

# WinGD

## A smarter perspective on marine propulsion



WIN GD

# Who we are

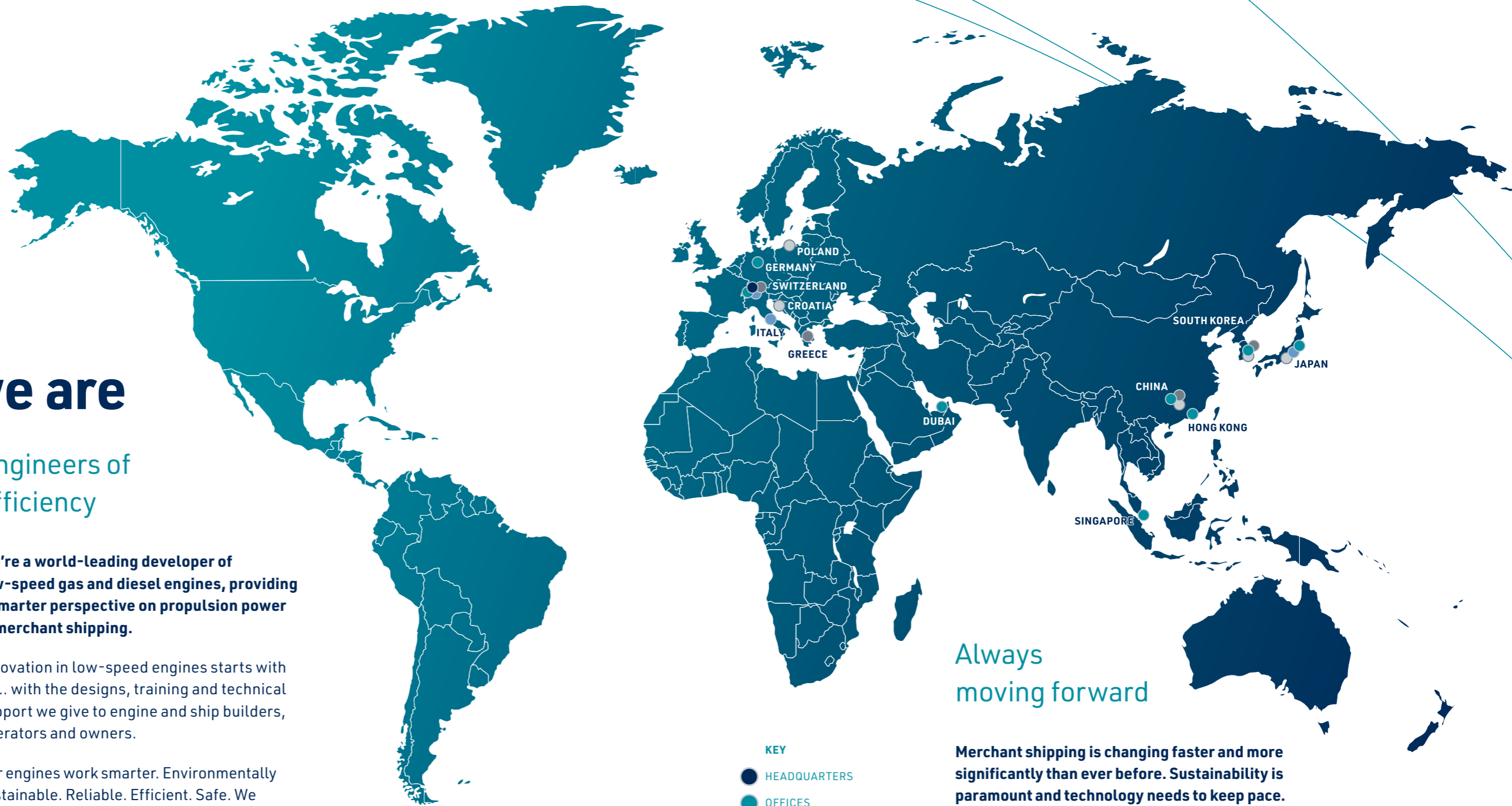
## Engineers of efficiency

**We're a world-leading developer of low-speed gas and diesel engines, providing a smarter perspective on propulsion power in merchant shipping.**

Innovation in low-speed engines starts with us... with the designs, training and technical support we give to engine and ship builders, operators and owners.

Our engines work smarter. Environmentally sustainable. Reliable. Efficient. Safe. We guarantee that they deliver these qualities. As industry leaders, we set the standard and the standard is high.

Dedicated to optimising performance through smart system integration, we're a powerful force in change. Our pioneering technology powers every type of deep-sea ship around the world.



