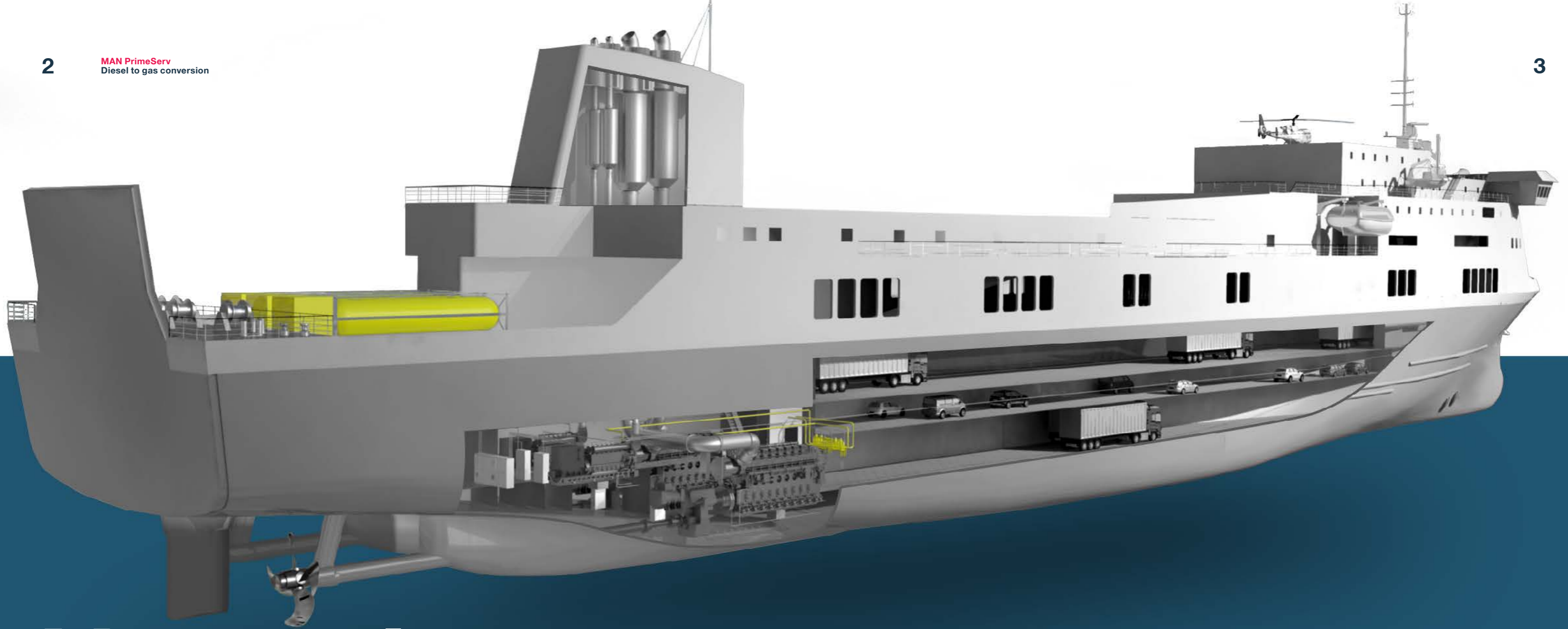




Diesel to gas conversion

MAN PrimeServ





Natural gas – fuel of the future

New fuels – new options

As the availability of natural gas increases worldwide, gas powered engines are becoming more and more attractive for power generation in landbased and marine applications.

Operators are looking for solutions that make use of gas in their existing diesel engines wherever possible.

Fuel flexibility

Dual-fuel engines provide the ability to run on either gas or liquid fuels and hence offer a wider plant availability.

In a scenario of fluctuating fuel prices, operators can choose the most economic fuel depending on the current price.

Improvement of emissions

Like pure gas engines, dual-fuel engines running in gas mode have a better emission profile with regard to nitrogen oxides and carbon dioxide. The NO_x emissions of a 51/60 DF engine in gas mode for example, are up to 90 % lower in comparison to liquid fuel operation.

Emissions of the greenhouse gas CO₂ are also reduced significantly by approximately 20 %. Emissions of SO_x are almost zero and mainly depend on the quality of the pilot fuel oil used.

