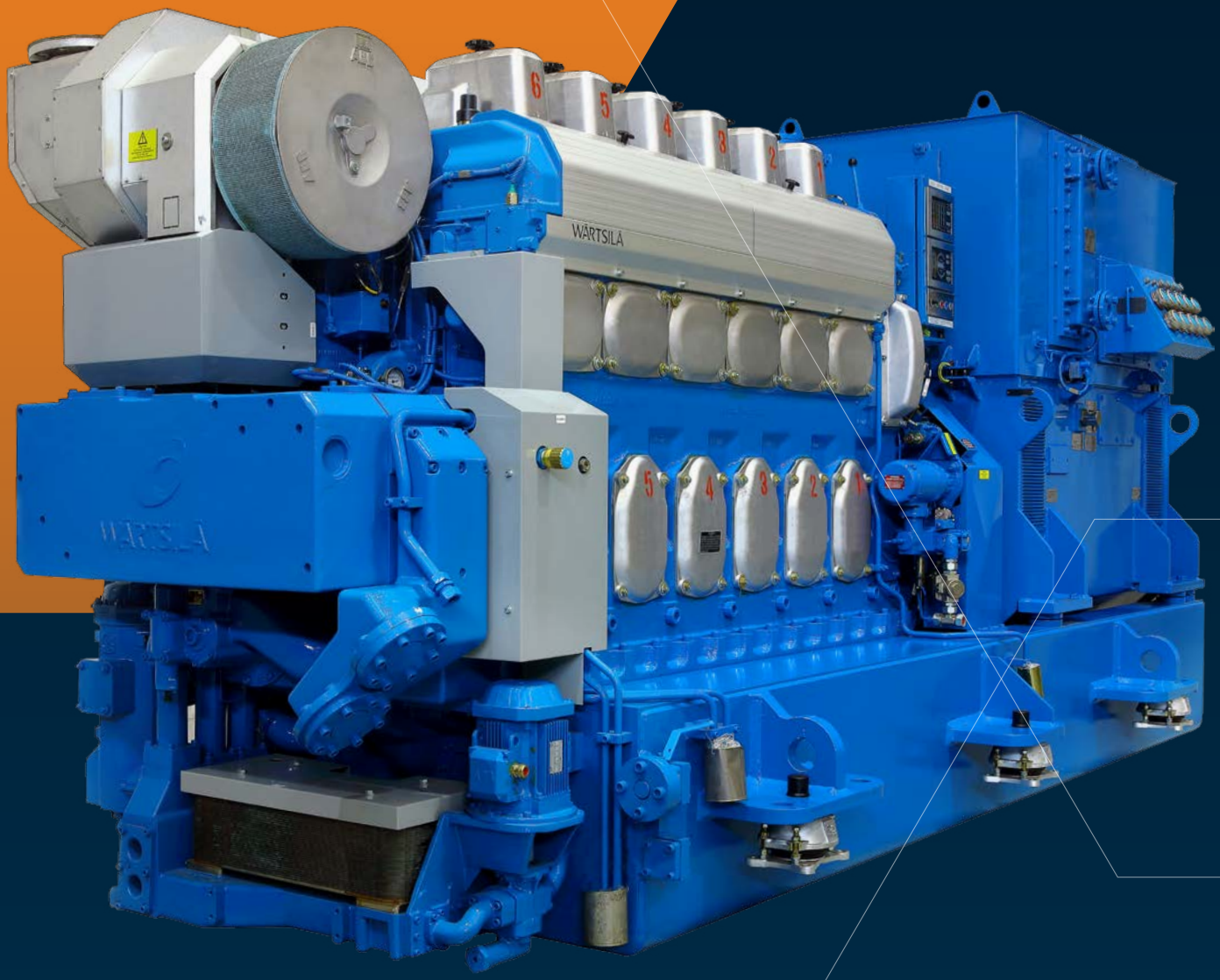
