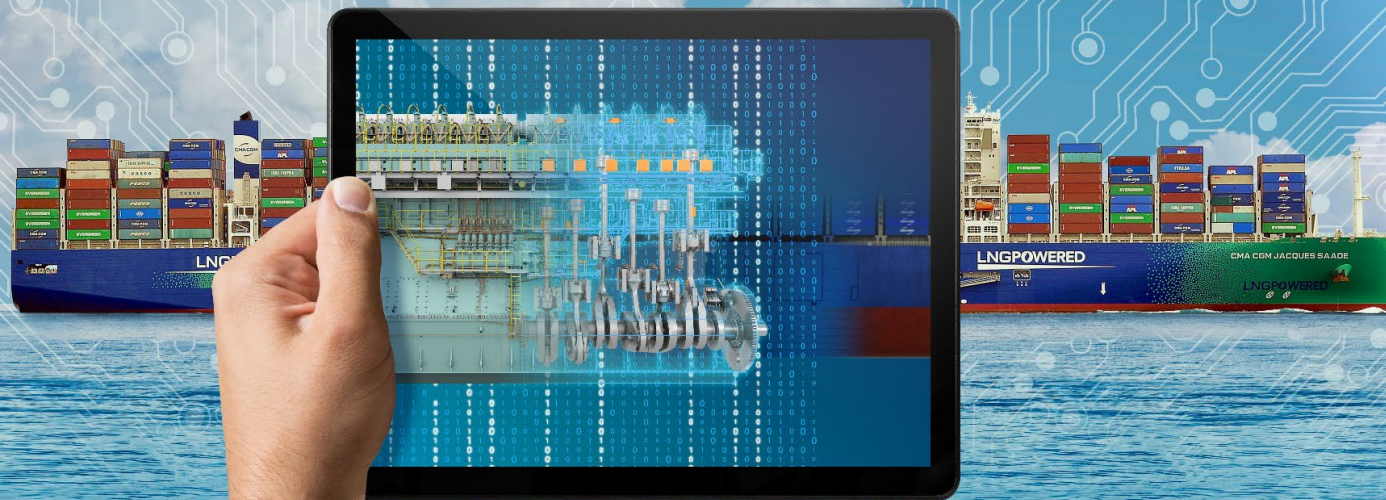
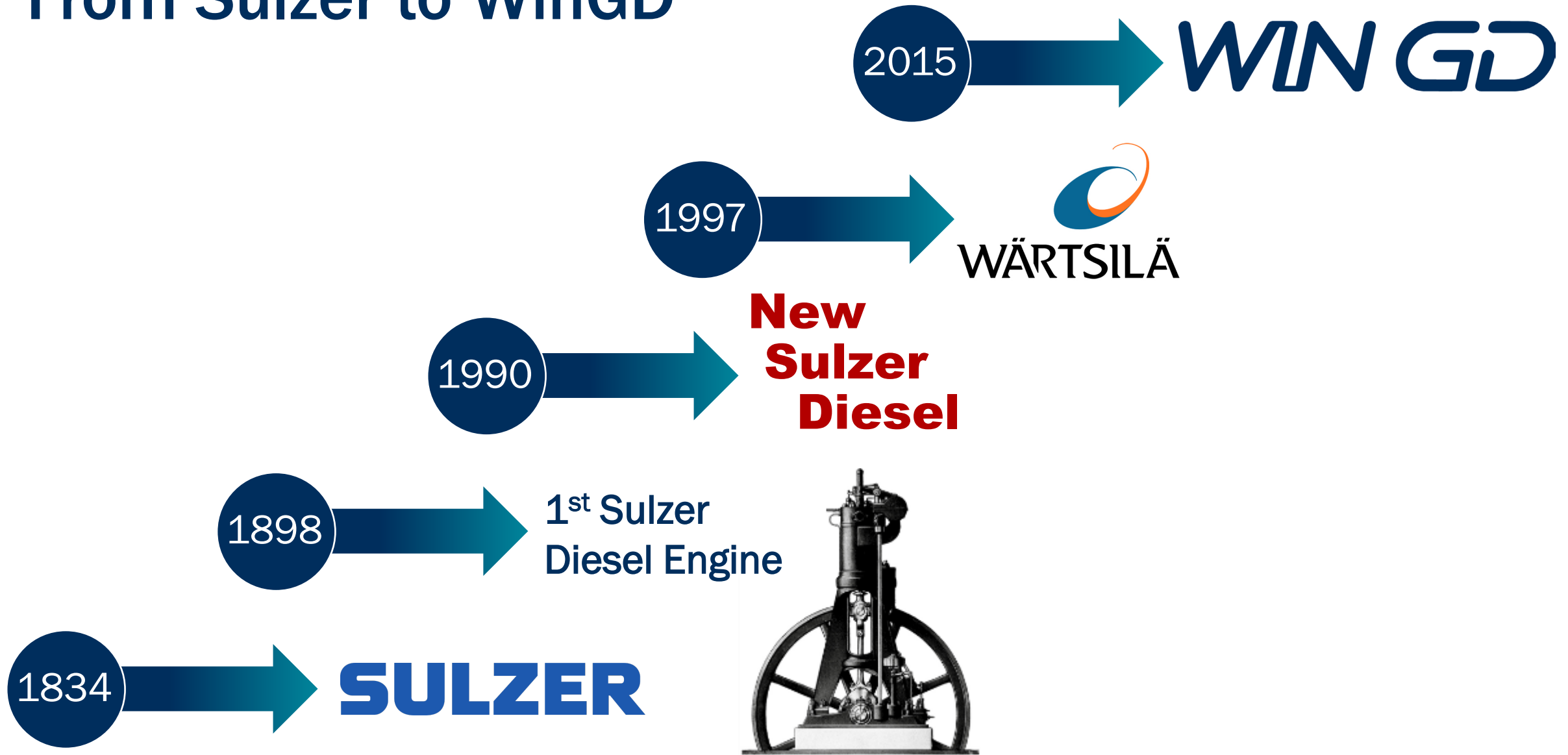