## Always moving forward

**Merchant shipping is changing faster and more significantly than ever before. Sustainability is paramount and technology needs to keep pace. We make sure ours does.**

We've been powering merchant shipping since 1898 and with unparalleled industry experience, we can adapt to the nature and direction of change. Progressive and practical, we see shifts in the market and we embrace them to benefit our designs.

Our unique position means we can move forward with industry developments keeping our global customers prepared, compliant and operational. Everywhere and every day.

# What we do

## A smarter perspective on engine design.

Engines that lower fuel consumption and emissions and bring down operating costs, while simultaneously increasing safety and assurance for ship owners.

### Design with a difference

Our low-speed portfolio is always expanding and includes both X-DF dual-fuel engines and diesel engines for merchant ship propulsion.


















### Experience and expertise

We know our high performance engines can only benefit customers if they're completely reliable. Our engines are designed to work at optimum levels regardless of the conditions: we bridge the gap between complex engineering and efficient execution.

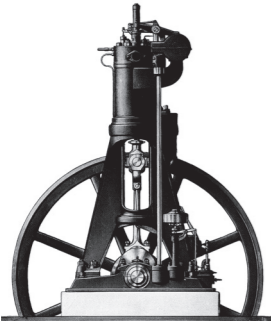
Our unequalled experience in merchant shipping means we have exclusive insights into the challenges the industry faces and how we can help overcome them.

We pursue collaborative partnerships with other industry leaders and share our expertise so that we can move collectively closer to a decarbonised future.

Because we know the smaller, intricate details so well, we play a key role in helping take care of the bigger picture.

<b>X35-X40</b>	 Small /Handysize Bulker	 Small Product Tanker	 General Cargo Carrier	
<b>X52/RT-flex50</b>	 Handymax Bulker/Tanker	 MR Tanker	 Small Container	
<b>X62/RT-flex58T</b>	 Panamax Bulker/Tanker	 LR/Aframax Tanker	 Feed Container	
<b>X72</b>	 Cape Bulker	 Suezmax Tanker	 Feed Container	 LNG Carrier
<b>X82</b>	 VLCC	 VLCC	 Mid & Large Container	
<b>X92</b>	 Ultra Large Container			





# When we did it

## Yesterday, today and tomorrow

Starting as the world-renowned engine company Sulzer, we're now known as WinGD. At the forefront of engineering technology since the very beginning, we've produced some significant industry firsts.

1905

**Created the first reversing two-stroke marine diesel engine**

Produced Buchi's first prototype for a turbocharged diesel engine

1915

Opened an exploratory turbocharge plant

1911

Invented bore cooling

1936

Installed the first mechanically controlled low pressure dual-fuel two-stroke engine

1972

**Produced the first series-built large marine engine with electronically controlled common-rail systems**

2001

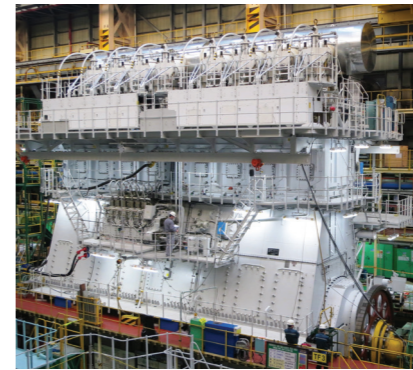
Tested the high-pressure dual-fuel engine

1986



Introduced the first 14 cylinder RT-flex96C engine - the largest Diesel cycle engine ever built

