost through elimination of flexible coupling between engine and alternator
- High power to weight ratio
- Proven low life-cycle cost
- Service-friendly
- 24/7 support from the Rolls-Royce global service network

Typical applications:

Suitable for:
- offshore support vessels
- offshore rigs and platforms
- tankers
- cargo vessels
- fishing vessels
- passenger ships
- yachts
- ferries
- tugs
- various types of naval vessels

Bergen BL- and BV-series engines

Bergen B32:40L9P diesel engine (In-line configuration).

Bergen B32:40V12P diesel engine (Vee-configuration).

Typical applications:

- offshore support vessels
- offshore rigs and platforms
- tankers
- cargo vessels
- fishing vessels
- passenger ships
- yachts
- ferries
- tugs
- various types of naval vessels
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- Cargo vessels
- Fishing vessels
- Passenger ships
- Yachts
- Ferries
- Tugs
- Various types of naval vessels

The Bergen B propulsion engine and generating set range (Liquid fuel)
Bergen C-series engines

The C-series engine is a simple and robust design with a reduced number of components. It is a modern engine at an early phase of its design life. Introduced at 300kW/cyl., it is now rated at 330kW/cyl. and is equally suitable for main propulsion, either with mechanical transmission or in a diesel electric system, or as a marine generating set.

With 6, 8 and 9 cylinders in-line, the Bergen C-series has a range of operating speeds from 720rpm to 1,000rpm and can be supplied for powers of 1,460 to 3,000kW.

Technical highlights
Individual cylinder units can be easily removed for repair or exchange. Each unit, comprising the cylinder head, liner and piston (including upper con rod), can be replaced without disturbing the big end bearing. Pulse turbocharging provides good acceleration and improved performance under normal part-load operation.

Bergen C-series engine benefits:
- World-leading fast load response
- Extremely stable electrical frequency, important for frequency sensitive equipment
- Low vibration/structural noise level due to super-resilient mounting
- Certified to meet IMO Tier II requirements
- Competitive fuel and lubricating oil consumption
- No fuel oil leakage into the lubricating oil system due to the Bergen Cofferdam system
- Single-bearing alternator option for reduced genset length, and reduced cost, through elimination of flexible coupling between engine and alternator
- High power to weight ratio
- The liner, piston, (incl. upper con rod) and cylinder head can be replaced as a single unit without disturbing the big end bearing, saving time and money
- Proven low life-cycle cost
- Service-friendly
- 24/7 support from the Rolls-Royce global service network

Typical applications:
- Suitable for:
  - offshore support vessels
  - offshore rigs and platforms
  - tankers
  - cargo vessels
  - passenger ships
  - ferries
  - tugs
- Various types of naval vessels

Bergen C25:33L9P diesel engine.

Complete cylinder units can be removed for easy servicing or exchange.

CAN bus signal system for easy overview and operation.

Bergen C propulsion engine and generating set range (Liquid fuel)

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The Bergen C-series engine fills the lower part of the Rolls-Royce diesel and gas engine power range.
Bergen C-series engines

The C-series engine is a simple and robust design with a reduced number of components. It is a modern engine at an early phase of its design life. Introduced at 300kW/cyl., it is now rated at 330kW/cyl. and is equally suitable for main propulsion, either with mechanical transmission or in a diesel electric system, or as a marine generating set.

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- Bergen C-series engine benefits:
  - World-leading fast load response
  - Extremely stable electrical frequency, important for frequency sensitive equipment
  - Low vibration/structural noise level due to super-resilient mounting
  - Certified to meet IMO Tier II requirements
  - Competitive fuel and lubricating oil consumption
  - No fuel oil leakage into the lubricating oil system due to the Bergen Cofferdam system
  - Single-bearing alternator option for reduced genset length, and reduced cost, through elimination of flexible coupling between engine and alternator
  - High power to weight ratio
  - The liner, piston, (incl. upper con rod) and cylinder head can be replaced as a single unit without disturbing the big end bearing, saving time and money
  - Proven low life-cycle cost
  - Service-friendly
  - 24/7 support from the Rolls-Royce global service network

The Bergen C propulsion engine and generating set range (Liquid fuel)

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The Bergen C-series engine fills the lower part of the Rolls-Royce diesel and gas engine power range.
The need for vessels to meet increasingly demanding emission levels, particularly near coasts, has seen a rapid rise in the popularity of LNG (liquefied natural gas) and a corresponding increase in availability. With some countries now offering tax incentives for low emissions, LNG is set to become an important marine fuel of the future.

Bergen lean-burn gas engines are designed to burn LNG and are derived from the robust Bergen B diesel range. They share many common components, but with an increased cylinder bore of 350mm. Bergen B-series in-line and C-series gas engines are currently in development and available from 2011.

For marine gas engine installations Rolls-Royce also provides gas handling and storage systems, together with a full range of equipment to provide complete propulsion system solutions ‘from the bunkering flange to the propeller blade’. The double-piped gas fuel system allows a standard engine room solution, with no need for separate engine compartments.

Lean-burn technology

Rolls-Royce was a pioneer in developing modern lean burn gas engine technology, which it has applied to several hundred engines. Lean burn is an Otto cycle with mixture compression and an external ignition source. A rich gas/air mix in a precombustion chamber is ignited and forms a strong ignition source for the very lean mixture in the cylinder for knock-free combustion. This allows the cylinder power to be greatly increased with high efficiency and reduce emissions.