WIN GD

A Smarter Perspective on Marine Propulsion



From Sulzer to WinGD



China State Shipbuilding Corporation **CSSC**



CSSC was established in 1999. It re-merged with CSIC in October 2019 to form the world's largest shipbuilding group.



310,000 employees globally.
147 companies within the group.



In January 2015, WinGD became a part of the CSSC group.



Shipbuilding capability of 18 million dwt a year



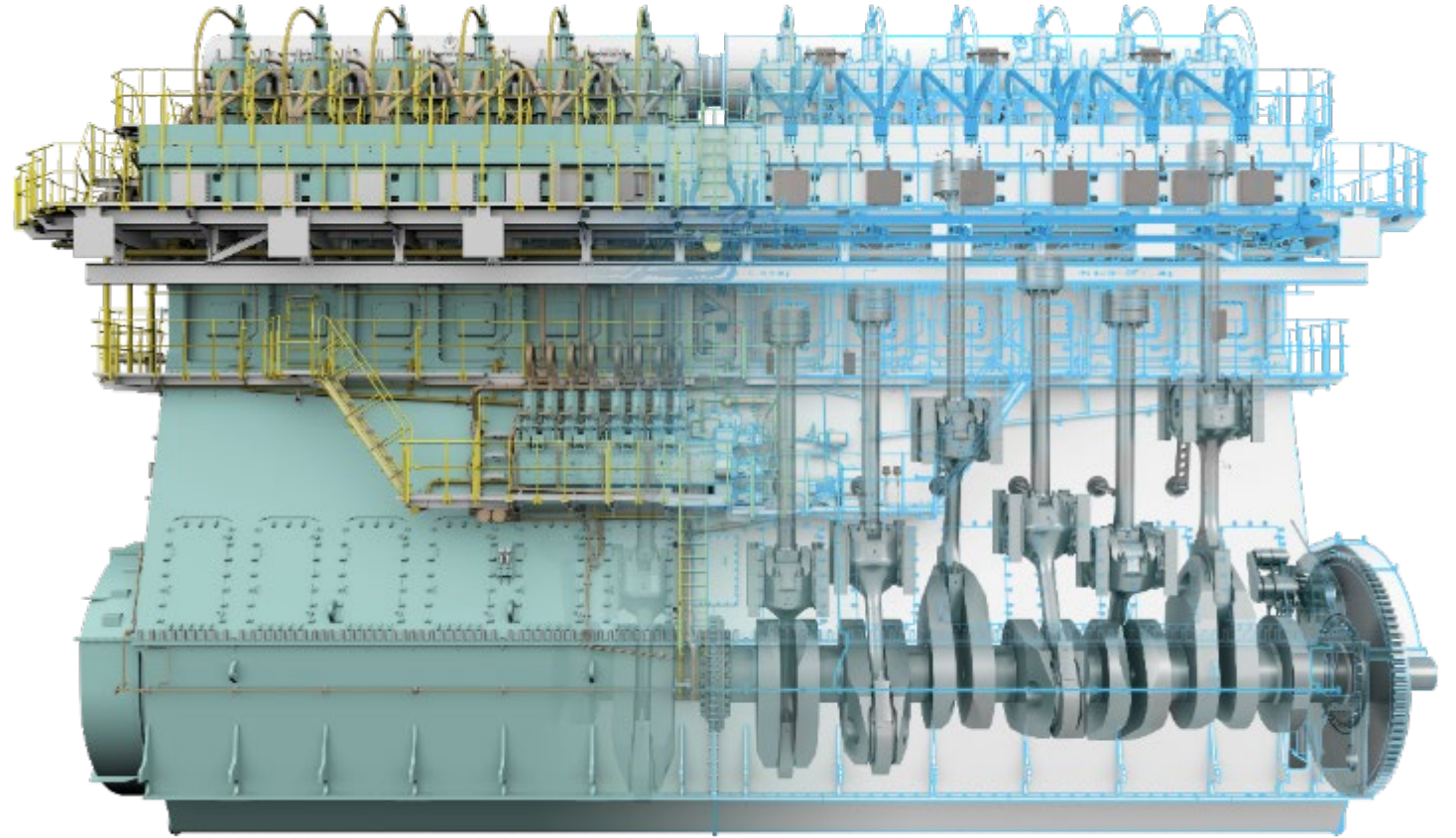
In July 2016, CSSC became sole shareholder of WinGD, the only non-Chinese company within the group.



Full vertical integration including ship design, building and repair yards, research & design institutes, equipment manufacturers and financing.

Who We Are

WinGD is the leading innovator in smart, sustainable marine propulsion



Vision & Mission

VISION

Powering Transformation for a Sustainable Future



Power

Our engines are the heart of a vessel, we power merchant shipping



Transformation

The marine industry is changing; we drive the transformation



Sustainability

Our strong commitment to the environment and our future

MISSION

Driving Innovation Together to Deliver Smart Power Solutions



Driving

Accelerating change towards a low-carbon future



Innovation

At the leading edge of sustainable solutions for marine power



Together

We succeed together through collaboration and partnership



Smart Solutions

Creating smart solutions that provide value for our customers throughout the product lifecycle

WIN GD

Our Global Network

Headquarters:

Winterthur, Switzerland

Subsidiaries:

China, Korea, Japan,
Singapore, Dubai

Test facilities:

Switzerland, China, Japan

Training facilities:

Switzerland, Greece, China, Korea,
Philippines, India, Poland, Singapore

Engine manufacturing:

China, Korea, Japan



WinGD Two-stroke Engine Builders

China:  沪东重机有限公司
HUDONG HEAVY MACHINERY CO.,LTD.

 上海中船三井造船柴油机有限公司
CSSC-MES Diesel Co., Ltd.