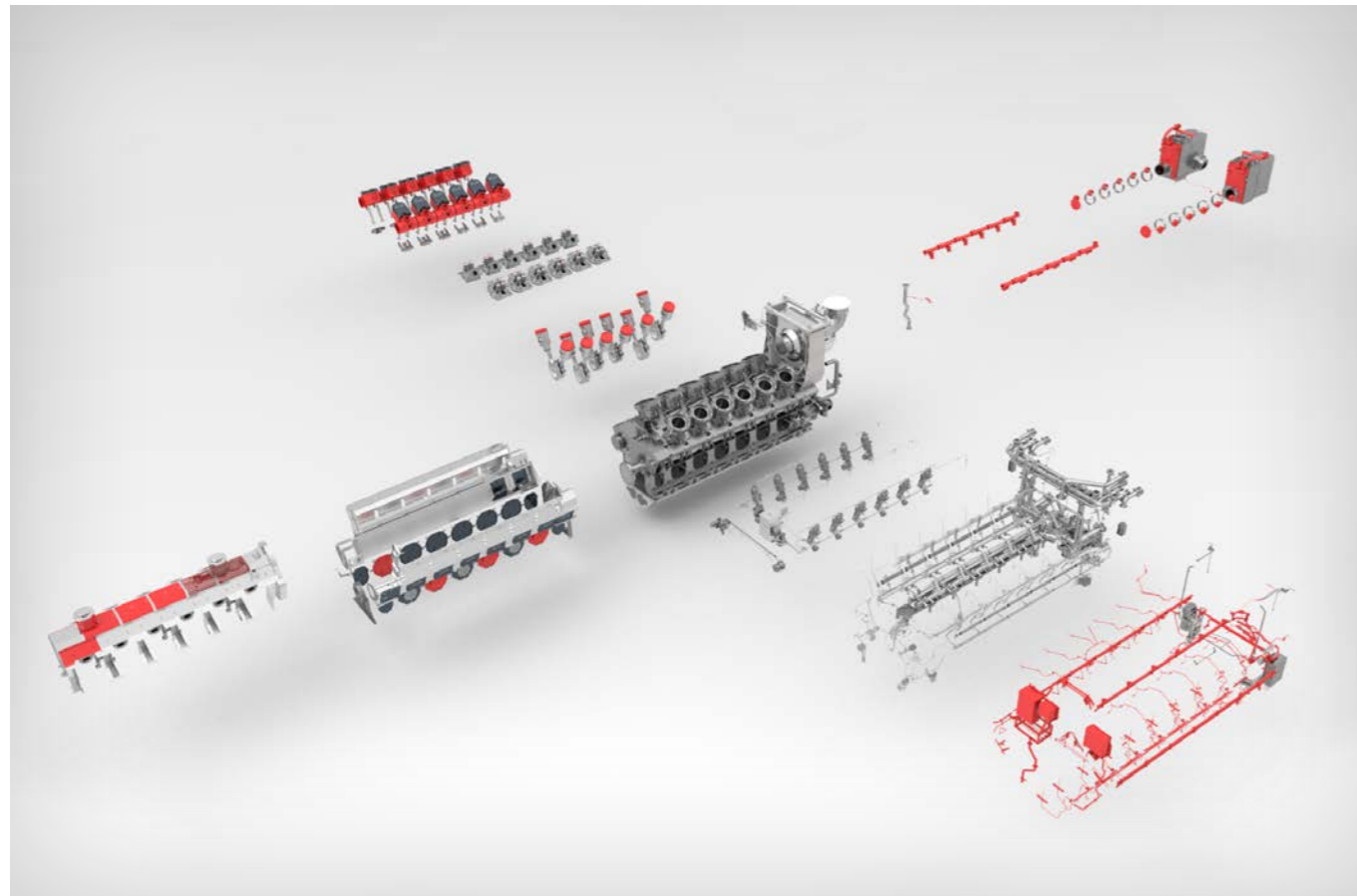
In gas mode, all our DF engines fulfill the strict IMO Tier III NO_x limitations for maritime Emission Control Areas (ECAs).

Upgrade now

Upgrade solutions for existing diesel engines to dual-fuel capability are a suitable way to benefit from higher efficiency and lower emissions in combination with an extension of the engine's lifetime.

