











OR VIEW THE BLUE & ORANGE PINPOINTS WITH **JUST YOUR SMARTPHONE**

INSERT YOUR SMARTPHONE IN THE VR VIEWER TO VIEW THE ORANGE PINPOINTS

The global leader in advanced technologies and complete lifecycle solutions for the marine and energy markets

In 2015, Wärtsilä's 19,000 employees generated net turnover amounting to 5 billion euro. The company is active at 200 locations around the globe in some 70 countries and employs people with various backgrounds, levels of education, experience and ambitions. We believe in equal opportunity and personal growth and we support our employees on their personal path at Wärtsilä.

We concern ourselves with advanced technologies that maximise the economic performance of our customers' ships and power plants in an environmentally friendly manner. Here, the focus is on sustainability, innovation and total return. Consider the development of high-capacity propulsion systems for ships, for example. No other single company can compete with our wide portfolio of products, systems and solutions. Combined with nearly 200 years of knowledge and experience, this makes Wärtsilä a player on the world stage.

TAKE A NEW LOOK AT WÄRTSILÄ

For your own safety, we request that you not walk around while using the VR headset.

WORLDWIDE KNOWLEDGE CENTRE

You may already know it, but Drunen is Wärtsilä's knowledge centre when it comes to propulsion. The global technology and services centre is located here.

It won't surprise you that this is also the reason that one of the 10 globally operating Land and Sea Academies is also located here, providing training and education in the latest applications, particularly in the area of propulsion.

> We aim for the most optimum result for our clients.

WÄRTSILÄ WORLDWIDE WÄRTSILÄ WORLDWIDE

Pioneering solutions



Wärtsilä has a great position for profiting from trends in environmental awareness and changing energy demands. We strive for growth by offering innovative, energy-efficient lifecycle solutions and by using our leading position in technological applications as fuel.

WE RUN AHEAD

Regulations in the area of efficient energy use and consumption are becoming increasingly stringent in both the maritime and energy sectors. Wärtsilä ensures that products and services are adapted immediately to new regulations. This allows Wärtsilä to make the difference in comparison to other global players in the sectors in which it operates.

MAKING A DIFFERENCE

The world of power is changing rapidly.

Sustainable, energy-efficient products and services are becoming increasingly important. This certainly goes for us as well. We want to make a difference in the worldwide energy transition. For example, our innovative technologies make ship propulsion increasingly more efficient. Wärtsilä is ahead of the pack in making systems that can run on significantly more environmentally friendly Liquefied Natural Gas (LNG). And we are accelerating our digital approach to the maritime industry.

As a manufacturer, we are unparalleled in turning data into valuable recommendations. We don't report deviations in the data, but go much further by indicating which components have problems and what has to be done with them. Together with our subsidiary Eniram, we offer an extremely complete range of "performance optimisation services". We now have condition-monitoring services for the most important products, along with services to optimise the performance of ships. We call these Genius Services. With our Online Services, customers can also gain insight into their own data themselves.

PASSION TO PERFORM

Wärtsilä is a proud and involved global player that provides its employees every opportunity to grow professionally and personally. Wärtsilä cherishes the dedication and passion of employees who work hard every day to improve their craftsmanship. We believe in the power of diversity within our company: in terms of gender, culture, background, education and more. Every individual, every experience, everyone's contribution is valuable and ultimately results in the best and most sustainable result for the customer.

Wärtsilä's headquarters is in Helsinki, Finland. Worldwide, Wärtsilä has 200 locations, eight of which are in the Netherlands. In total, nearly 19,000 people work at the company; nearly 1000 in the Netherlands.

We believe in market-focused, sustainable solutions and valuable career opportunities.

COLOPHON

You come up with the most

advanced solutions if you're

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Contact Please tell 11

suggestions will help us to shape this publication to meet our readers' needs. Send your e-mail to communicationsbenelux@wartsila.com.

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MARINE SOLUTIONS



Wärtsilä enhances the business of its marine and oil & gas industry customers by providing innovative products and integrated solutions that are safe, environmentally sustainable, efficient, flexible, and economically sound. Being a technology leader, and through the experience, know-how and dedication of our personnel, we are able to customise solutions that provide optimal benefits to our customers around the world.