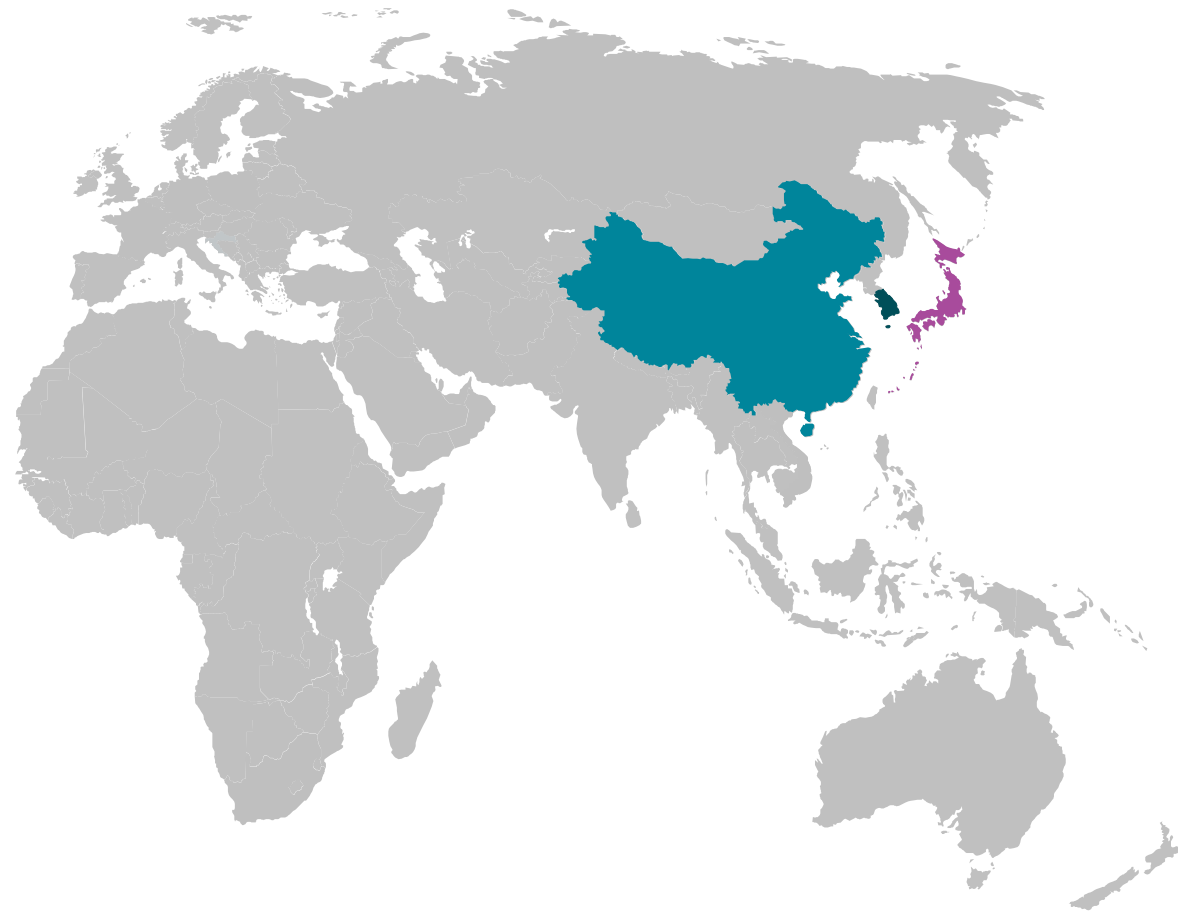
 中船动力有限公司
CSSC Marine Power Co.,Ltd.

 中国船舶重工集团柴油机有限公司
CHINA SHIPBUILDING INDUSTRY CORPORATION DIESEL ENGINE CO.,LTD.

 玉柴船舶动力股份有限公司
YUCHAI MARINE POWER CO. , LTD.

Korea:  

Japan:  Mitsui E&S DU Co., Ltd. 