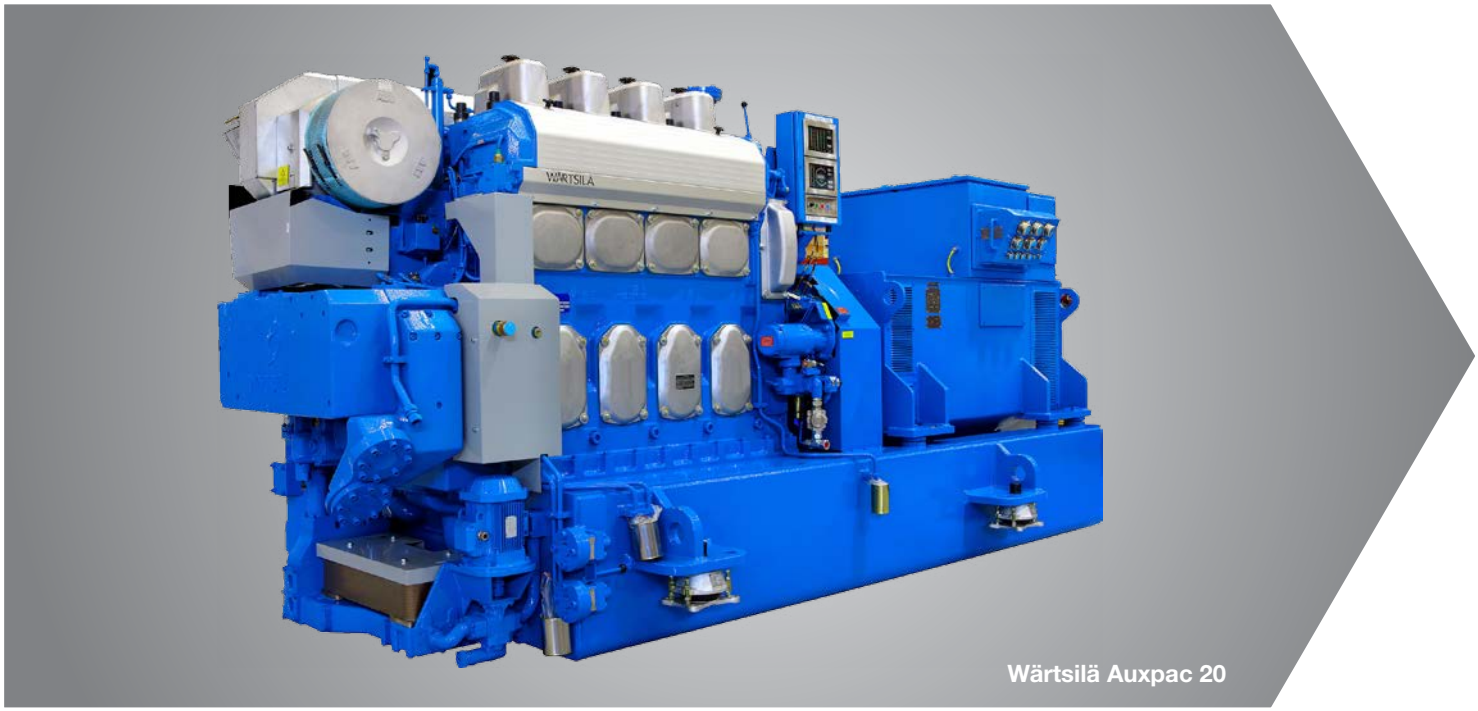
WÄRTSILÄ

