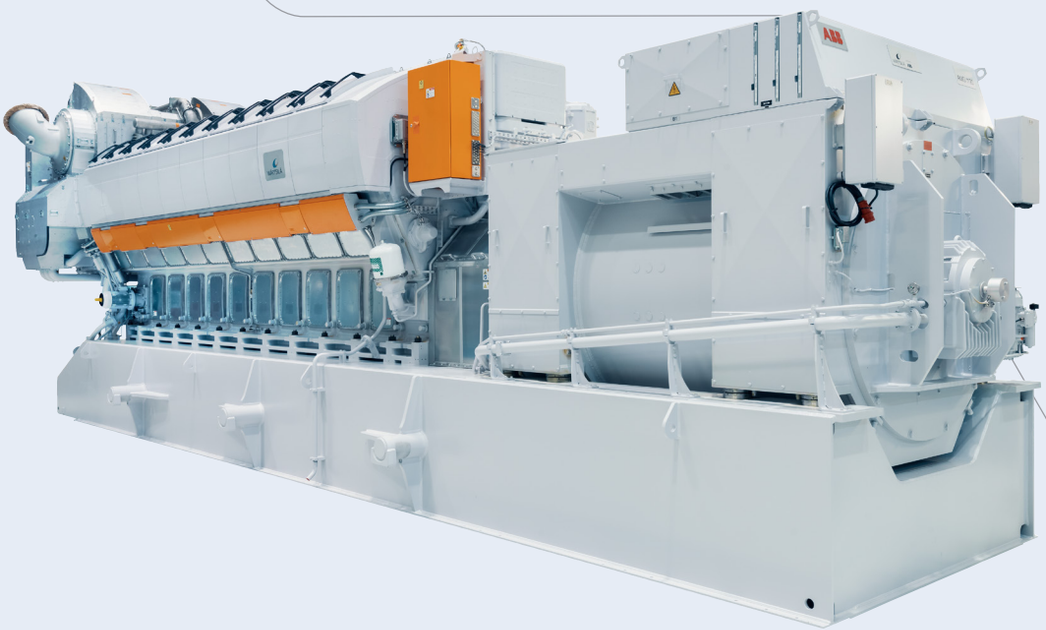


WÄRTSILÄ 31SG

Gas engine generating set

The most efficient gas engine, Wärtsilä 31SG, is a four-stroke, spark-ignited, lean-burn gas engine generating set. With its world class open-cycle efficiency and unparalleled dynamic capabilities, it reduces environmental footprint and lowers the total cost of ownership.

Wärtsilä 31SG is well suited for baseload production, balancing renewables and industrial applications where reducing carbon emissions while producing reliable power is crucial. Its unlimited capability of fast start and shut-down and ability to run on sustainable fuels secures low emissions and high efficiency. It also meets the specific needs of combined heat and power (CHP) plants, for example steam generation, hot or chilled water or a combination of the above.

We help our customers in decarbonisation by developing market-leading technologies such as flexible power plants that can be delivered as engineered equipment (EEQ) or as engineering, procurement and construction (EPC). With our full lifecycle support we ensure guaranteed performance of the plant.

Key benefits

- World-class open-cycle efficiency enabled by 2-stage turbocharging system
- Adaptability for various gas qualities
- Capable of hydrogen blending
- Excellent load following capabilities
- Cost efficient maintenance
- Optimised performance and efficiency supported by Wärtsilä Lifecycle solutions

52.1

% electrical efficiency

12.8

MW electrical power

30

seconds power to grid

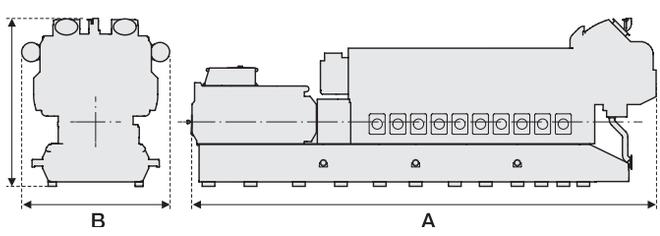
Main technical data

Engine generating set						
Cylinder configurations	20 V					
Cylinder bore	310 mm					
Piston stroke	430 mm					
Engine speed	750 rpm (50 Hz), 720 rpm (60 Hz)					
Performance [1]						
	WÄRTSILÄ 31SG		**WÄRTSILÄ 31SG Efficiency optimised**		**WÄRTSILÄ 31SG Balancer**	
Rated electrical power (kW)	11 779 (50 Hz)	11 377 (60 Hz)	10 790 (50 Hz)	10 389 (60 Hz)	12 762 (50 Hz)	12 372 (60 Hz)
Electrical efficiency (%)	51.5 (50 Hz)	51.6 (60 Hz)	52.0 (50 Hz)	52.1 (60 Hz)	50.2 (50 Hz)	50.4 (60 Hz)
Heat rate (kJ/kWh)	6 986 (50 Hz)	6 971 (60 Hz)	6 922 (50 Hz)	6 907 (60 Hz)	7 165 (50 Hz)	7 142 (60 Hz)
Loading and unloading						
	Connected to grid		**Full load**			
Regular start time (min:sec)	00:30		< 5:00			
Fast start time (min:sec)	00:30		< 2:30			
Shut-down time (min)	< 2					
Ramp rate (hot, load /min)	> 100%					
Minimum load						
Unit level	10%					
Plant level	Equal to minimum load of one unit					
Minimum up- & down times						
Minimum up-time (time to operate after start, before stopping)	< 1 min					
Minimum down-time (before re-start is possible)	< 1 min					

Maximum transportation dimensions (mm) and weight (tonnes) [2]				
Genset type	**Length (A)**	**Width (B)**	**Height (C)**	**Dry weight**
20V31SG	14 412	3 893	5 090	182

1 Rated electrical power and electrical efficiencies are given at generator terminals at 100kPa ambient pressure, 25°C suction air temperature and 30% relative humidity, and without engine driven pumps. Power factor 1.0 (site). NOx emission level 90ppm @15% O2 dry. Electrical efficiency and heat rate with 5% tolerance according to ISO 3046-1. Gas LHV >28MJ/Nm3. Gas methane number >80. Ambient conditions, fuel and local emission limits are impacting on generating set's performance. Please contact Wärtsilä for project-specifically calculated performance data.

2 There are a number of dismantling options available for transportation of the generator set. These include different options for reduced weight and height. Please contact Wärtsilä for further information.



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08/2023