X-DF HP by WinGD

High power High impact

Superior performance for 82/92 bore engines

WinGD has introduced its first high-pressure dual-fuel LNG engine propulsion solution for ultra-large container vessels (ULCV), the X-DF-HP.

WIN GD

X-DF HP by WinGD

Power that performs, efficiency that matters

This engine design and its operating system supports the evolving scale and power demands of ULCVs and represents the latest innovation to help owners and operators of ULCVs navigate the energy transition with increased operating efficiencies and reliable propulsion performance.

Packaged in a cost-competitive design for shipyards and engine builders.

Across the 82- and 92-bore sizes, the WinGD X-DF-HP combines **efficiency, power, emissions performance, and fuel flexibility in a single optimised engine**, delivering a smart propulsion solution purpose-built for the next generation of ULCV .

With superior fuel efficiency and reduced greenhouse gas emissions compared to other high-pressure LNG engines on the market, and with greater power density than low-pressure alternatives, the X-DF-HP stands out as a competitive alternative for forward-looking shipowners.

Engine design and performance

Features

- High-pressure dual-fuel LNG combustion system.
- Available in X82 and X92 bore sizes for ultra-large container vessels.
- Exceptional power density within a compact installation footprint.
- Built on 100+ years of WinGD high-pressure Diesel-cycle expertise.
- Seamless integration with X-EL for PTO-based power generation and energy management.
- SCR-ready, meeting Tier III emissions standards in both gas and diesel modes.
- Compatible with established high-pressure auxiliary system requirements.

Benefits

- Purpose-built for the scale and operating demands of ULCVs .
- Proven technology ensures reliability and simplified project execution.
- Straightforward compliance with global NO_X regulations.
- Efficient auxiliary power generation for vessels with very high hotel and reefer loads.
- Offers a clear advantage in terms of power density in the large-container segment.
- Offers a simple integration into existing high-pressure ship designs.

Efficiency and emissions

Features

- High-pressure combustion delivers best-in-class fuel efficiency.
- Lower well-to-wake GHG emissions for typical ULCV operating profiles.
- Tailored to larger vessels with greater efficiency expectations.
- Lowest methane slip levels based on high-pressure diesel-cycle combustion.

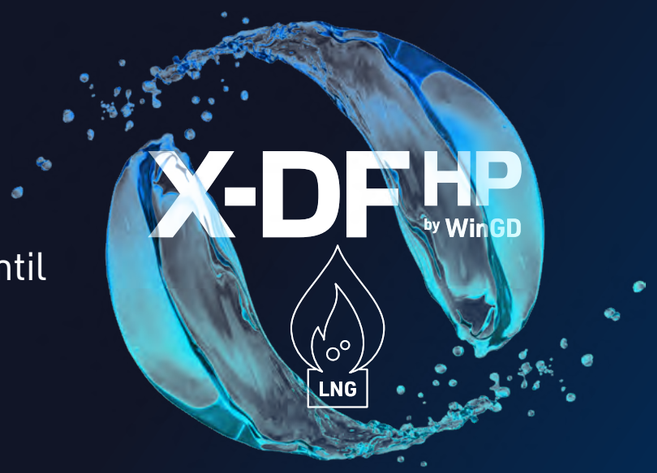
Benefits

- Lower fuel consumption reduces total lifecycle OPEX.
- Reduced carbon intensity supports compliance with regional and future IMO rules.
- High power density avoids oversizing engines and improves operational performance.

For all vessels which do not require the same power density as large containerships, X-DF remains the optimal dual-fuel LNG concept

HIGH PRESSURE

LNG avoids FuelEU Maritime penalties until at least 2035



Superior efficiency

Proven reliability

Lowest CAPEX

Lowest maintenance costs

Fuel flexibility and future readiness

Features

- Fully compatible with LNG, bio-LNG, and e-LNG.
- Part of WinGD's multi-fuel platform (X-DF-A for ammonia; X-DF-M/E for methanol/ethanol).
- Existing WinGD X-series engines can be retrofitted for LNG, methanol, ethanol, LPG or ammonia.

Benefits

- Future-proofed pathway ensures long-term investment confidence.
- Avoids major mechanical changes as fuel preferences and regulations evolve.
- Enables progressive decarbonisation using renewable methane blends.
- Helps manage rising carbon costs across global and regional schemes.

Operational simplicity and integration

Features

- System design aligns with established high-pressure fuel infrastructure.
- Built on the proven reliability of WinGD's large-bore diesel engines.
- Full integration with X-EL for hybrid and energy-optimised vessel operation.

Benefits

- Simplified shipyard installation and reduced build complexity.
- High reliability and low maintenance cost based on the X82/92-bore diesel engines.
- Higher vessel-wide energy efficiency across propulsion and hotel loads.

Complete LNG portfolio coverage

Features

- Complements the low-pressure X-DF range, which has:
  - 12+ million running hours
  - 60% methane slip reduction compared to first generation X-DF
  - Industry-leading NOx/SOx/PM emissions
  - Exceptional boil-off gas utilisation
  - Proven reliability and low maintenance cost

Benefits

- Shipowners can select the optimal LNG solution for each vessel type:
  - X-DF-HP for ultra-large, power-intensive ships
  - X-DF for LNG carriers and most other segments
- Confidence in a full-spectrum, future-ready LNG propulsion portfolio.

Regulatory and market advantages

Features

- LNG avoids FuelEU Maritime penalties until at least 2035.
- Strong position amid paused IMO Net Zero framework and fragmented regional rules.

Benefits

- Lower regulatory exposure and reduced carbon-related operating costs.
- A stable, economically sound pathway through the energy transition.
- Provides a long-term technology pathway for shipowners committed to LNG while keeping future fuels in view.

Committed to the decarbonisation of marine transportation through our ensemble of sustainable energy systems

WinGD designs marine power ecosystems utilising the most advanced technology in emissions reduction, fuel efficiency, digitalisation, service and support. With our two-stroke low-speed engines at the heart of the power equation, WinGD sets the industry standard for reliability, safety, efficiency and environmental design.

Headquartered in Winterthur, Switzerland, since our inception as the Sulzer Diesel engine business in 1893, we are is powering the transformation to a sustainable future.

WinGD is a CSSC Group company.

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