Wärtsilä Auxpac

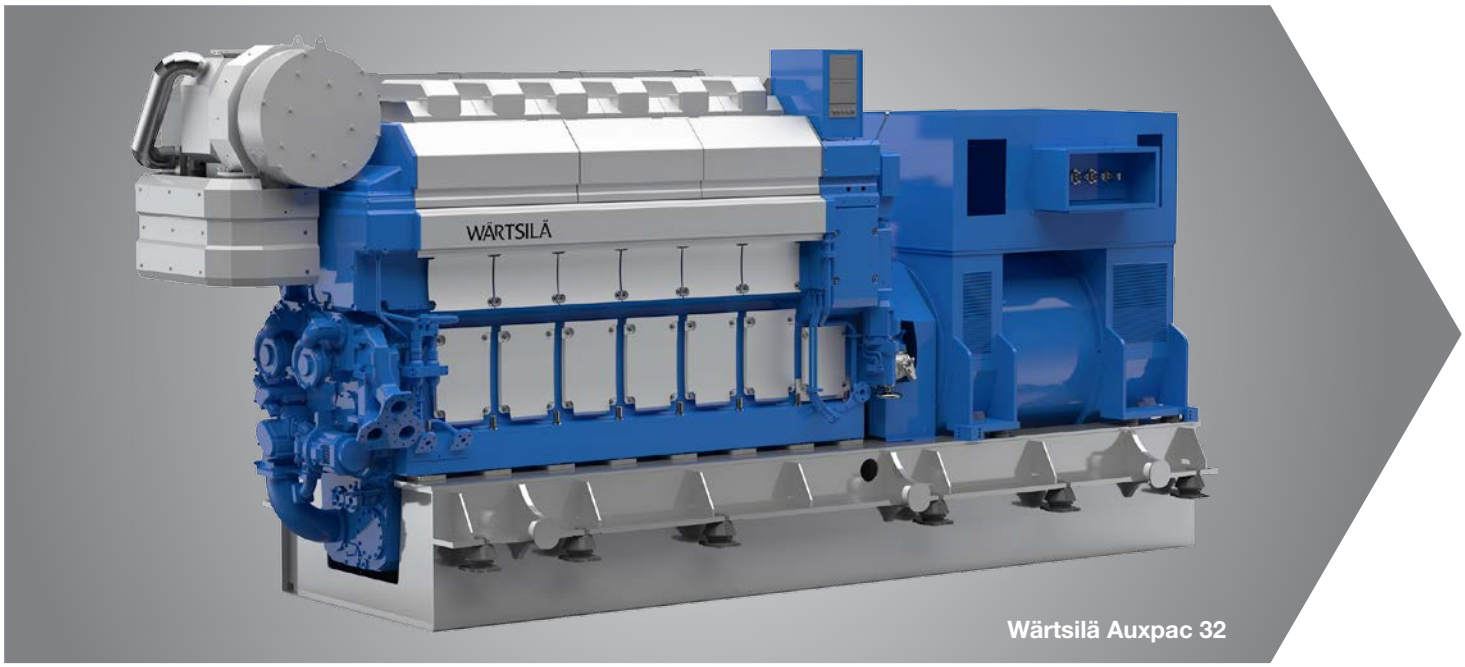


Tradition and innovation

The Wärtsilä Auxpac generating sets are the most compact and lightweight generating sets available on the market. The compact design of the generating set simplifies the engine room design and allows for easy location of the generating sets in the engine room, freeing valuable space in the ship for other purposes. The low weight of the generating set simplifies the installation and saves valuable weight in the ship.



Wärtsilä Auxpac 20



Wärtsilä Auxpac 32

Wärtsilä Auxpac generating sets are available in a selected range as pre-engineered and pre-commissioned auxiliary generating sets. The common baseframe is optimised for the package, which together with the compact design of the engine and the selected generator, offers unmatched power-to-space and power-to-weight ratios. Other benefits of pre-engineering include readily available documentation, which also includes models in Tribon® format, and short lead-times.

Auxpac generating sets are offered as 400 V / 690 V / 6600 V – 50 Hz and 400 V / 690 V / 6600 V – 60 Hz in the power range 500 kW to 4300 kW.