2005

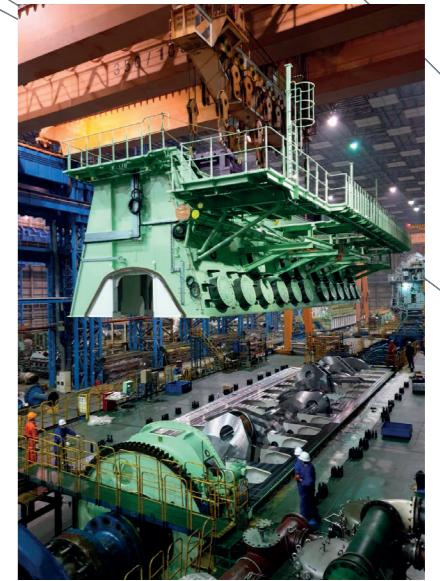


**Implemented Gen X engines with lower fuel consumption and higher power**

2011

Introduced the first X72DF engine

2015



**Built the record breaking 12X92DF: the largest Otto-cycle engine ever built**

2019

1905

1910

1930

1950

1970

1990

2000

2001

2005

2010

2011

2013

2015

2016

2018

2019

Installed the first two-stroke marine diesel engine in an ocean going ship

1912

Produced the first commercial turbocharged two-stroke engine

1946

Created the 'super-long-stroke' concept - the Sulzer RTA engine series

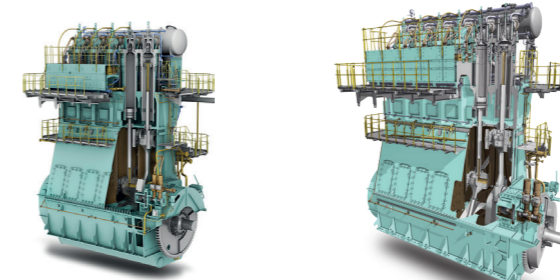
1982

Introduced the Waste Heat Recovery system with up to 12% recovered power

2004

**Introduced the first electronically controlled low pressure dual-fuel engine RT-flex50DF**

2013



Launch of WiDE

**Reached the 100th X-DF engine milestone**

2018

Introduced the first X62DF engine

2016

# Why? For a low-carbon future

## Propelling change

**As with most industries, ours has a duty to reduce the impact it has on the environment.**

Committed to minimising the effect our engines and services have on the world around us, we're integral to this initiative.

Pushing boundaries and pioneering change, we design engines for improved performance and proven low emissions.

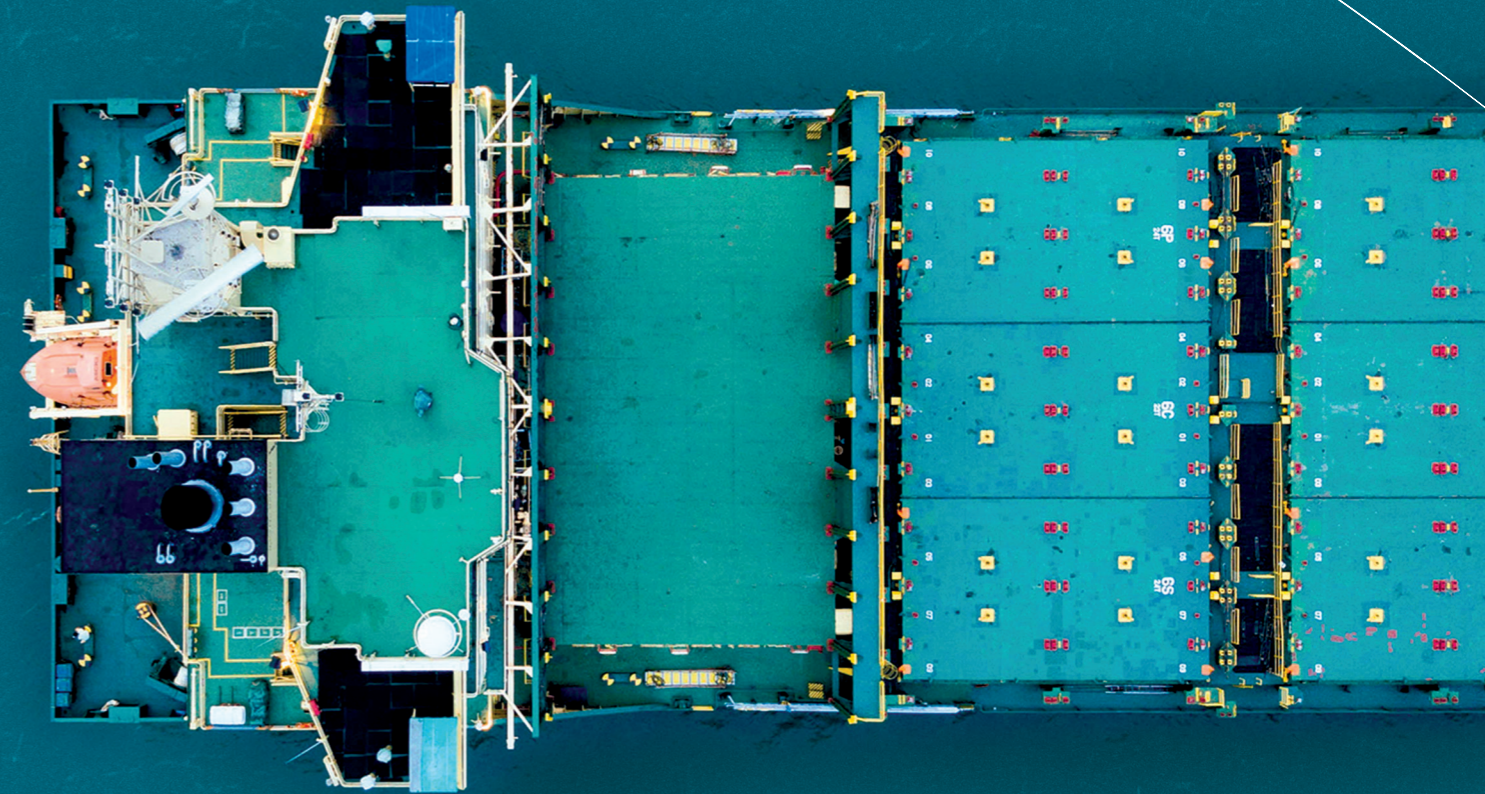
Our expertise in adopting LNG and fuels for the future means we can evolve our engines to remain compliant with ever-changing regulations.

