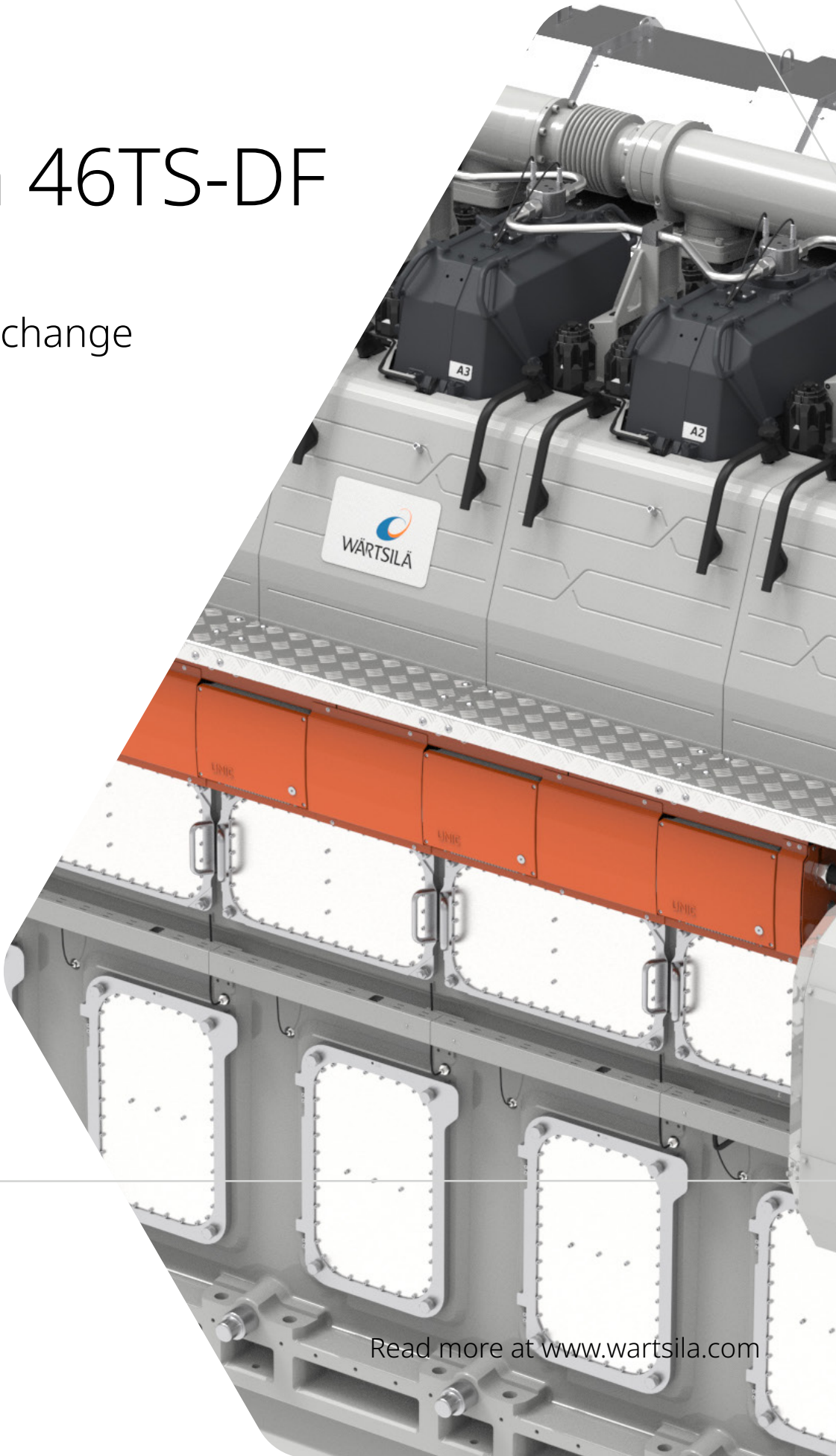
Wärtsilä 46TS-DF

The power to change



Read more at www.wartsila.com

The Wärtsilä 46TS-DF represents the next generation of medium-speed engines and is designed to set a new benchmark for fuel efficiency and emissions performance while offering future-fuel flexibility.