WinGD Facts & Figures 2022

WinGD Global

- 6 global offices
- 440 employees worldwide
- 315 employees in Winterthur
- 30 nationalities



Two-Stroke Market Share

- Global market share: 30%
- Dual-fuel market: 30%
- LNG carrier market: 50%



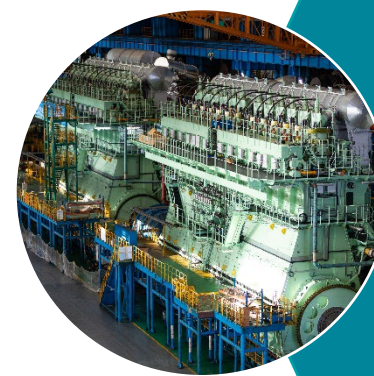
Operations

- 3582 engines in operation
- 287 engines in production
- > 4,600,000 dual-fuel engines running hrs
- > 325,000,000 diesel engines running hrs

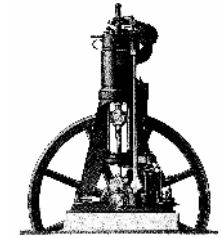


Research & Development

- 370'000 man hours on product development and product care (int. and ext.)
- 120'000 man hours on technology development and innovation (int. and ext.)
- 339 patents and patent applications



When We Did It



1st Sulzer diesel engine on testbed
1898

1st reversing two-stroke diesel engine

1915
1st prototype of a turbocharged diesel engine

1st two-stroke diesel engine in an ocean going ship



1912

1946
1st turbocharged two-stroke engine

1st high-pressure dual-fuel engine

1986

1972
1st mechanically controlled low pressure dual-fuel two-stroke engine

1982
Super-long-stroke concept with Sulzer RTA engine series

2001
1st electronically controlled two-stroke common-rail engine



1st 14 cylinder RT-flex96C engine - largest diesel cycle engine ever built

2005

1st two-stroke low-pressure dual-fuel engine



2013

2011
X-Engine series with lower fuel consumption and higher power



12X92DF: the largest Otto-cycle engine ever built.