Benefits

- Cost competitive
- Easy installation
- Easy operation
- Pre-engineered
- Low operation costs
- Reliable, market-proven HFO design (heavy fuel)
- Complies with IMO Tier II legislation for NO_X
- Complies with IMO Tier III with exhaust aftertreatment
- Fuel efficient
- Light, compact design – saving valuable weight in the ship
- Low vibration and noise level
- User and maintenance friendly

Typical installations

General Cargo

- Generating set size 520 kW - 875 kW.
- Superior reliability and maintainability wherever the ship is trading in the world.

The generating sets must maintain a stable voltage, in all conditions.

Container Vessels

- Generating set size 635 kW - 4350 kW.
- Superior operating economy for high-power installations.

Low fuel and lube oil consumption enhances the overall economy of the ship.

Product Tankers

- Generating set size 520 kW - 1600 kW.
- Superior safety and loadability for any demanding installation.

Reliability, economy and safety are major considerations when selecting generating sets for new buildings.

Tankers

- Generating set size 520 kW - 1600 kW.
- Superior performance with no unreasonable spare parts need.

The Wärtsilä generating sets provide the required reliability for auxiliary power in tankers.

Scope of supply

- Heavy-duty 4-stroke marine diesel engine: turbocharged, intercooled, capable of starting and stopping on heavy fuel as well as running on heavy fuel at any load
- Heavy-duty marine-design alternator: air cooled, highly efficient, brushless
- Optimized common baseframe
- Digital control and safety system built into the generating set
- Material for flexible mounting of the generating sets
- Complete FAT of the generating sets.

The functionality can be further expanded with optional equipment.

Optional equipment

- Water-cooled alternators, IP 44
- Material for flexible connections
- Maintenance platforms

Technical advantages

Wärtsilä Auxpac generating sets are all equipped with a built-in, multi-functional, digital automation system with an integrated governor to ensure smooth control and fast response to load transients.

All Wärtsilä Auxpac generating sets are designed to be installed resiliently to the ship's hull. The resilient installation method enables easy installation and alignment of the generating set in the ship. Compared to traditional mounting methods, it also gives a clear advantage in the reduction of structure-borne noise transmitted from the generating sets to the ship's hull, thus improving comfort onboard the ship.

The ideal choice of yards and owners

Wärtsilä Auxpac generating sets are designed to fulfil the requirements of shipyards and shipowners.

For shipowners

- A reliable, market-proven HFO design operating in numerous ships – high reliability
- Low fuel consumption – low operating costs
- Low lube oil consumption – low operating costs
- Maintenance friendly – saves time
- Long maintenance intervals – less outage
- Minimal need for consumables – saves costs
- Resilient mounting – higher comfort in the ship
- Complies with IMO Tier II legislation for NO_X and IMO Tier III with SCR.

For shipyards

- Very compact design, giving the best power-to-space ratio on the market. The Wärtsilä Auxpac generating sets are the most compact in their class, enabling a very compact design for the engine room
- High power-to-weight ratio – easy to install and saves valuable weight in the ship
- Flexible mounting of the generating sets – fast and easy installation
- Built-in factory-tested automation – less cabling and fast commissioning
- Pre-documentation and genset models available as standard in www pages
- Common fuel system with main engines – saves costs and installation time
- Good motor starting capability – simpler electrical system in the ship

- Accepts a wide variety of fuels – can be used in different types of ship
- Generating sets are parallel run at the factory – saves commissioning time.

Delivery support

Installation planning instructions

Wärtsilä as the supplier and the shipyard as the contractor need to exchange information about the individual installation so as to build an installation that is both reliable and economical in use. Every delivery of a generating system built around Wärtsilä Auxpac generating sets is supported by an individual Installation Planning Instruction (IPI). Because of the high degree of pre-engineered solutions, the first version of the IPI can be supplied immediately after receiving the technical specification for the order, in either electronic or paper format.

Typical contents of an IPI:

- Definition of project and delivery scope
- Generating set main data and performance properties
- Recommendations for functional design of all related systems
- Main data for supplied components and recommendations for selecting other components
- Installation instructions and test and commissioning procedures.

Engineering support

Design collaboration is one of the keys to successful shipbuilding projects.

