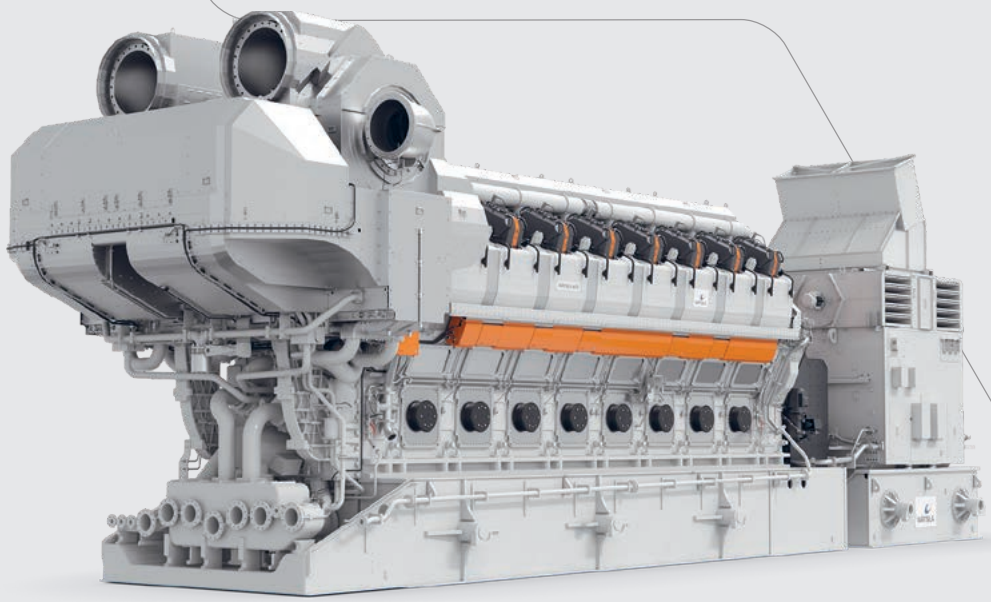


WÄRTSILÄ 46TS-DF

Dual fuel engine generating set

The Wärtsilä 46TS-DF is a four-stroke dual fuel engine generating set offering exceptional output, efficiency, and flexibility. Evolved from a long line of proven and reliable Wärtsilä engines with millions of running hours, this large-bore engine has a 2-stage turbocharging system that enables superior performance, even in challenging environmental conditions.

Wärtsilä 46TS is designed for balancing renewables and to operate cost-efficiently on baseload. The engine's improved output and efficiency save fuel and costs while keeping emissions to a minimum. Its fast-starting capability with unlimited starts and shutdowns maximise your revenue streams. The DF technology allows instant switching to alternative fuels, should price instability or delivery challenges affect the use of the primary fuel. Wärtsilä 46TS is based on future-proof technology that can run on sustainable fuels in the future.

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 the guaranteed performance of the plant.

Key benefits

- High power output (23.4 MW) ensures a small footprint and lowers costs
- World-class efficiency (50.7%) saves fuel and reduces emissions
- Industry-leading flexibility with a 2-minute ramp-up time and no minimum up- or downtime requirements
- Ensures energy security in operation through fuel flexibility and seamless switching between fuels
- Can operate on natural gas or liquid fuel
- Futureproof platform that can run on sustainable fuels in the future

2 min.
from start to full load

50.7
% electrical efficiency

23.4
MW mechanical output

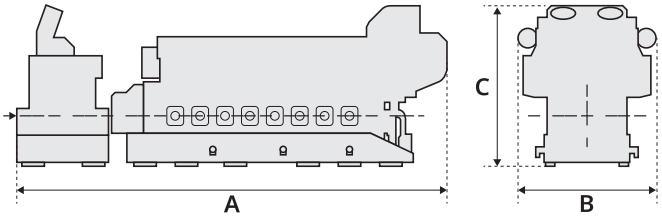
Main technical data

Engine generating set				
Cylinder configurations	16V		18V	
Cylinder bore	460 mm			
Piston stroke	580 mm			
Engine speed	600 rpm			
Performance [1]	**Gas (16V, 18V)**		**LFO (16V, 18V)**	
Rated electrical power	20.38 MW 50/60 Hz	22.93 MW 50/60 Hz	20.38 MW 50/60 Hz	22.93 MW 50/60 Hz
Electrical efficiency (%)	50.7% 50/60 Hz	50.7% 50/60 Hz	49.0% 50/60 Hz	49.0% 50/60 Hz
Heat rate (kJ/kWh)	7105 kJ/kWh 50/60 Hz	7105 kJ/kWh 50/60 Hz	7354 kJ/kWh 50/60 Hz	7354 kJ/kWh 50/60 Hz
Loading and unloading				
Fast connection to grid and full load	120 seconds			
Normal connection to grid and full load	5 minutes			
Regular start time	30 seconds			
Shut-down time	120 seconds			
Ramp rate (hot, load / sec)	1% / second			
Minimum load				
Unit level	10%			
Plant level	Equal to minimum load of one unit			
Minimum up- & down times				
Minimum up-time	No limitation			
Minimum down-time	No limitation			

Maximum transportation dimensions (mm) and weight (tonnes)[2] (16V / 18V)				
Genset type	**Length (A)**	**Width (B)**	**Height (C)**	**Dry weight**
Wärtsilä 46TS-SG	18 902 / 19 952 mm	5 891 / 5 891 mm	6 688 / 6 688 mm	359 / 381 tons

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. Site conditions, fuel and applicable emission limits may have an impact on performance figures. Please contact Wärtsilä for project-specific performance data.

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



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