SERVICES



Wärtsilä Services supports its customers throughout the lifecycle of their installations by optimising efficiency and performance. The company's service network of approximately 11,000 professionals in 160 locations is unmatched in the industry, delivering services to more than 12,000 customers every year. The portfolio of services – from spare parts to complete operational, maintenance and optimisation services – is constantly being developed, not only to improve the availability of customers' installations, but to support them in growing their businesses. Wärtsilä is committed to providing high quality, expert support and the availability of services in the most environmentally sound way possible, whenever, wherever.

ENERGY SOLUTIONS



Wärtsilä Energy Solutions is a leading global supplier of ultra-flexible power plants of up to 600 MW operating on various gaseous and liquid fuels. Our portfolio includes unique solutions for baseload, peaking, reserve and load-following power generation, as well as for balancing intermittent renewable energy. Wärtsilä Energy Solutions also provides utility-scale solar PV power plants, as well as LNG terminals and distribution systems. As of 2016, Wärtsilä has 60 GW of installed power plant capacity in 176 countries around the world.



Our expertise

Wärtsilä is subdivided into marine solutions, energy solutions and services with various product business lines. The business lines indicated in orange are represented in Drunen.



MARINE SOLUTIONS

ngines

Propulsion

Flow & gas

Enviromental solutions

Electrical & automation

Ship design

SERVICES

4-stroke Engine Services

Propulsion System Services

Emerging Business™

Digitalisation

ENERGY SOLUTIONS

Engines LNG Renewables & storage

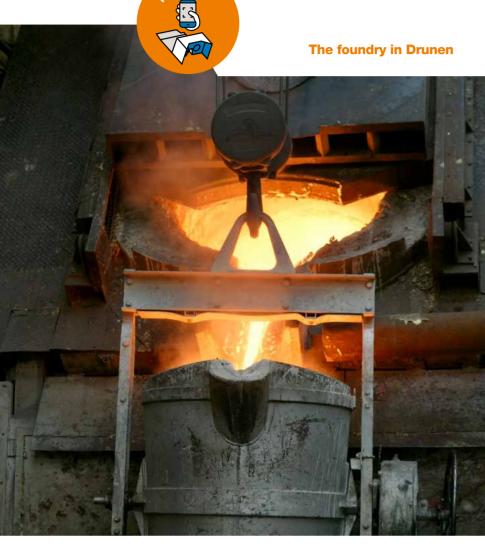
WÄRTSILÄ NETHERLANDS WÄRTSILÄ NETHERLANDS

From days past...

WÄRTSILÄ IN THE NETHERLANDS

The Netherlands has a long history, of course, in ships and shipbuilding. From 1939 through 2010, the former LIPS company produced ships' propellers. In the early 1990s, the company was acquired by John Crane and in 2003, the company was then sold to Wärtsilä.





Nearly 200 years of history



.... to Wärtsilä these days

WÄRTSILÄ IN THE NETHERLANDS

In addition to the Drunen location, there are now seven other Wärtsilä locations in the Netherlands.

They work for both Dutch and Belgian customers, and worldwide. For example, the locations in Schiedam, Kruiningen (QuantiServ) and Harlingen focus primarily on serving customers optimally with questions about products, custom made solutions, service contracts, maintenance and parts. Rotterdam is the location for Wärtsilä SAM Electronics. Our services are directed close to the customer, from the heart of the Rotterdam Harbour. Zwolle is home to the office that focuses on energy solutions for Africa and Europe. The subsidiary QuantiParts is also located in Zwolle and provides parts and knowledge for the so-called classic engine brands from Wärtsilä. The worldwide central logistics for Wärtsilä, highly automated, is run from the location in Kampen.

Facts & figures





WÄRTSILÄ WORLDWIDE WÄRTSILÄ WORLDWIDE

The maritime markets in which we are active









Have a look at our portfolio of solutions for industry in this brochure.



detailed Wärtsilä product the maritime, oil and gas

The orange, grey and blue dots below provide an indication of where the various products are located on a ship.