CSSC Global Test Centre 2-Stroke Engines Established

2019



2018

WiDE - WinGD integrated Digital Expert

100th X-DF engine ordered

X-DF^A
by WinGD

X-DF^M
by WinGD

Methanol and ammonia fuel engine development

2020
X-DF2.0 with iCER technology



2022

WinGD X-EL Energy Management

Engineered to
X-EL
by WinGD

2021

1890 1905 1910 1940 1970 1980 2001 2005 2011 2013 2018 2019 2020 2021 2022

A Smarter Perspective on Engine Design



Lower emissions



Lower fuel consumption



Reduced CAPEX & OPEX



Increased safety and assurance for ship owners



WIN GD

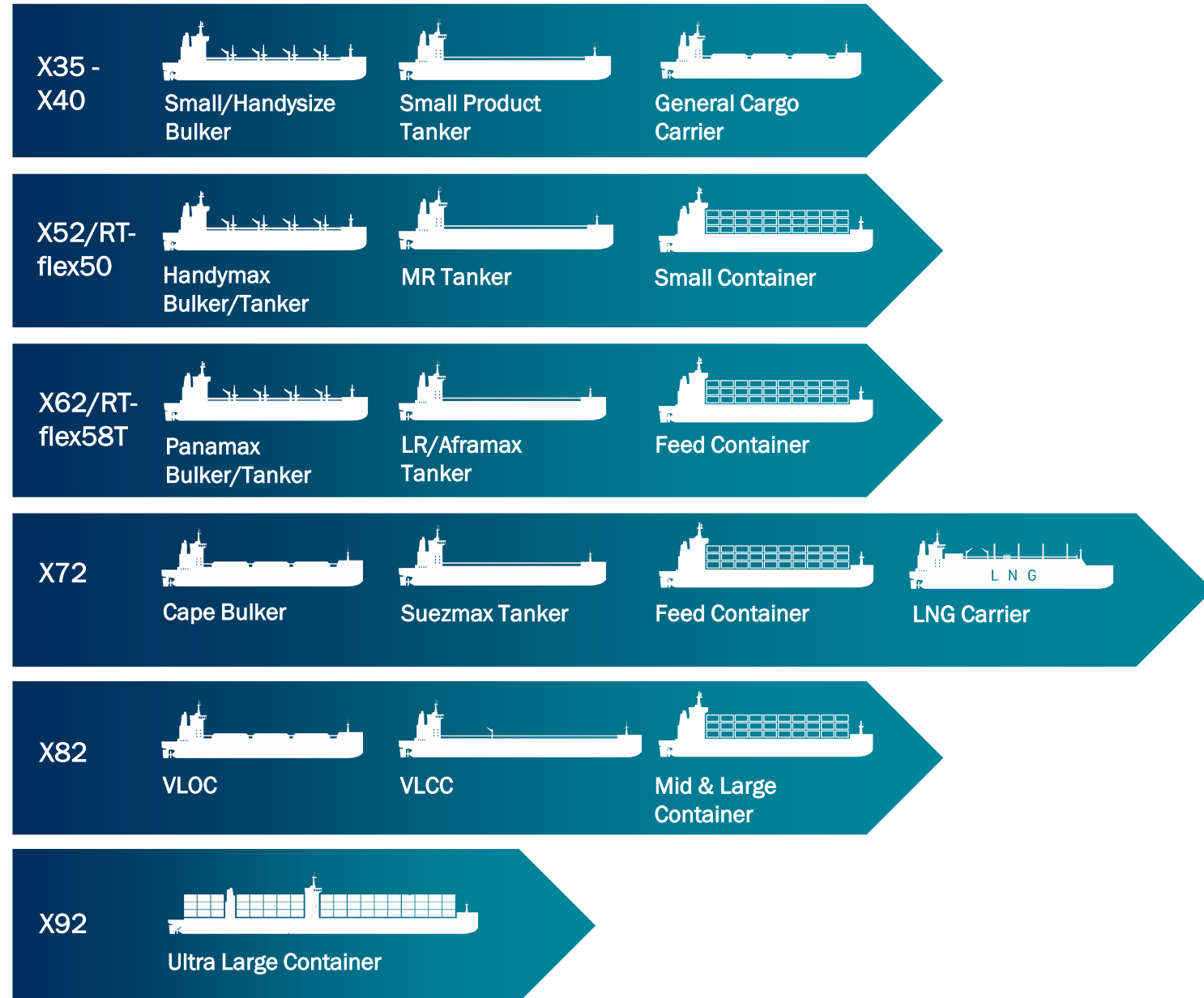
Our Products

X-DF Engines (Dual-fuel)

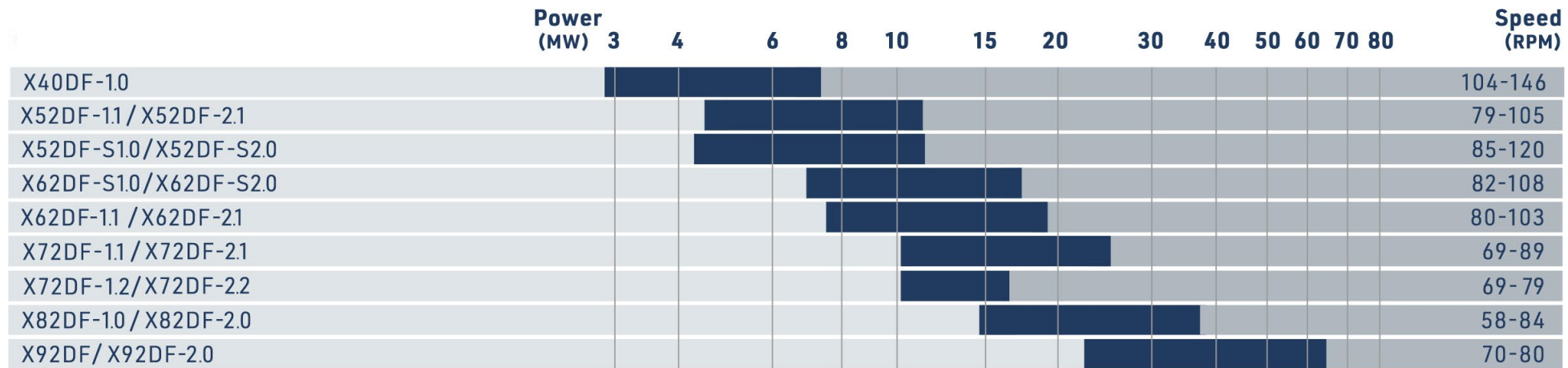
- The bridge to a low-carbon future
- LNG, Methanol, Ammonia