The full series of Wärtsilä Auxpac generating sets are available in the most common Tribon® formats as in other 2D and 3D formats.

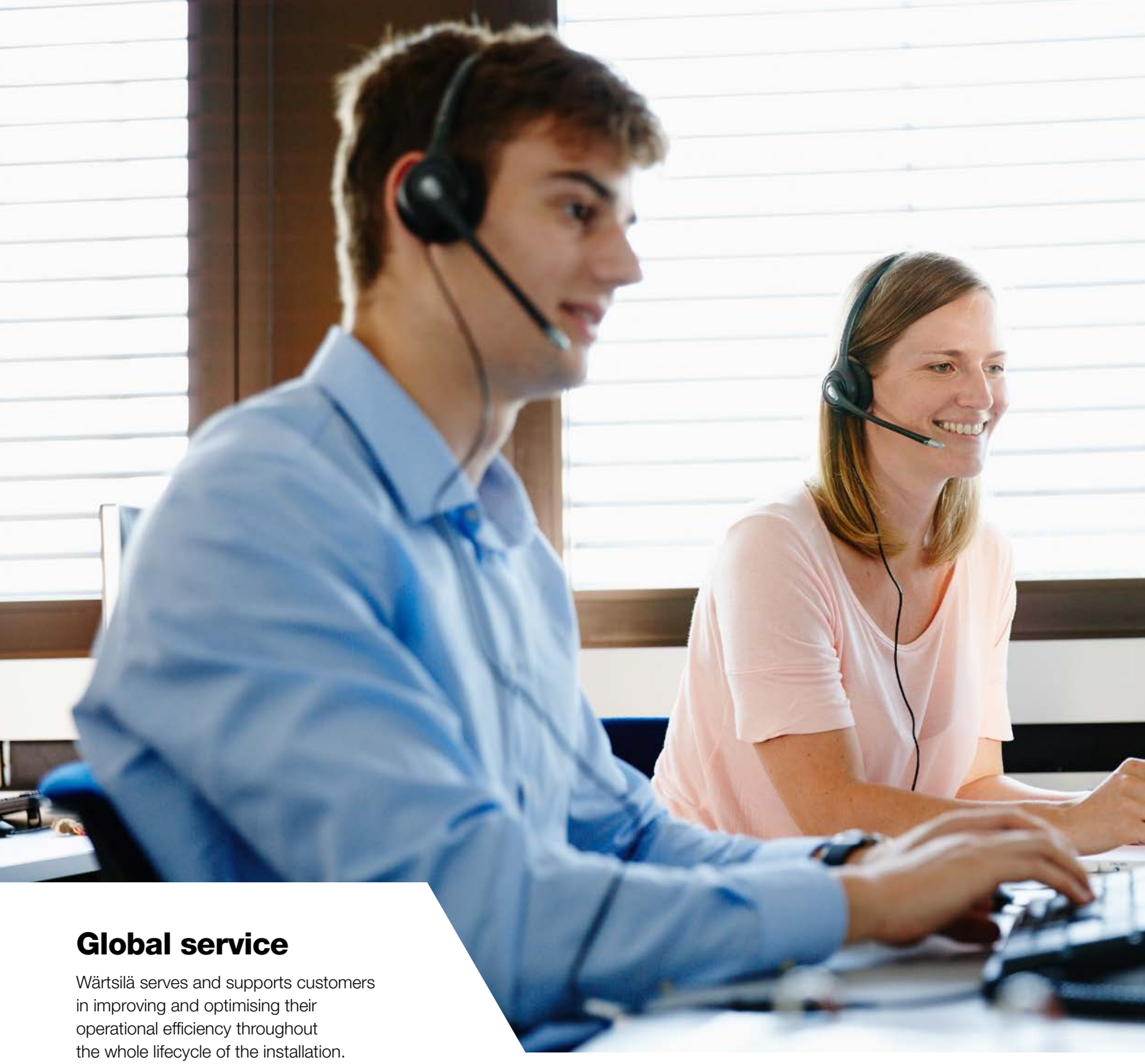
Testing and commissioning

Wärtsilä Auxpac generating sets are built from components of proven and tested design. In addition to the original type tests, every single delivery is given a Factory Acceptance Test (FAT) under the surveillance of a class representative, as required. Full factory testing ensures simpler commissioning. Agreed commissioning instructions are part of the total delivery scope and included in the project documentation.