Wärtsilä Midsize waterjets



Wärtsilä Modular Waterjets Wärtsilä Energopac



Integrated solutions

Wärtsilä's unique capabilities in harnessing innovation and digitalisation form the basis of our support for our customers as we enter a new age of shipping. It is no longer always enough to provide individual products or systems, since the essential global need for optimal efficiency and minimal risks demand that all these individual parts function together, as a single integrated, harmonious entity. When Wärtsilä talks about connecting the dots, integration of all the various elements that go into producing the most efficient and cost-effective operational performance is central to this concept.

No other company can match our portfolio of products, systems and solutions. It is this vastly broad offering, together with our almost 200 years of know-how and experience that makes Wärtsilä so very capable in producing the best and most efficient integrated solutions. This single-supplier capability speeds and eases the design and procurement process, facilitates accurate and on-time logistics, and reduces project development and execution risks for shipyards and owners.

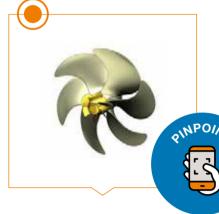
Wärtsilä Steerable Thrusters



Wärtsilä Built-UP Propellers Wärtsilä Fixed Pitch **Propeller Systems**



Wärtsilä Coastal and Inland **Waterway Propellers**



Wärtsilä EnergoProFin

Examples of our





Wärtsilä Retractable thrusters



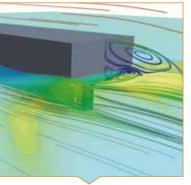
Wärtsilä Transverse Thrusters



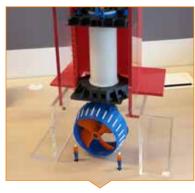
Supporting expertise

We offer even more expertise. Discover it on the following pages.



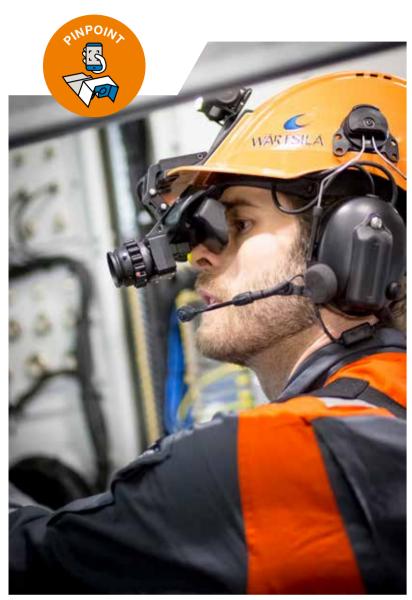


Computational Fluid Dynamics Calculation



3D Printing

We are at the forefront of technical innovations



Since Wärtsilä can deliver integrated solutions, we are uniquely capable of interpreting the data collected in this chain and transposing this into valuable recommendations. With this data, we ensure that the Wärtsilä products on board continue to function optimally and that any malfunctions are prevented. A few examples of the digital developments that we offer include Wärtsilä Genius Services and Wärtsilä Online Services.

WÄRTSILÄ GENIUS SERVICES

Wärtsilä launched Wärtsilä Genius services, an area of expertise designed to help customers optimise their operations and seize the opportunities offered by digitalisation. The service concept is based on comprehensive optimisation of customers' business and entire installation instead of focusing on maintenance and servicing alone. Wärtsilä has signed several maintenance agreements that benefit from Wärtsilä Genius services, using real-time data and analytics. The main concerns for all our customers are uptime and cost-efficiency, both of which have a direct impact on profitability. We are developing Wärtsilä Genius services with these concerns in mind - we want to ensure that our customers can get the most out of their assets, while operating in a safe and environmentally friendly way.

Wärtsilä Genius Services includes:

-Engine efficiency monitoring service

With this service, customers can optimise their fuel consumption by adjusting their operations according to real-time data. It is including duel fuel engines. The service monitors the engines' efficiency in a standardised (ISO specified fuel oil consumption) way.

Propulsion Condition monitoring Service provides the customer with real-time advice and

provides the customer with real-time advice and periodic reports concerning the condition of the machinery, as well as information necessary for efficient maintenance planning.

