

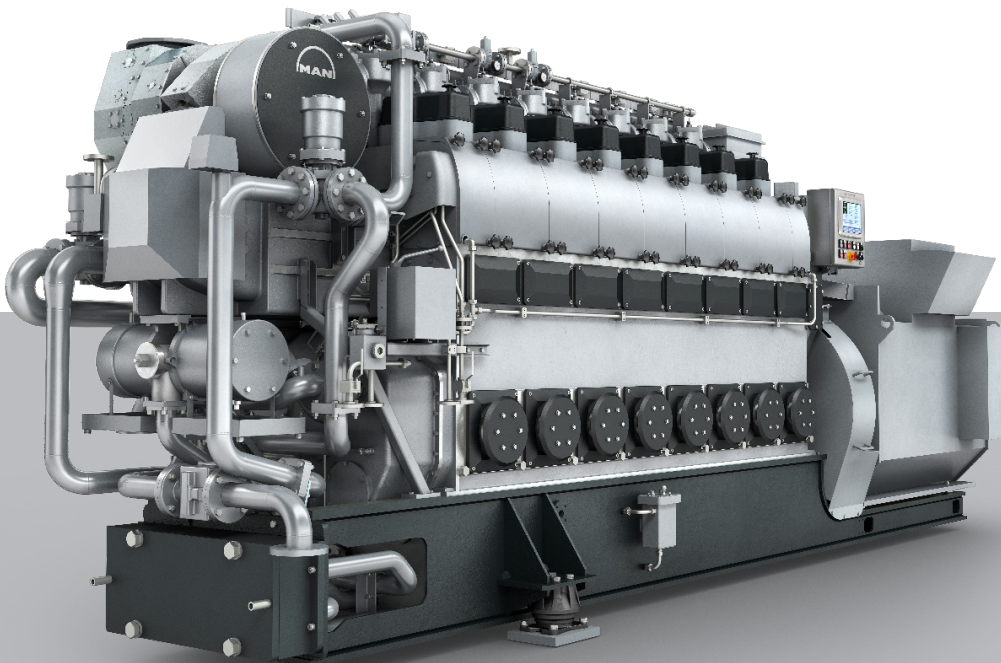
MAN small-bore dual fuel engines

MAN Energy Solutions has developed reliable and cost-efficient dual-fuel (DF) gensets, based on a proven reference base. L23/30S-DF and L28/32S-DF are derived from the proven classic "H" genset designs, recognized worldwide as ultra-reliable and robust engines. These gensets can switch seamlessly between gas and liquid fuel mode, depending on current availability or fuel price.

The dual-fuel gensets running on gas possess inherent advantages in terms of reducing emissions, yielding high efficiency and sustain full fuel flexibility. They round off the lower end of the power range of MAN dual fuel engines with proven quality and reliability.

Benefits at a glance

- Competitive CAPEX, e.g. only one system for liquid fuel (main and pilot)
- Low maintenance costs due to extended TBOs
- Excellent load step performance in dual fuel mode
- Flexible installation
- Safe & reliable operation – design is based on engine types with decades of service experience



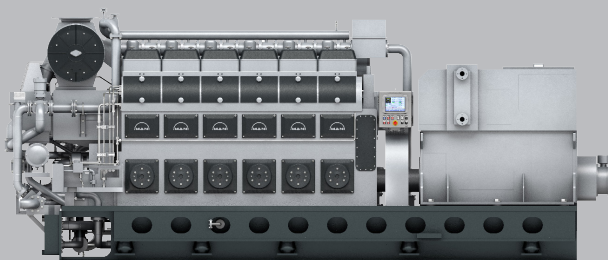
MAN small-bore DF engines

L28/32S-DF

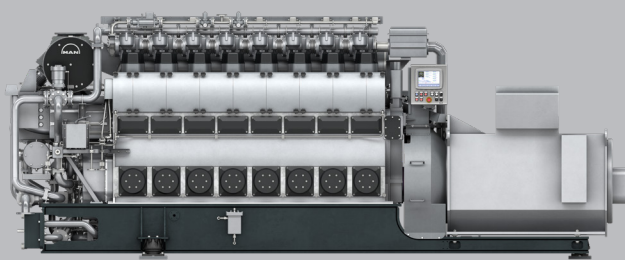
Engine cycle		Four-stroke				
Bore/ stroke		280/320				
Cyl. No.		5L	6L	7L	8L	9L
Output genset elect.	kW	960	1,152	1,344	1,552	1,746
Speed	rpm	750/720	750/720	750/720	750/720	750/720
Frequency	Hz	50/60	50/60	50/60	50/60	50/60

L23/30S-DF

Engine cycle		Four-stroke										
Bore/ stroke		225/300										
Cyl. No.		5L	6L	7L	8L	9L						
Output genset elect.	kW	600	600	720	720	864	840	840	1,008	960	960	1,152
Speed	rpm	750	720	750	720	900	750	720	900	750	720	900
Frequency	Hz	50	60	50	60	60	50	60	60	50	60	60



L28/32S-DF



L23/30S-DF

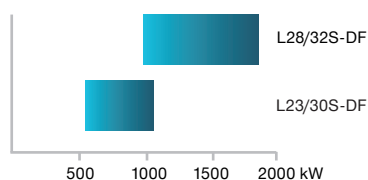
Values according to ISO 3046-1:2002; ISO 15550:2002. Last updated January 2021

Engine features

General data

- Engine cycle: four-stroke
- Engine type: L23/30S-DF and L28/32S-DF
- Fuel: dual fuel (gas and pilot fuel)

Electrical Output



Emissions

- Worldbank 2008
- With available after treatment solutions even far below Worldbank 2008

Starting system

- Pressurized air starter (turbine type)

Turbocharging system

- Constant pressure system and intercooling
- TCR series exhaust turbocharging system

Injection system

- Engine is equipped with one injector for liquid fuel (main and pilot)

Engine functionality

- The engine starts on MGO
- Gas injection starts from 20% load and stops at 10% load
- The engine can run 110% load in liquid fuel mode and gas mode
- Uninterrupted change-over from gas mode to liquid fuel mode in whole load range
- Excellent load step performance in dual-fuel mode operation

Engine fuel options

- Main fuel: natural gas with MN \geq 80
- Pilot fuel: DMA and DMZ according ISO 8217-2010
- Dual fuel engine
- Liquid engine, dual-fuel ready; most DF components preinstalled

Applications

- Base load: High load on grid applications with high reliability
- Island mode: Best in class load-step and dynamic genset performance

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