Based on experience collected from the Wärtsilä 46, 46F and 50 engine families, the Wärtsilä 46TS-DF adds state-of-the-art two-stage turbocharging (the TS in the name) to deliver unprecedented levels of efficiency and power density across a wide operational range for vessels in every segment. The engine is available in six to 16-cylinder configurations, corresponding to a power output range of 7.8 to 20.8 MW at 600 rpm.

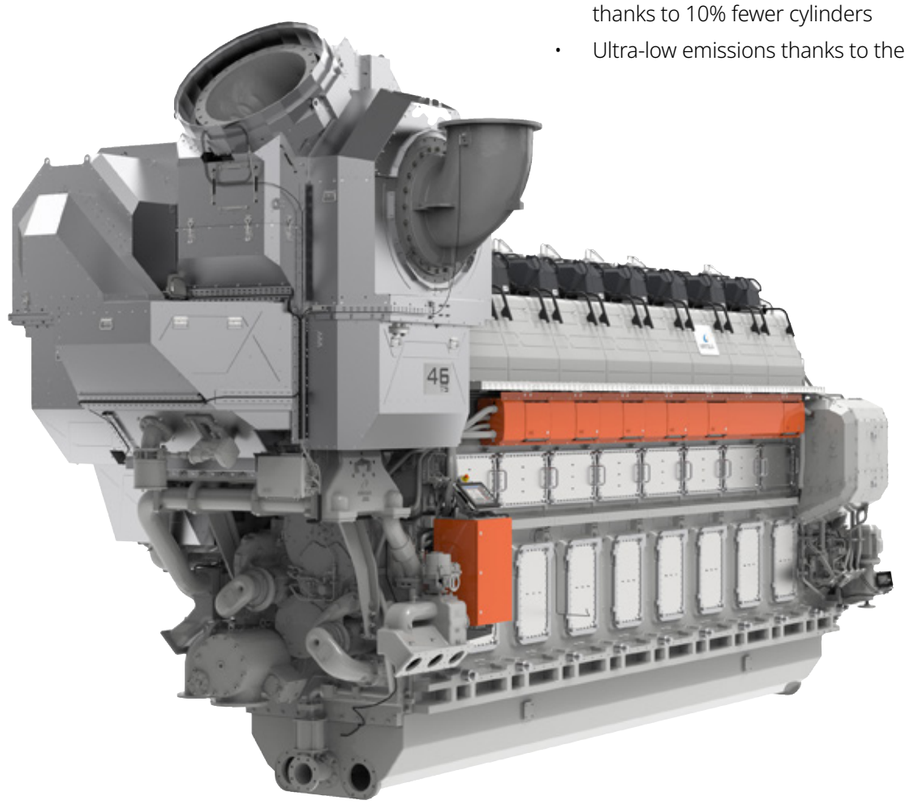
The flexible choice to cut fuel costs and emissions