-Cyber security patching service

is a subscription-based service that provides tools for managing the entire lifecycle of your industrial control system assets. The service provides essential updates, patches and hot fixes for applications, operating systems, devices and servers.

-Offline vibration analysis service

is a service for propulsion and other rotating equipment. This expert service analyses measurement

data from the equipment to determine their condition and possible maintenance needs. With it, component defects, alignment issues and balance problems can be detected and remedied before they have a chance to cause significant damage.

WÄRTSILÄ ONLINE SERVICES

With Wärtsilä Online Services you can manage your installation and equipment efficiently by accessing information whenever, wherever. Wärtsilä Online Services includes the following features, Technical Knowledge, Parts Online, TechRequest and Warranty Online.

Technical Knowledge

Access to information on your installations and equipment such as bulletins, interactive manuals and frequently asked questions 24/7. You can effectively search for equipment specific technical documentation.

Parts Online

In the Parts Online Services you can identify spare parts through catalogues and illustrations. Check spare part prices and availability, create spare part quotations or orders and track and trace deliveries. Your order history is automatically archived in the Online Services.

TechRequest

By creating a TechRequest you can ask technical questions directly from Wärtsilä Technical Services. With a direct contact and dialogue with Wärtsilä's technical experts you prevent losing time and any crucial information during the discussion as your questions are automatically sent to the correct team. You can see full history of all Technical questions and related answers for your company and installations.

Warranty Online

In Warranty Online services you can easily and efficiently register all your warranty claims online and track and trace the resolution progress i.e. claim status and history. The Warranty Online provides you efficient and fast service along with full history of the warranty claim activities.





Future shipping

WÄRTSILÄ PRESENTS ITS 'VISIONS OF FUTURE SHIPPING'

The work on future visions has been prompted by the inevitable effect that growing global energy demand and increasingly stringent environmental legislation to combat climate change will have on the shipping sector. Additionally, Wärtsilä assesses various emerging trends, such as sharing economies, new business models enabled by the new digital universe, the huge growth in energy storage capacity, and new affordable 'green' energy sources, since they represent both challenges and opportunities for the future of shipping.

Wärtsilä has set out its visions for the future of the shipping industry. The work on future visions has been prompted by the inevitable effect that growing global energy demand and increasingly stringent environmental legislation to combat climate change will have on the shipping sector. Additionally, Wärtsilä assesses various emerging trends, such as sharing economies, new business models enabled by the new digital universe, the huge growth in energy storage capacity, and new affordable 'green' energy sources, since they represent both challenges and opportunities for the future of shipping.

"We accept the challenges created by the developments currently taking place. Wärtsilä is increasing its speed of re-invention; not just internally but in cooperation with our customers and partners, so that the industry can be assured of having the technologies ready and available to meet the new requirements," says Roger Holm, President, Wärtsilä Marine Solutions.

In its 'Visions of Future Shipping' paper, Wärtsilä presents different scenarios that could shape the way that shipping companies operate in the future. These scenarios have each been identified under different names, as follows:

CONVOY

By taking advantage of advanced controls and communication between autonomous components, systems, and vessels, shipping fleets could be operated in convoys. The fuel savings created by vessels closely following each other results from the lower entrance speed of water ahead of the aft vessel. By optimising the operations significant fuel reductions could be achieved.

Furthermore, through the use of system autonomy, artificial intelligence, and advanced connectivity, it is envisioned that the trailing ships could be operated with fewer crew members. Advanced communication technologies will also rapidly increase the sharing of information, which will save time and optimise the allocation of cargo to vessels.

ZERO - Floating Distribution Hubs

Another scenario could be to have artificial islands along the main shipping routes producing emissions free fuels from solar or wind for powering green energy sources. Clean energy production is becoming a global priority, and its influence on the shipping industry is expected to be felt more and more within the near future.

Exergo - Unlimited Energy Storage

Large investments will drive energy storage using battery technology. Wärtsilä believes that battery energy density will increase substantially during the coming years. This will allow ships to operate in sensitive areas silently and with no exhaust emissions.