## 2050 and beyond

**We're leading the way in meeting the International Maritime Organisation's target for the shipping industry to halve greenhouse gas emissions by 2050.**

Our experts use data about the operational footprint of vessels to give an informed perspective on how and where we can make essential changes. Increased operational visibility means smarter planning.

We're currently investing heavily in research and development to test even greener alternative fuels to make sure our engines continue to work to the high standard our customers have come to expect.



While our dual-fuel engines already run on LNG, which reduces CO<sub>2</sub> emissions by about 20%, **we're taking our commitment to reducing emissions even further.**

# How we do it

## Engines of change

**Always moving forward, we've forged new paths in marine engine propulsion for over a century. And we're just as committed to our continued research, development and improvement as we were when we began.**

A much-needed paradigm shift in the types of fuels our industry uses is underway, and we're helping industry experts to test which types of new fuel are viable. In doing this we can be sure that our technology doesn't just keep up with industry changes, it stays ahead of them.

The more efficient our engines are, the lower costs are for our customers. We work alongside them to monitor their vessels and facilitate their operational decisions.

By combining their data with end-to-end security, we help optimise vessel operation and increase time between overhaul. And this ultimately helps in reducing greenhouse gas emissions.

This high level of connectivity is crucial for our customers. It means they can always stay linked with their fleet, giving them invaluable operational insights and allowing them to plan ahead.



## Keeping customers informed

**Using WinGD Integrated Digital Expert (WiDE), we turn data from our customers' engines and ships into added value. It's a comprehensive integrated system that collects, manages and analyses data to proactively spot any potential malfunctions and offer diagnostic advice and technical support to crew.**

WiDE ensures vessel efficiency and is easy for our customers to use. It's integrated into an on-board system that uses industry-leading hardware, software and data analytics techniques.

**We have been, and always will be, at the forefront of innovation in engine development, using new technologies to optimise vessel performance, engine emissions and operational viability.**

**X-DF low-pressure engines deliver the lowest overall emissions for merchant ship propulsion, and will play a major role in the journey towards 2050.**

## Our products

### Our portfolio

**As we develop our portfolio of low-speed WinGD engines, we're constantly looking to the future.**

The key overarching feature of all of our engines is that they combine sustainability with efficiency. They're supported by revolutionary technology in emissions reduction, automation and control, digitalisation and fuel efficiency.

Our customers can always expect full compliance with emissions legislation. We provide smart, safe and flexible propulsion solutions for the future, today.