Wärtsilä offers commissioning services including:

- Planning of the complete commissioning process, including training of commissioning teams
- Commissioning supervision by certified service engineers
- Commissioning service including installation pre-checks, first start, tests and sea trial support
- Commissioning report including performance test and evaluations. This report (like all reports from Wärtsilä) can also be accessed online.

A 1040W6L20 equipped with optional water-cooled generator (IP44)



Global service

Wärtsilä serves and supports customers in improving and optimising their operational efficiency throughout the whole lifecycle of the installation. The organisation currently features more than 11,000 dedicated service professionals in almost 70 countries. Our Services solutions cover everything from comprehensive customised long-term service agreements to product support with parts, field service and technical support, performance optimisation including upgrades and conversions, environmental solutions and training.

Wärtsilä Online services

Support is also provided through the Wärtsilä Online services customer portal, which can be accessed 24/7. Through Wärtsilä Online services it is possible to identify spare parts, check prices and availability, request quotations or create orders and track & trace deliveries. Operation and maintenance manuals and installation/equipment-specific bulletins are available in Wärtsilä Online services, and it is also possible to ask technical questions and register warranty claims.

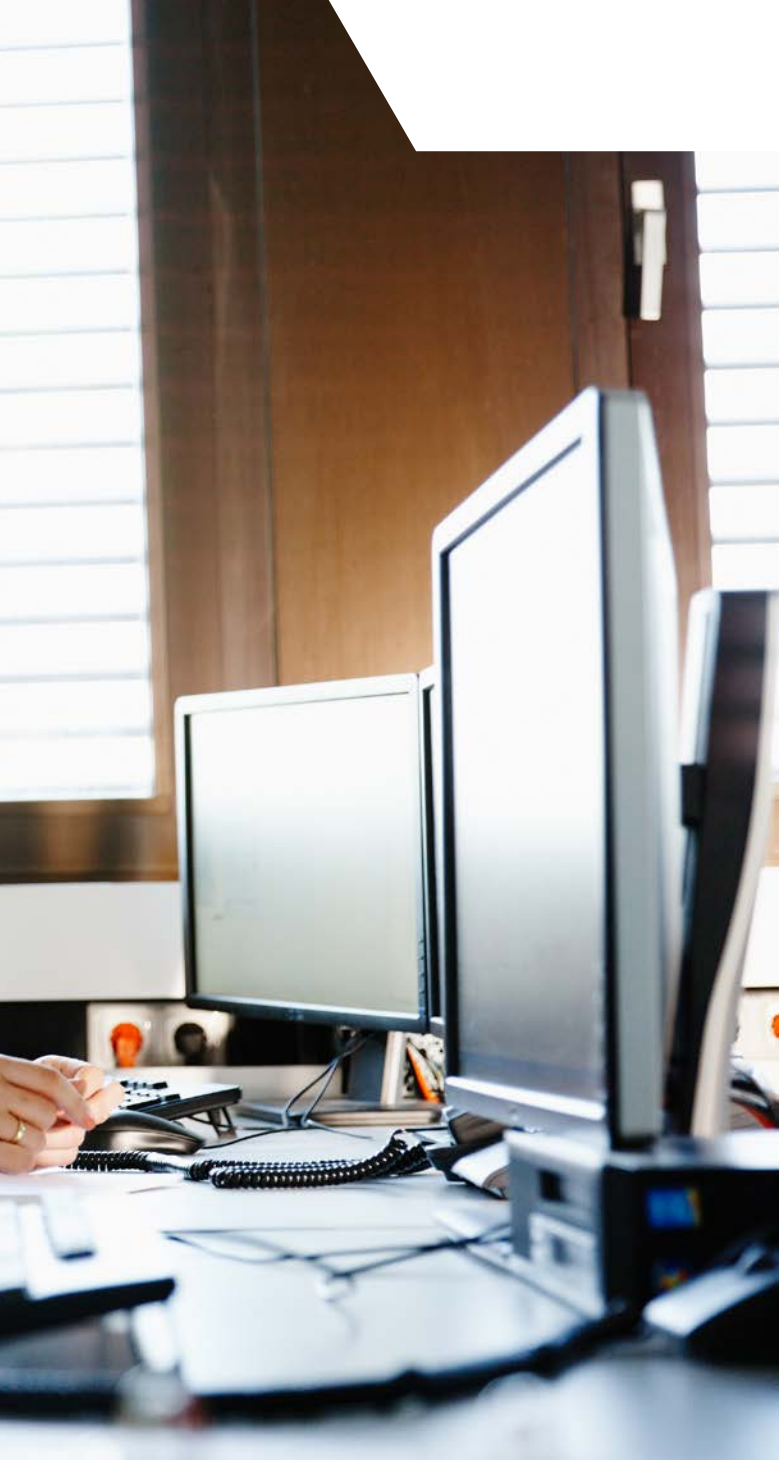
Asset performance management

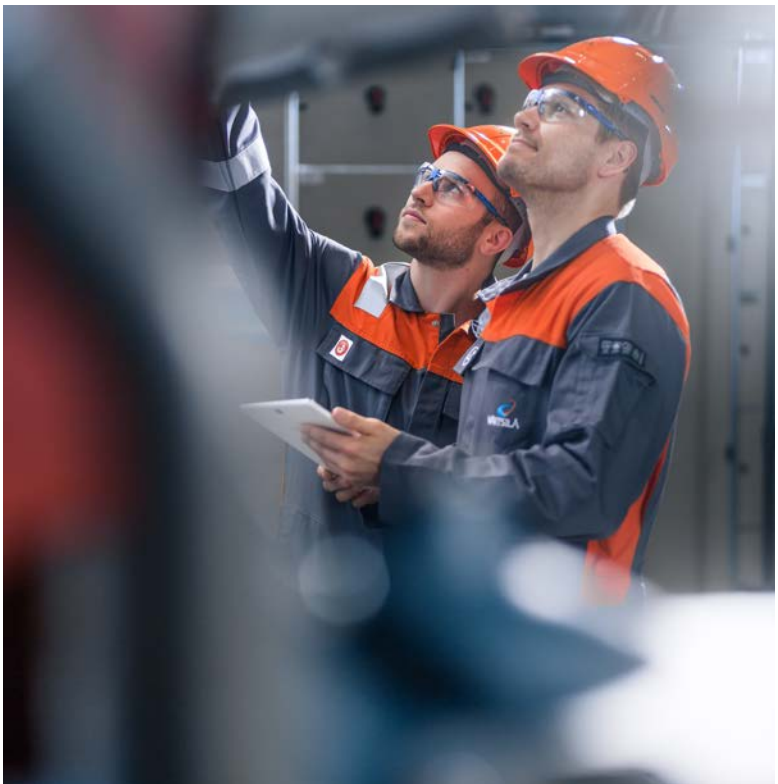
Service agreements

Wärtsilä can assure customers with long-term Service agreements high equipment availability and operational flexibility. A long-term Service agreement with fixed prices for everything from maintenance planning to availability of spare parts and man power, and technical support to training, enables excellent financial predictability. A Service agreement with the emphasis on optimised maintenance is a proven way of preventing the unexpected and optimising the productivity and profitability of your installation throughout its entire lifecycle.