Z3 - Green Energy

To provide reliable, emission free power without upfront investment, highly reliable energy sources and monitoring from the shore through advanced connectivity will be required. This concept envisions the supply of energy for propulsion on an 'as you go' basis.

LIITOS - Working together

For efficient cargo sharing, access to the same information by all global operators would ensure, for example, that no container ship sails cargo free. This sharing of assets could be achieved by use of a digital tool.











Propulsion products

WHAT ARE THOSE?





Want to dive deeper into the world of Wärtsilä? We have a beautiful, extensive online encyclopaedia to enthuse you from A to W (for Wärtsilä, of course. And, yes, it goes to Z).

WWW.WARTSILA.COM/

Discover Drunen

Worldwide knowledge and training centre in the area of propulsion

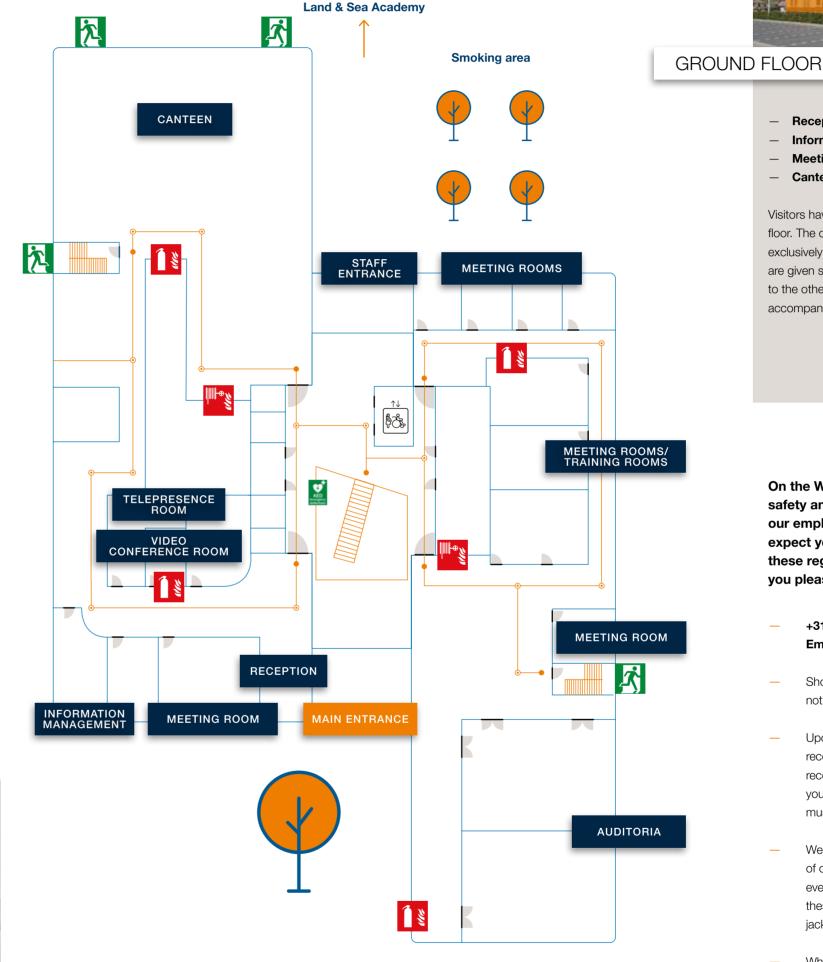
The Wärtsilä location in Drunen has both a European and a global function in the organisation. This is the location for the Technology & Services Centre (T&SC), specialised in propulsion. This centre is a worldwide authority in the area of high-value maritime technology.

The focus is primarily on assisting customers throughout the entire lifespan of their installation. To do this, we advise our customers (concerning new ships, but also after commissioning), perform product development and design and read out and analyse data, among other things. In addition to the departments that focus exclusively on the core business, there are also various support departments located in Drunen.

In addition to the Technology & Services Centre, there is also the Land & Sea Academy, where various training courses and educational programmes are offered.



Technology & services centre



Information Management (ICT support)

Visitors have access to the ground floor. The other floors are reserved exclusively for employees. Visitors who are given special access for this can go to the other floors as long as they are accompanied by a Wärtsilä employee.