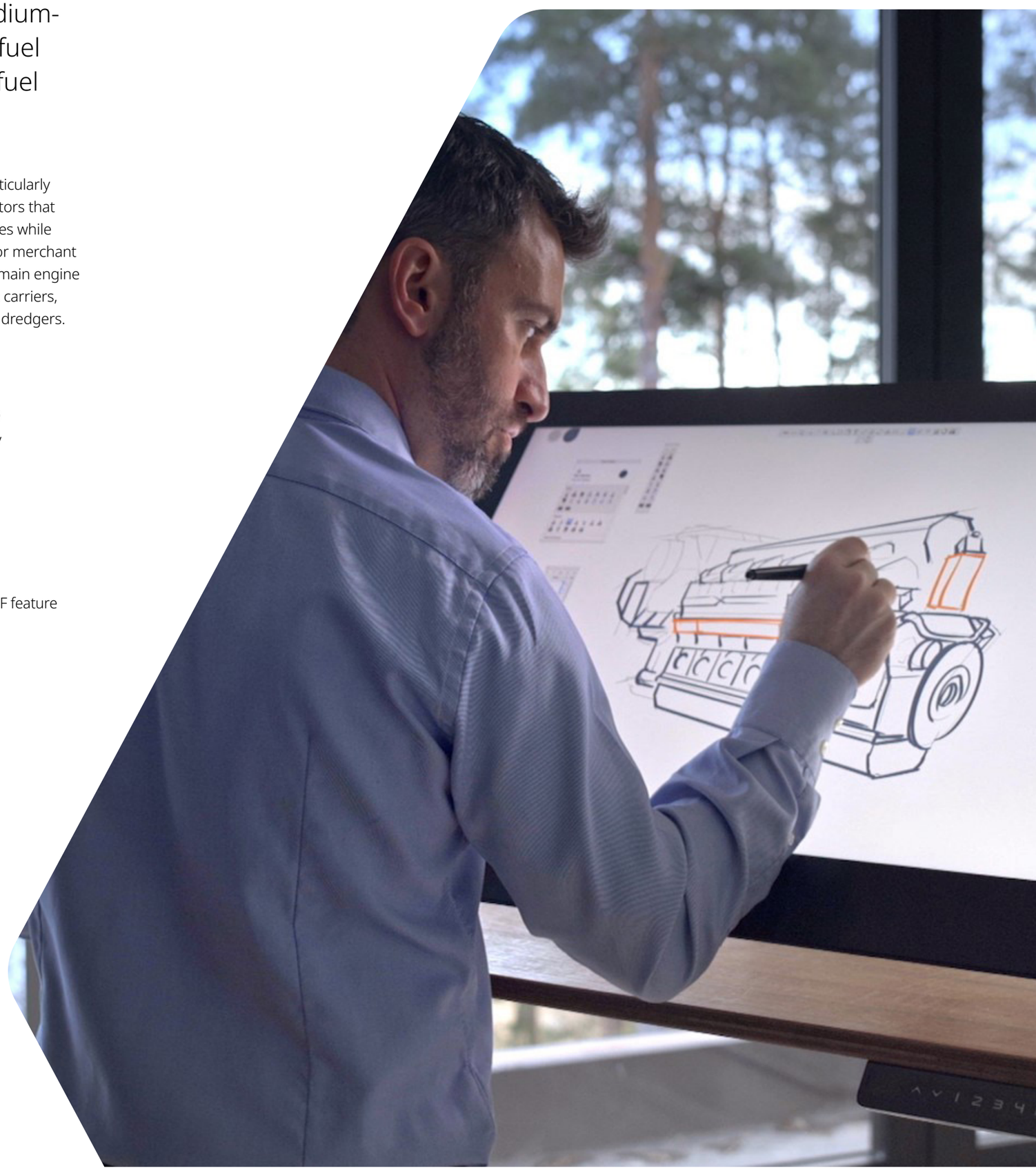
The Wärtsilä 46TS-DF is suitable for a broad range of vessel types and applications – for example as a main propulsion engine in diesel-electric, mechanical and hybrid installations. The engine can be optimised to run either at constant speed or along a propeller curve.

This cutting-edge solution represents a particularly good investment for cruise and ferry operators that are exploring ways to minimise fuel expenses while maximising environmental performance. For merchant vessels the Wärtsilä 46TS can be used as a main engine onboard medium to large gas tankers, bulk carriers, container ships and special vessels such as dredgers.

Key benefits

- High power density (1,300 kW / cylinder)
- Proven and reliable dual-fuel technology
- IMO Tier III compliant in gas and diesel modes when combined with SCR
- Low operational expenses thanks to improved efficiency and heat recovery
- Reduced maintenance thanks to 10% fewer cylinders
- Ultra-low emissions thanks to the NextDF feature





Advanced dual-fuel technology

Wärtsilä's proven dual-fuel technology enables vessels to operate on both gas and liquid fuel, and to switch between the two according to cost, availability and local environmental regulations.