Key features – Bergen gas engines:

- Good fuel economy and lowest emissions over the full operating range
- Solid-state ignition
- Electronic control system constantly monitors and optimises operating parameters to maintain power and emissions across the operating range
- Variable geometry turbochargers and individual timing and diagnostics for each cylinder
- Type approved for direct mechanical propulsion

Typical applications:

Suitable for:
- offshore support vessels
- offshore rigs and platforms
- tankers
- cargo vessels
- fishing vessels
- passenger ships
- yachts
- ferries
- tugs
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Lean-burn technology
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• tugs

NOTE: preliminary data
Upgrading is a good investment

Upgrading and using the correct OEM replacement parts can pay dividends in vessel performance and fuel savings.

Once a product is in service, it is expected to last 25 years or more. During that time there will be tremendous changes in product design and the technology available.

To keep your vessel operating at peak efficiency, and sometimes improve performance, we provide a variety of upgrading solutions.

Worldwide exchange pool

Rolls-Royce has created a large pool of exchange Bergen engines parts and assemblies to ensure customers’ benefit from reduced maintenance costs and docking times, saving both time and money.

Exchange pool parts are available at a number of Rolls-Royce Marine centres around the world, improving availability and reducing delivery time.

Customer benefits:
- Quality overhaul
- Genuine parts
- Latest technology
- Safe operation
- Reduced off-hire time
- Reduced maintenance
- Fixed price
- Easy to budget
- OEM warranty

Training

Our purpose-built engine manufacturing facilities in Bergen, Norway, is the training centre for customers as well as Rolls-Royce service engineers.

Attending a training course led by our Bergen Engines Service dept. is the perfect compliment to newbuild or upgrading projects, ensuring personnel have an in-depth working knowledge of the equipment before it enters service.

Training on-board or at the customers’ own facilities can also be arranged using our own specialists. Complete crews can be cost-effectively trained on new or upgraded equipment.

Tailor-made courses provide more in-depth product and system training and are designed to individual customer requirements.

To discuss your own individual training needs, please contact us.

Worldwide exchange pool

Upgrading spare parts and training
Upgrading is a good investment

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- OEM warranty

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Training

Our purpose-built engine manufacturing facilities in Bergen, Norway, is the training centre for customers as well as Rolls-Royce service engineers.

Training on-board or at the customers’ own facilities can also be arranged using our own specialists. Complete crews can be cost-effectively trained on new or upgraded equipment.

Tailor-made courses provide more in-depth product and system training and are designed to individual customer requirements.

To discuss your own individual training needs, please contact us.

Worldwide exchange pool

Upgrading is a good investment

Upgrading and using the correct OEM replacement parts can pay dividends in vessel performance and fuel savings.

Once a product is in service, it is expected to last 25 years or more. During that time there will be tremendous changes in product design and the technology available.

To keep your vessel operating at peak efficiency, and sometimes improve performance, we provide a variety of upgrading solutions.

Worldwide exchange pool

Rolls-Royce has created a large pool of exchange Bergen engines parts and assemblies to ensure customers’ benefit from reduced maintenance costs and docking times, saving both time and money.

Customer benefits:
- Quality overhaul
- Genuine parts
- Latest technology
- Safe operation
- Reduced off-hire time
- Reduced maintenance
- Fixed price
- Easy to budget
- OEM warranty

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Global service and support

The Rolls-Royce service and support concept has been developed to secure complete life-cycle support for your ship and its equipment.

We enable you to choose the kind of service level you need in the most cost-efficient way. Choose between day-to-day servicing, a variety of service agreements or a full service solution.

The PARTNER SOLUTION

Our comprehensive service agreement LifeLong support means less down-time, low life-cycle costs and high second-hand value. The partner solution provides you with these important advantages. This service solution allows you to optimise your daily routines, and ensures that our support agreement gives you access to daily routines, and ensures that our in-house repair and maintenance centres all over the world.

Save time and money

Time is crucial, so swift and correct response to enquiries or problems is of mutual benefit to us and our customers. Our in-house repair and maintenance centres all over the world, backed by a first class worldwide, backed by a first class local. We offer 24-hour availability anywhere, no matter where you are.

A Rolls-Royce service centre is never far away, no matter where you are. We are always present to increase reliability and economy for your applications’ operating conditions.

SERVICE AGREEMENTS

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The agreement also includes access to our in-house repair and maintenance centres all over the world.

WORLDWIDE AVAILABILITY

We are always present

A Rolls-Royce service centre is never far away, no matter where you are. With a comprehensive network of service centres around the world, we are a global company and yet still local. We offer 24-hour availability worldwide, backed by a first class logistics system, which secures you rapid response to inquiries within the shortest possible time.

Rolls-Royce gives a guarantee on all repairs carried out. The length depends on the type of work and the specific application.
The Rolls-Royce service and support concept has been developed to secure complete life-cycle support for your ship and its equipment.

We enable you to choose the kind of service level you need in the most cost-efficient way. Choose between daily routines, and ensures that our结构你的 own after-sales service to increase reliability and reduce life-cycle costs and proven important advantages. This service lifelong support means less down-time, low life-cycle costs and proven important advantages.

A comprehensive service agreement comprises all the benefits mentioned above. This service agreement includes access to worldwide, backed by a first class inspections and personnel training.

These include delivering original spare parts supplies, wherever and whenever you need them. The agreement also includes access to our in-house repair and maintenance centres all over the world.

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We are always present

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SERVICE AGREEMENTS
Save time and money

Time is crucial, so swift and correct response to enquiries or problems is of mutual benefit. Our aim is to increase your profitability by implementing long-term and cost-effective service agreements. These include delivering original replacement units, regular on-site inspections and personnel training.

BASIC SUPPORT
We get you back in business

Our service and support concept is based on reliability, determination and the expertise to carry out services and deliveries at short notice. A basic support agreement gives you access to our skilled field workers and genuine spare parts supplies, wherever and whenever you need them.

The agreement also includes access to our in-house repair and maintenance centres all over the world.

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Draperies

The length depends on the type of work and the specific application.
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Reliable power