X-Engines (Diesel/HFO)

- The most efficient, compliant ship propulsion engines
- The lowest overall CAPEX and OPEX



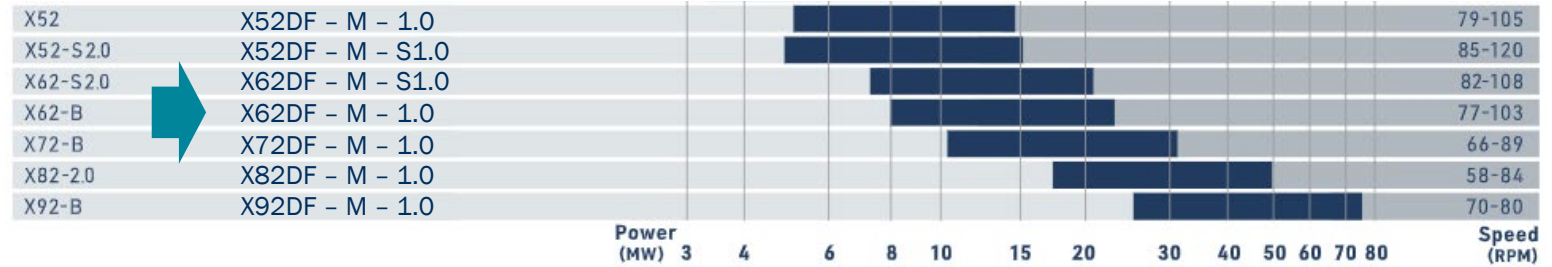
Power Range for WinGD X-DF Engines (Dual-fuel)