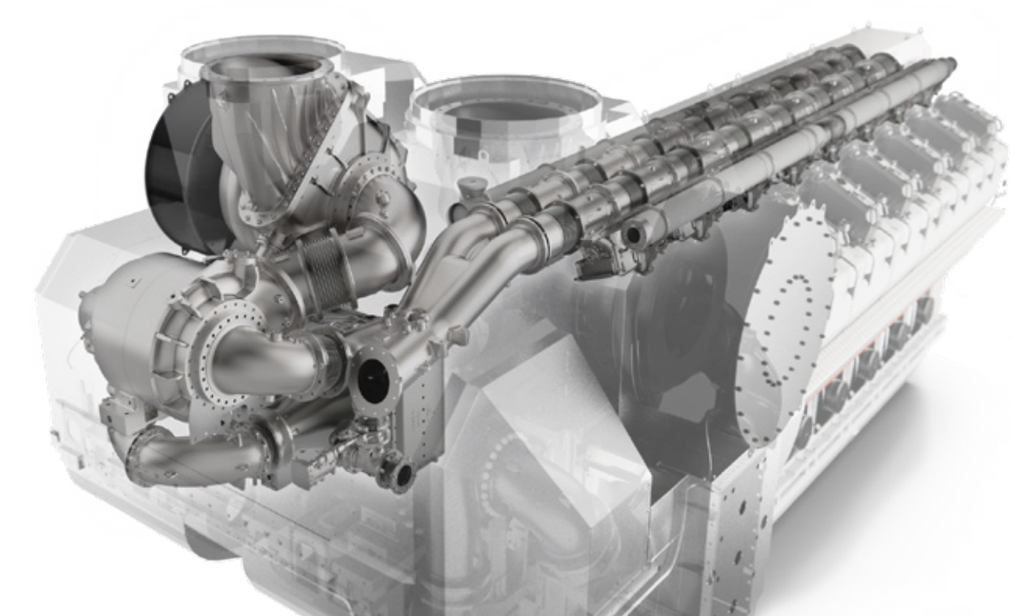
Switching between gas and diesel modes causes no loss of power or speed, and the engine adapts automatically to the fuel in both normal and emergency modes. The Wärtsilä 46TS combines the latest technology and control system to deliver outstanding performance in all operating conditions, achieving optimal running performance at any load.

High-performance two-stage turbocharging and fuel injection
The high-performance turbocharger system features a higher compression ratio, high efficiency and robustness, allowing unmatched power density and efficiency across the full operating range. The fuel injection system features the fully electronic Wärtsilä Common Rail system, which guarantees efficiency and smoke-free operations at all loads – even in diesel mode.

Future-fuel ready today
With its intrinsically modular design, the Wärtsilä 46TS-DF allows vessel owners and operators to act now to reduce fuel consumption and emissions in the knowledge that modularity enables potential upgrades in the future, also to run on alternative fuels.

Reducing methane emissions with NextDF
The NextDF feature for the Wärtsilä 46TS-DF is a groundbreaking advancement that significantly reduces methane emissions, which are a potent greenhouse gas. NextDF helps to mitigate the environmental impact of your vessel's operations and supports its compliance with stringent environmental regulations. With NextDF you can leverage existing fuel infrastructure and availability while significantly reducing greenhouse gas emissions.

Decarbonising shipping the Wärtsilä way
Fuel-flexible engines capable of burning cleaner future fuels are a key technology to drive the decarbonisation of shipping. Wärtsilä's wide technological expertise allows customers to make the investments needed today to reach their long-term decarbonisation objectives. But cutting shipping's climate impact will take more than technology, which is why Wärtsilä advocates a partnership approach backed by agreements based on expected outcomes.