Conversion packages

Solutions for marine and stationary applications



MAN Energy Solutions delivers complete dual fuel conversion packages as well as modified turbochargers. We offer a customized adaption of gas related plant equipment, engine control and safety installations. Our highly experienced service engineers conduct the conversion and commissioning of the engines to gas operation. To complete the package, MAN PrimeServ Academies offer theoretical and hands-on training for the operators of our upgraded equipment.

Benefits

Derived from well proven diesel engines

Due to the well-known family concept for MAN engine design, MAN Energy Solutions provides dual fuel conversion packages for most of its diesel engine portfolio.

Engine control upgrade

For gas operation, the latest Safety and Control System (SaCoS) will be installed, based on the latest state-of-the-art technology.

Gas start capability

MAN Energy Solutions offers the exclusive ability to start dual fuel engines in gas mode.

References

In recent years, we have successfully completed several stationary and marine conversions, including the world's first dual fuel retrofit of a 1000 TEU container feeder vessel.

Committed to the future

MAN Energy Solutions together with our customers foresee a future where DF conversions will expand across several vessel types within the marine sector, including, but not limited to; cargo vessels, dredgers, Ro-Pax ferries and cruise liners. MAN Energy Solutions will of course continue to convert power plants to a gas fueled future.

Conversion experience

As field experience shows, even engines that have logged more than 100,000 operating hours can benefit from a DF conversion.

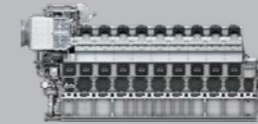
Economically, the best approach for the operator is to carry out the DF upgrade at the time of a planned major overhaul.

Further LNG solutions

Standard LNG tanks
Smallbore DF engines
Two-stroke DF engines

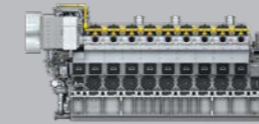
MAN engine portfolio

for diesel to gas upgrades



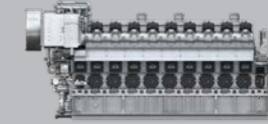
L+V48/60
Existing engines

Marine & Power Plant
GenSet & Propulsion



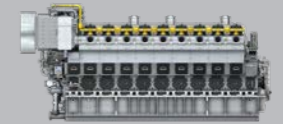
L+V51/60DF
Upgrades

Marine & Power Plant
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L+V51/60
Existing engines

Power Plant GenSet



L+V51/60DF
Upgrades

Power Plant GenSet



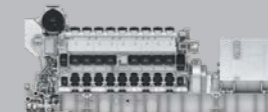
L+V32/40
Existing engines

Marine & Power Plant
GenSet



L+V32/40DF
Upgrades

Marine & Power Plant
GenSet



L32/44CR TII
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Marine GenSet &
Propulsion



L35/44DF
Upgrades

Marine GenSet &
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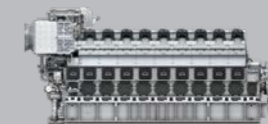
L+V32/40
Existing engines

Power Plant GenSet



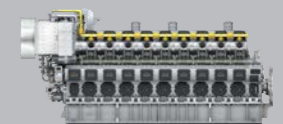
L+V32/40G
Upgrades

Power Plant GenSet



V48/60
Existing engines

Power Plant GenSet



V51/60G
Upgrades

Power Plant GenSet

Worldwide service

100

Service centers worldwide

Represented in all key markets and major ports, with a network of more than 100 service centers, and with skilled field service managers at the ready to provide first-class technical support, MAN PrimeServ is fully primed to provide 24/7 service, wherever you are.

In power plants, marine engines & systems and turbomachinery, offering reliable technical support when you need it most, our service solutions include OEM spare parts, engine and machinery maintenance and repairs, customized service agreements and individual consulting.

For existing equipment our holistic retrofit and modernization solutions keep your engines or turbochargers up-to-date and at optimal levels of reliability, availability and economic

efficiency. Through cutting edge digital technology we're able to hike performance and minimize downtimes, while our remote connections enable live data analysis, ensuring quick, effective solutions. MAN PrimeServ Academies provide expert training courses around the world, developing the operational and maintenance skills required.

For more information please visit www.man-es.com/primeserv



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DieselFacts brings you the most recent news from the world of two-stroke and four-stroke engines, including the latest technical papers, in-depth features and videos.

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D2366602 Printed in Germany
31M-08181