Power Range for WinGD X-DF-A X-DF-M

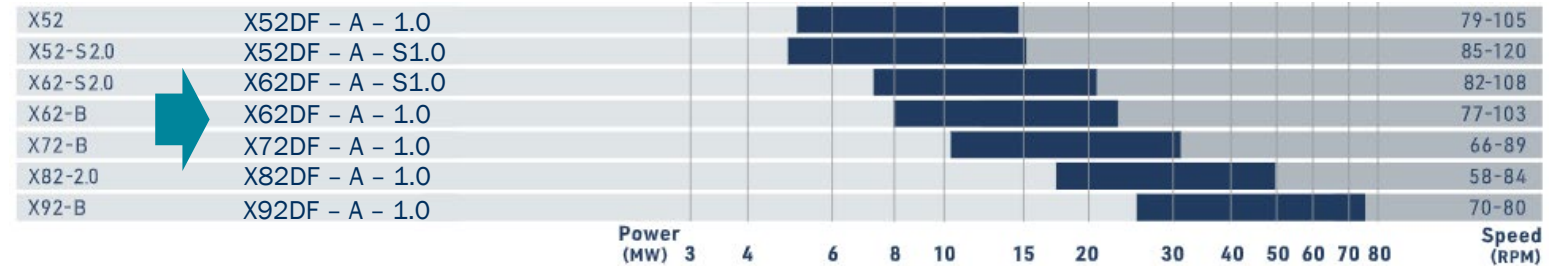
Future methanol engine portfolio

X-DF^M by WinGD

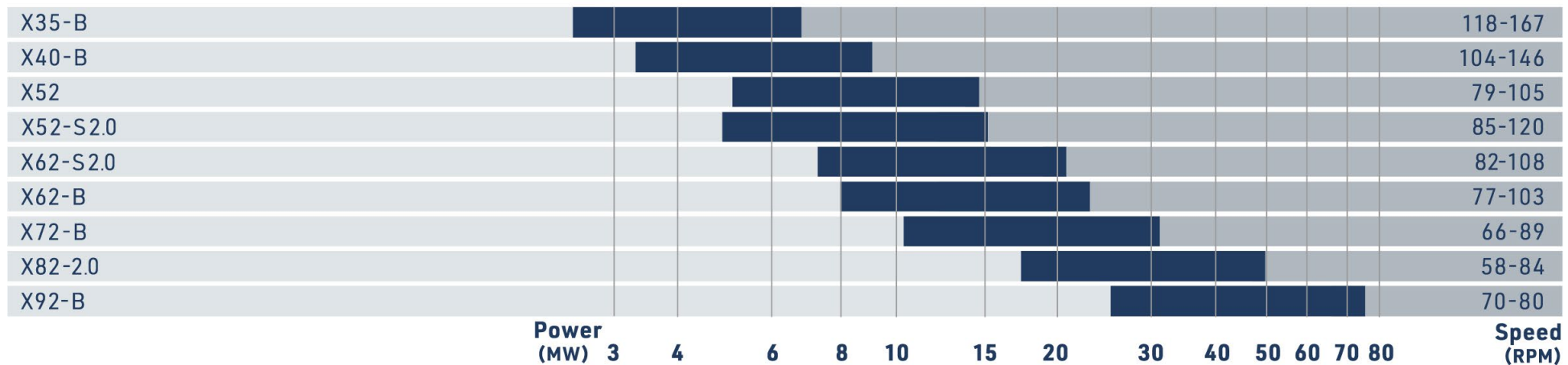


Future ammonia engine portfolio

X-DF^A by WinGD



Power Range for WinGD X-Engines (Diesel)



Why?

For a low-carbon future

WinGD is the market leader in dual-fuel technology.



We develop technology solutions to achieve the 2050 greenhouse gas emissions target.

Our engines are ready for the **fuels of tomorrow.**



WIN GD

How We Do It

Collaboration is key

The way engines are being designed and built is evolving.



The key to success is global collaboration.

Our experts remain in close dialogue with our customers and other industry experts.



WINGD

How We Do It

Intelligent customer solutions

WiDE^{by WinGD}

WinGD Integrated Digital Expert

WinGD bridges complex engineering with intelligent data analysis.

We proactively offer diagnostic advice and technical support to crew for engine optimisation.



WIN GD

Customer Service

Focused, global support

We provide comprehensive global service for our customers, supported by our global service provider, Wärtsilä Services.

Sharing our knowledge

By equipping our customers with a deeper understanding of our engines, through courses at one of our 7 global training centres, we can ensure they get the best out of their engine.



WIN GD

Awards



Energy Efficiency Award 2022
Awarded for Hybrid technology for **significant achievement in energy efficiency in shipping.**



Energy Efficiency Award 2021
Awarded for iCER technology for **significant achievement in energy efficiency in shipping.**



GUINNESS WORLD RECORDS™
WinGD 12X92DF
Most Powerful Otto Cycle Engine



Sulphur Cap Conference 2019
Marine Propulsion Award for **Intelligent Monitoring & Maintenance**



CIMAC Congress 2018
Best Paper Award for **'Greenhouse Gas Emissions from LNG Engines'**



Sulphur Cap Conference 2018
Marine Propulsion Award for **Emissions Reduction**



Japan Institute of Marine Engineering
2017 **Marine Engineering of the Year Award**



Sulphur Cap Conference 2017
Marine Propulsion Award for **Marine Engine of the Year**

Thank you

**Powering
transformation for a
sustainable future**

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8400 Winterthur, Switzerland
www.wingd.com