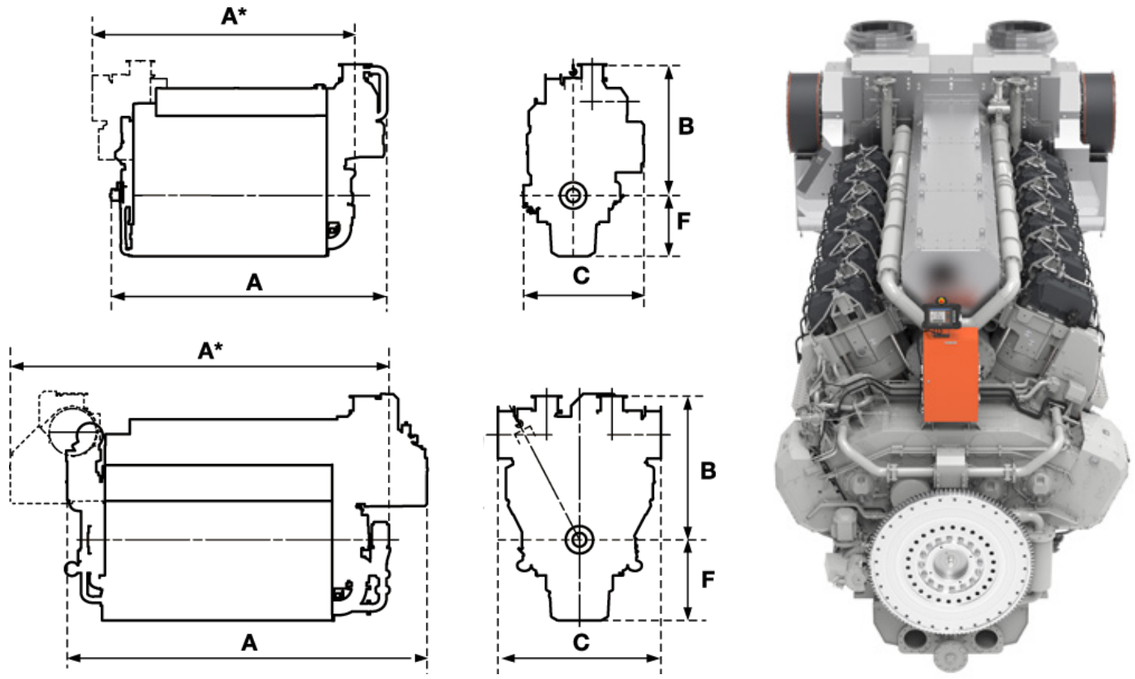
Wärtsilä 46TS-DF

Main technical data		IMO Tier III	
Cylinder bore	460 mm	Fuel specification: Fuel oil	
Piston stroke	580 mm	700 cSt/50°C	7200sR1/100°F
Cylinder output	1300 kW/cyl	ISO 8217, category ISO-F-DMX. DMA. DMB Natural Gas	
Speed	600 rpm		
Mean effective pressure	27 bar	Engine efficiency up to 52%	
Piston speed	11.6 m/s		

Rated power	
Engine type	kW
6L46TS	7800
7L46TS	9100
8L46TS	10400
9L46TS	11700
12V46TS	15600
14V46TS	18200
16V46TS	20800

Dimensions (mm) and weights (tonnes)						
Engine type	A	A*	B	F	C	Weight
6L46TS-DF	9015	9798	4228	1365	3739	117
7L46TS-DF	9836	10618	4228	1365	3722	130
8L46TS-DF	10820	10987	4535	1365	3893	144
9L46TS-DF	11640	11807	4535	1365	3896	156
12V46TS-DF	11232	-	4080	1505	5060	197
14V46TS-DF	12283	-	4080	1505	5060	219
16V46TS-DF	13654	-	4567	1505	5733	252

* Turbocharger at flywheel end



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Work with Wärtsilä to navigate decarbonisation with confidence.

Build your success on Wärtsilä's broad portfolio of engines, propulsion systems, hybrid technology, exhaust treatment, shaft line solutions and digital technologies, as well as integrated powertrain systems. These building blocks offer you efficiency, reliability, safety and world-class environmental performance.

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

www.wartsila.com/marine

Wärtsilä is a global leader in innovative technologies and lifecycle solutions for the marine and energy markets. We emphasise innovation in sustainable technology and services to help our customers continuously improve their environmental and economic performance.