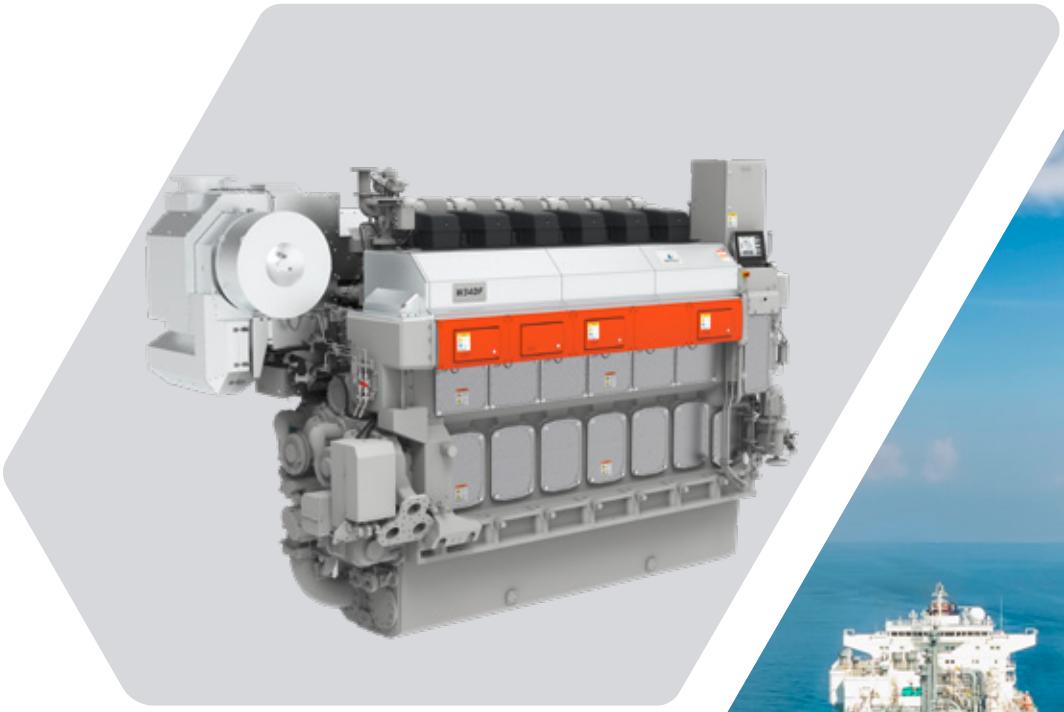
The Wärtsilä 34DF

Sustainable and reliable power for marine applications



WÄRTSILÄ

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The Wärtsilä 34DF provides reliable power with very low emissions. It provides the flexibility to optimise engine operation for both constant-speed generating sets in main engine applications and variable-speed mechanical drives. The engine is based on the proven and reliable Wärtsilä 32 diesel engine introduced in the mid 90s.

Dual-fuel capability means you can operate your vessel on LNG or conventional liquid marine fuels such as LFO, HFO or biofuel. Fuel switching happens seamlessly without loss of power or speed, giving you the option to choose your fuel according to cost and availability and operate on low-emission fuel when sailing in emission control areas (ECAs).

Typical applications

The Wärtsilä 34DF is an ideal main power source for a vast range of marine applications including offshore support vessels and platforms, small LNG carriers, tankers, ferries and tugs. Besides serving as mechanical-drive or diesel/gas-electric main engine, the engine can also operate as an auxiliary genset alongside dual-fuel main propulsion machinery, enabling a fully multi-fuel engine room.

The Wärtsilä 34DF engine is optimised to deliver more power for auxiliary applications, allowing you to optimise your auxiliary power configuration with fewer cylinders and freeing up valuable payload space. The power-up version of the in-line auxiliary model delivers over 8% more power per cylinder.

KEY BENEFITS

- Fully fuel-flexible operation, with ability to run on LNG, HFO or biofuel plus fuel sharing (gas mode operation 0–100%)
- High efficiency and optimised power output for auxiliary applications
- High reliability and safety with advanced combustion control and low gas pressure
- Even lower emissions with optional greenhouse gas (GHG) reduction package

Operational features

The Wärtsilä 34DF is an ideal main engine in configurations from 6L to 16V, giving 500 kW per cylinder and a total maximum mechanical output of 8000 kW. The engine speed is up to 750 rpm. With the current output range of 2610–8000 kW and three in-line (6, 8 and 9L) and two V-cylinder (12 and 16V) configurations, it represents the mid-range of the Wärtsilä 4-stroke multi-fuel engine portfolio for main engine (controlled pitch propeller) and diesel-electric propulsion as well as auxiliary applications. The power-up version of the in-line auxiliary model (6, 8 and 9L) delivers 520 kW per cylinder at 720/750 rpm.