### Our leading low-pressure engines

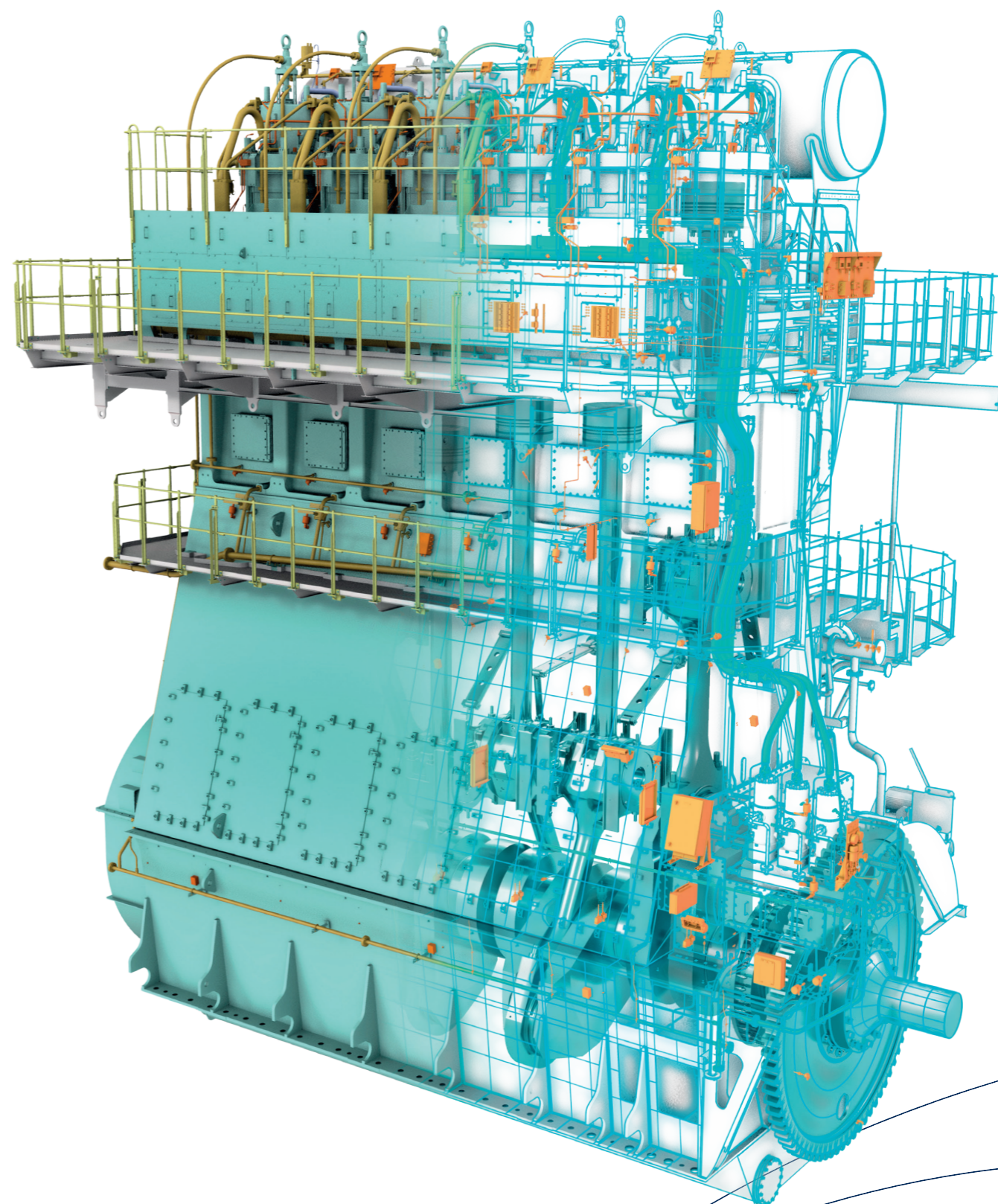
**As proven propulsion leaders with our X-DF engineering, our customers can reduce emissions and be future fuel ready. Our experts offer an informed perspective to provide greater clarity and new levels of visibility on the data behind a vessel's operational footprint.**

#### Dual-fuel engines

Our X-DF low-pressure gas engines are fundamental in achieving a carbon-free future. They deliver the lowest overall emissions of any current merchant ship propulsion technology.

#### Diesel engines

These are currently the most efficient ship propulsion engines that remain compliant with regulations and offer the lowest overall CAPEX and OPEX. Their flexibility means performance can be constantly optimised within shifting economic and environmental parameters.





## Customer service

### Focused, global support

**Designing world-class engines is just the beginning. We provide a comprehensive service for our customers, supported by qualified and responsive experts across a global network.**

We help maintain our engines from the very early testing through to operation, and encourage a level of autonomy for our customers by providing them with expert training. With continued access to our expertise, customers benefit from reduced operational expenditures and increased long-term reliability.

WinGD engine systems are a benchmark of distinction. Our customers can choose from two service providers – CSSC Marine Service (CMS) and Wärtsilä Service – supported through key locations around the world. Operational confidence comes as standard.

### Sharing our knowledge

**By equipping our customers with a deeper understanding of our engines we can ensure they get the best out of their engine.**

Our training courses for marine engineers and office personnel are carried out by professional, STCW-95 certified instructors. Including simulation software and engine room simulators, they provide hands-on involvement with real life scenarios, which helps customers improve their technical and operational skills.

Teaching operators how to optimise the performance of their engines allows them to reduce their maintenance costs and lower carbon emissions to ensure a more sustainable future.

## **At WinGD we provide a smarter perspective for our customers:**

### **On a low carbon future**

**Through our commitment to reduce the environmental impact of our engines and services to minimise future OPEX and your long term risk.**

### **On engine efficiency**

**With innovative technologies to help you optimise whole vessel performance, engine emissions and operational viability to lower TCO.**

### **On customer service**

**To maximise the efficiency and reliability of your vessel with the versatile service support of qualified and responsive experts across a global network.**

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