Sustainable, reliable power for a greener future

MAN L23/30DF L28/32DF

MAN Energy Solutions
Future in the making

Sustainable, reliable power for a greener future
Future in the making

MAN Energy Solutions is the world’s leading provider of large-bore diesel engines, turbomachinery, and integrated power systems. We make four-stroke and two-stroke engines for marine and stationary applications, turbochargers and propellers, gas and steam turbines, compressors and chemical reactors.

Our marine systems expertise is focused on emission reduction, complete propulsion packages, electrical propulsion, dual-fuel, LNG, and digitized services.

In the competitive field of liquefied natural gas shipping, with its fluctuating fuel prices, we offer cost-effective propulsion systems that comply with all emissions legislation and meet strict safety requirements.
Dual fuel serves a dual purpose
The concept of dual-fuel engines is not a new one, but up until recently these engines were designed to satisfy market demand to utilize excess natural gas as a supplemental fuel. Now, there’s a growing need for engines using natural gas to reduce environmental impact alongside the economic benefits. Meeting the challenge of more eco-friendly energy systems, without compromising on their reliability and cost-effectiveness, requires a new way of thinking.

MAN has risen to the occasion with proven two-stroke main engines and four-stroke GenSet engines. Each one is designed to comply with all modern emissions legislation, up to and including Tier III. A greater part of the world’s shipping sails under the power of MAN Energy Solutions, and we recognize that every step we take to make our engines more efficient can have a measurable effect on both environment and your bottom line.
Cut down emissions in four strokes
When you choose an MAN dual-fuel engine, you choose a power solution that meets or exceeds the strict requirements that vessels operate under when sailing in environmentally sensitive regions. The L23/30DF and L28/32DF are based on proven classic GenSet designs: L23/30H and L28/32H, recognized worldwide as reliable HFO-aux. engines, easy to operate and maintain.

A legacy of efficiency

The L23/30H and L28/32H GenSets are some of the world’s most popular marine engines, more than 16,000 are in service today. The L23/30DF and L28/32DF are a variant of the legendary reliability and availability of their predecessors. Maintenance is simple, spare parts are easy to obtain, and time between overhaul (TBO) extends up to 36,000 hours. All this has a positive effect on your fleet expenditure.

Retrofitting: the economical option

With the popularity of the L23/30H and L28/32H GenSets, it’s natural that both engines come as a retrofit option. Update your vessels with dual fuel, spending minimal time in dry dock, and return them to peak operating performance and peak earning potential quickly.
Exceptional in every way

L23/30DF and L28/32DF
Impressive power output
- From 625 kW to 1,800 kW
- 110% MCR in both fuel or gas mode

Full compliance with IMO regulation
Tested in gas mode without any after-treatment equipment:
- Tier III for L23/30DF
- Tier III for L28/32DF

Completely reliable
L23/30DF and L28/32DF are variants of the world’s most popular marine engines, L23/30H and L28/32H.
- 16,000 units in active service
- Spare parts are always available

Supremely cost-effective
- Easy installation with flexible engine room layout
- Simple, single injector
- Low maintenance costs and long TBO of up to 36,000 hours
- Retrofit packages available
Efficient dual-fuel operation

Reliable, robust and cost-effective

Dual-fuel engines give you the ability to select the most economic fuel for the operating condition. The simplified fuel injection system is designed for high reliability and cost-efficiency. The main injection valve is also used for injection of pilot oil. This means that separate injectors, piping and pumps for main oil and pilot oil or a common rail system are not needed.

Installation and configuration are other areas where MAN dual-fuel engines improve cost-effectiveness. The monocoque design simplifies the installation of the engine series and reduces weight. The unique fuel injection system eliminates the need for a separate fuel oil injection system and a pilot oil system, saving on installation costs and maintenance.
## Technical data

### MAN L23/30DF

#### Dimensions

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* Based on nominal generator efficiencies of 95%. Gas methane number ≥ 80.
General
- Engine cycle: four-stroke
- No. of cylinders: 5-8
- Bore: 225 mm
- Stroke: 300 mm