Wärtsilä Genius services

Through intelligent data acquisition and advanced analytics Wärtsilä is able to optimise and increase the availability of the customer's assets. Real-time remote access to operational data enables advanced support and immediate response to ensure the safe operation of the installation, regardless of its location. Experienced specialists are available to give prompt response and advice to the crew or operating team via phone and e-mail, reducing the need for unscheduled maintenance visits.



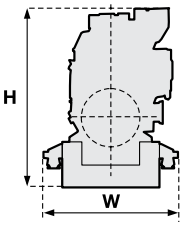


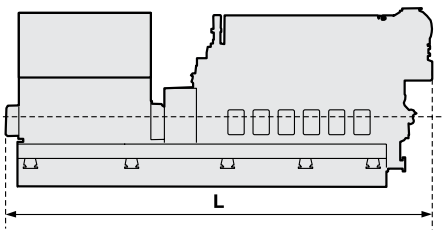
Main technical data

Pre-Engineered Medium-Speed Generating Sets				
Main data of generators	**60 Hz**	**50 Hz**	IMO Tier II or III	
Voltage	450	400	Fuel specification:	
Protection class	IP 23, IP 44 *	IP 23, IP 44 *	Fuel oil	700 cSt/50°C
Temperature rise and isolation	Class F	Class F	ISO 8217, category ISO-F-RMK 55	
Cooling	Air, water *	Air, water *	* Option	

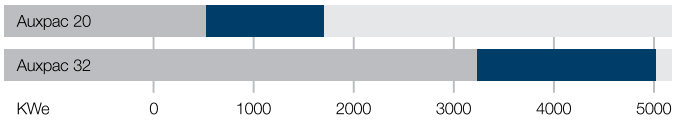
A20 – Dimensions (mm) and weights (tonnes)					
60 Hz	**Output kWe**	**A**	**E**	**L**	**Weight**
520W4L20	520	4 407	1 700	2 248	13.6
685W4L20	685	4 457	1 700	2 248	14.3
760W6L20	760	5 057	1 700	2 248	17.3
875W6L20	875	5 227	1 700	2 248	17.3
975W6L20	975	5 227	1 700	2 248	17.7
1040W6L20	1 040	5 227	1 700	2 248	18.0
1200W8L20	1 200	5 852	1 920	2 373	21.3
1300W8L20	1 300	5 852	1 920	2 373	21.3
1400W8L20	1 400	5 852	1 920	2 373	22.4
1600W9L20	1 600	6 507	1 920	2 455	23.4
50 Hz					
520W4L20	520	4 399	1 770	2 248	13.3
670W4L20	670	4 407	1 770	2 248	13.4
790W6L20	790	5 007	1 770	2 248	16.4
860W6L20	860	5 057	1 770	2 248	16.9
1000W6L20	1 000	5 212	1 770	2 248	17.9
1140W6L20	1 140	5 212	1 770	2 248	18.1
1350W8L20	1 350	5 852	1 920	2 373	21.3
1550W9L20	1 550	6 507	1 920	2 373	22.8
1700W9L20	1 700	6 507	1 920	2 455	23.1

A32 – Dimensions (mm) and weights (tonnes)					
60Hz	**Output (kWe)**	**L**	**W**	**H**	**Weight**
3230W6L32	3 230	8 030	2 690	3 725	57
3770W7L32	3 770	8 360	2 690	3 920	64
4300W8L32	4 300	9 110	2 690	3 875	70
4840W9L32	4 840	10 475	2 890	3 925	84
50Hz	**Output (kWe)**	**L**	**W**	**H**	**Weight**
3340W6L32	3 340	8 030	2 690	3 725	57
3900W7L32	3 900	8 360	2 690	3 920	64
4450W8L32	4 450	9 110	2 690	3 875	70
5010W9L32	5 010	10 475	2 890	3 925	84





Power Range for Wärtsilä Auxpac



Weight and dimensions are based on standard configuration.
All data subject to change.

Wärtsilä is a global leader in complete lifecycle power solutions for the marine and energy markets. By emphasising technological innovation and total efficiency, Wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers.

www.wartsila.com

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