Environmental compliance

The Wärtsilä 34DF is Tier II compliant in diesel mode and Tier III compliant in gas mode. When integrated with a Wärtsilä NOx Reducer (NOR), Tier III compliance can also be achieved in diesel mode. The engine runs efficiently and economically on low sulphur fuels (<0.1% S), making it suitable for operation in emission-controlled areas. The Wärtsilä 34DF also has a certification of emission standard compliance from the United States Environmental Protection Agency (EPA).

An optional GHG reduction package reduces emission levels at different engine loads. If required, these levels can be measured and guaranteed during the factory acceptance tests.

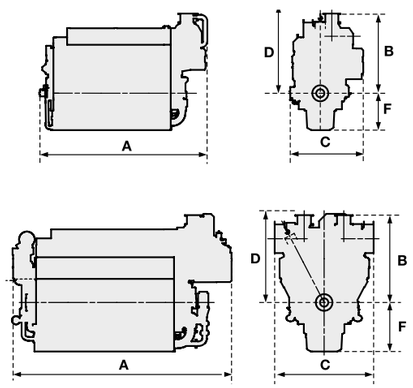
Main engine specifications

Wärtsilä 34DF	
Cylinder bore	340 mm
Piston stroke	400 mm
Cylinder output	480, 500 kW/cyl
Speed	720, 750 rpm
Mean effective pressure	20.0 bar
Piston speed	9.6, 10.0 m/s
Generator efficiency	0.95–0.97

IMO Tier III or EPA T3	
Fuel specification: Fuel oil	
700 cSt/50°C	7200 sR1/100°F
ISO 8217, category ISO-F-DMX, DMA and DMB	
BSEC 7590 kj/kWh	

Rated power – main engine		
Engine type	60 Hz	50 Hz
	480 kW/cyl, 720 rpm	500 kW/cyl, 750 rpm
6L34DF	2880	3000
8L34DF	3840	4000
9L34DF	4320	4500
12V34DF	5760	6000
16V34DF	7680	8000

Engine dimensions (mm) and weights (tonnes)						
Engine type	A	B	C	D	F	Weight
6L34DF	5352	2423	2389	2345	1153	35
8L34DF	6305	2423	2555	2345	1153	45
9L34DF	6796	2423	2609	2345	1153	49
12V34DF	6780	2465	2900	2120	1210	61
16V34DF	7900	2465	2900	2120	1210	77



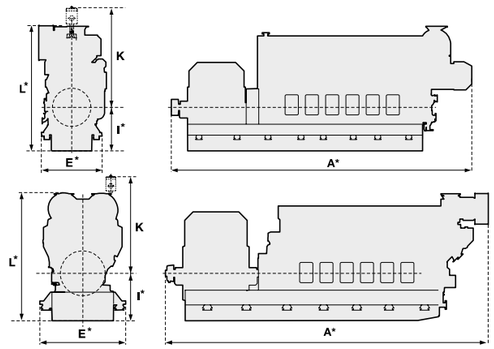
Auxiliary engine specifications

Wärtsilä 34DF	
Cylinder bore	340 mm
Piston stroke	400 mm
Cylinder output	480, 500 and 520 kW/cyl
Speed	720, 750 rpm
Mean effective pressure	22.0 bar (standard version), 23.9 bar (power-up version)
Piston speed	9.6, 10.0 m/s
Generator voltage	0.4–13.8 kV
Generator efficiency	0.95–0.97

IMO Tier III or EPA T3	
Fuel specification: Fuel oil	
700 cSt/50°C	7200 sR1/100°F
ISO 8217, category ISO-F-DMX, DMA and DMB	
BSEC 7464 kJ/kWh (standard version), 7616 kJ/kWh (power-up version)	

Rated power – auxiliary engine				
Engine type	60 Hz	50 Hz	60 Hz (power-up version)	50 Hz (power-up version)
	480 kW/cyl, 720 rpm	500 kW/cyl, 750 rpm	520 kW/cyl, 720 rpm	520 kW/cyl, 750 rpm
6L34DF	2880	3000	3120	3120
8L34DF	3840	4000	4160	4160
9L34DF	4320	4500	4680	4680
12V34DF	5760	6000	N/A	N/A
16V34DF	7680	8000	N/A	N/A

Genset dimensions (mm) and weights (tonnes)						
Engine type	A*	E*	I*	K	L*	Weight
6L34DF	9100	2720	1450	2345	3873	60
8L34DF	10200	2720	1630	2345	4053	75
9L34DF	10800	2920	1630	2345	4053	80
12V34DF	10500	3390	1700	2120	4165	100
16V34DF	11500	3390	1850	2120	4315	125



Wärtsilä Marine Power leads the industry in its journey towards a decarbonised and sustainable future.

Build your success on Wärtsilä's broad portfolio of engines, propulsion systems, hybrid technology and integrated powertrain systems. These building blocks offer you efficiency, reliability, safety and world-class environmental performance.

The offering includes performance-based agreements and lifecycle solutions as well as an unrivalled global network of maritime expertise.

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