Power range and power output (MCR)
- Power range: 625 – 1,200 kW
  - 720/750 rpm: 125 kW per cylinder
  - 900 rpm: 150 kW per cylinder
- Gas mode: 110% MCR
- Fuel mode: 110% MCR

Compliance with emission regulations
720/750/900* rpm
- Gas mode: IMO Tier III
- Fuel mode: IMO Tier II

* For 900 rpm IMO Tier III compliance in Q2, 2019

Reliability
The L23/30H conventional fuel oil engine has a strong global reputation for operational stability and reliability. Based on the same basic design, the L23/30DF dual-fuel version has passed its type approval test (TAT) and achieved a certificate of IMO Tier III compliance when operating in gas mode without any after-treatment equipment.

Cost-effective
The simplified fuel injection system is designed for high reliability and cost-efficiency. The main injection valve is also used for injection of pilot oil. This means that separate injectors, piping and pumps for main oil and pilot oil or a common rail system are not needed.

Lower installation costs
The new base frame design is a cost-cutting initiative that simplifies installation, given that levelling is not necessary and steel work can be reduced.

Flexible engine room layout
The engine and gas valve units (GVU) offer flexible installation as the distance between the two can be up to 100 m.

Low maintenance costs
The simplified fuel injection design also cuts maintenance costs, as fewer parts need to be replaced and thanks to the extremely long time between overhaul (TBO) of up to 32,000 hours.
### Technical data MAN L28/32DF

#### Dimensions

<table>
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<th>Cyl. No.</th>
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*Based on nominal generator efficiencies of 95%. Gas methane number ≥ 80.*
General
- Engine cycle: four-stroke
- No. of cylinders: 5-9
- Bore: 280 mm
- Stroke: 320 mm

Power range and power output (MCR)
- Power range: 1,000 – 1,800 kW
- 720/750 rpm: 200 kW per cylinder
- Gas mode: 110% MCR
- Fuel mode: 110% MCR

Compliance with emission regulations
720/750 rpm
- Gas mode: IMO Tier III
- Fuel mode: IMO Tier II

Reliability
The L28/32H conventional fuel oil engine has a strong global reputation for operational stability and reliability. Based on the same basic design, the L28/32DF dual-fuel version has passed its type approval test (TAT) and achieved a certificate of IMO Tier III compliance when operating in gas mode without any after-treatment equipment.

Cost-effective
The simplified fuel injection system is designed for high reliability and cost-efficiency. The main injection valve is also used for injection of pilot oil. This means that separate injectors, piping and pumps for main oil and pilot oil or a common rail system are not needed.

Low maintenance costs
The simplified fuel injection design cuts maintenance costs as fewer parts need to be replaced and thanks to the extremely long time between overhaul (TBO) of 36,000 hours.

Flexible engine room layout
The engine and gas valve units (GVU) offer flexible installation as the distance between the two can be up to 90 m.
MAN PrimeServ

Service with passion
MAN PrimeServ is the dedicated MAN Energy Solutions service brand. Via a network of over 100 service centers worldwide, MAN PrimeServ provides 24/7 service across the globe. Our range of services includes technical support, consulting and OEM spares, as well as maintenance, repair and comprehensive individualized service plans.

MAN PrimeServ aims to provide

- Prompt delivery of high-demand OEM spare parts within 24 hours
- Fast, reliable and competent customer support
- Individually tailored O&M contracts
- Ongoing training and qualification of operators and maintenance staff
- Global service, 24 hours a day, 365 days a year
- Diagnosis and troubleshooting with our high-performance online service
We offer retrofitting and upgrade services to bring engines and turbochargers already in service up to the very latest standards of performance and efficiency.

Using the latest digital technology, we enable you to maximize the performance and availability of your MAN equipment by accessing real-time data analysis, remote support and rapid solutions. We also offer an extensive range of training courses at MAN PrimeServ academies around the world.

Our service does not vary according to location. We know that a vessel may be built in Asia, operated in Europe for ten years and then moved to Africa for the next ten years. That does not alter our focus on dedicated training, fast delivery of strategic spare parts, a comprehensive approach, or our tailored maintenance contracts.

For more information please visit www.man-es.com/primeserv
100 service centers worldwide
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