On the Wärtsilä grounds, the following safety and health regulations apply to both our employees and to our visitors. We expect you to read, understand and use these regulations. We therefore ask that you please read the text below carefully.

- +31 (0)88 980 4333 **Emergency number**
- Should you encounter any unsafe situation, notify your Wärtsilä contact person of this.
- Upon arrival, you must register at the reception desk as a visitor. You will then receive a visitor's pass. We request that you wear this visibly. Upon departure, you must log out and return the badge.
- We request that you follow the instructions of corporate emergency responders in the event of an emergency. You can recognise these employees by their fluorescent jackets.
- When taking stairs, hold onto the banister.
- Don't use the elevator during emergencies.



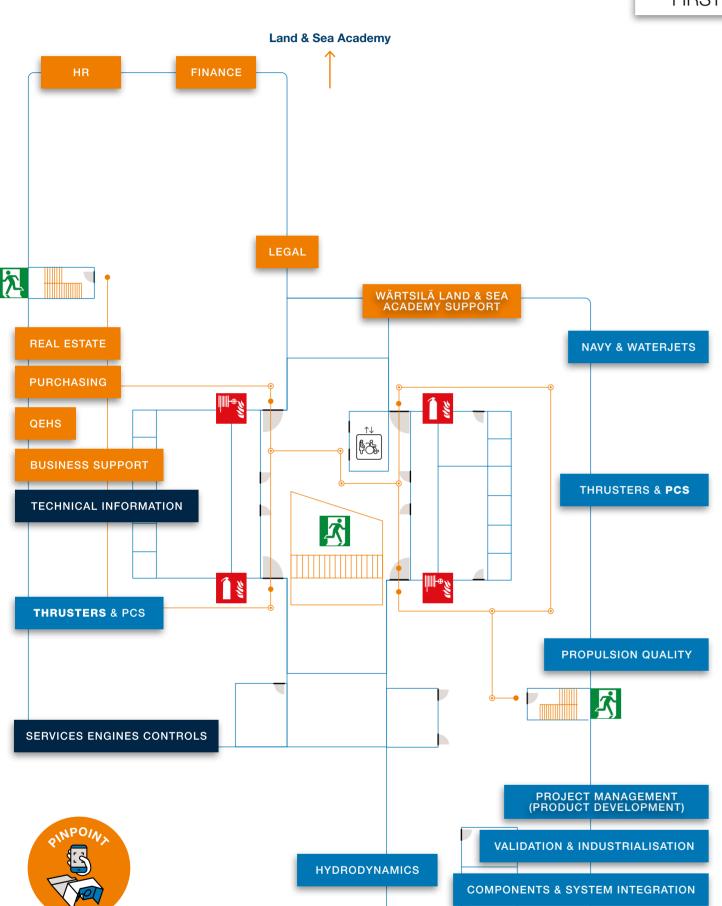
Firehose + fire extinguisher

Emergency exit

LEGEND

Evacuation route





LEGENDA Fire extinguisher **Evacuation route Wartsila Netherlands** Firehose + fire extinguisher **Marine Solutions** Emergency exit

MARINE SOLUTIONS

Business Line Propulsion

- **Quality & Technology** Hydrodynamics
- Components & system integration
- Validation & industrialisation
- Project Development Management
- Quality tools & processes

MARINE SOLUTIONS

Business Line Propulsion Product Lines

- Thrusters & Propulsion Control Systems (PCS)
- Navy & Waterjets

SERVICES

4 Stroke Engine Services

Engine Controls

SERVICES

Propulsion system services

Technical information

WARTSILA NETHERLANDS SUPPORTING DEPARTMENTS

- Human Resources
- Legal Finance
- Quality, Environment, Health & Safety (QEHS)
- Land & Sea Academy support
- Purchasing
- Real Estate
- Business Support

Highlight

Marine solutions Business line Propulsion

Wärtsilä Marine Solutions offers a range of products in the area of mechanical and electrical propulsion. The products are designed as optimally as possible, with an eye to both daily operation and to environmental impact. The products provide efficient fuel consumption and, by reducing emissions, Wärtsilä enables its

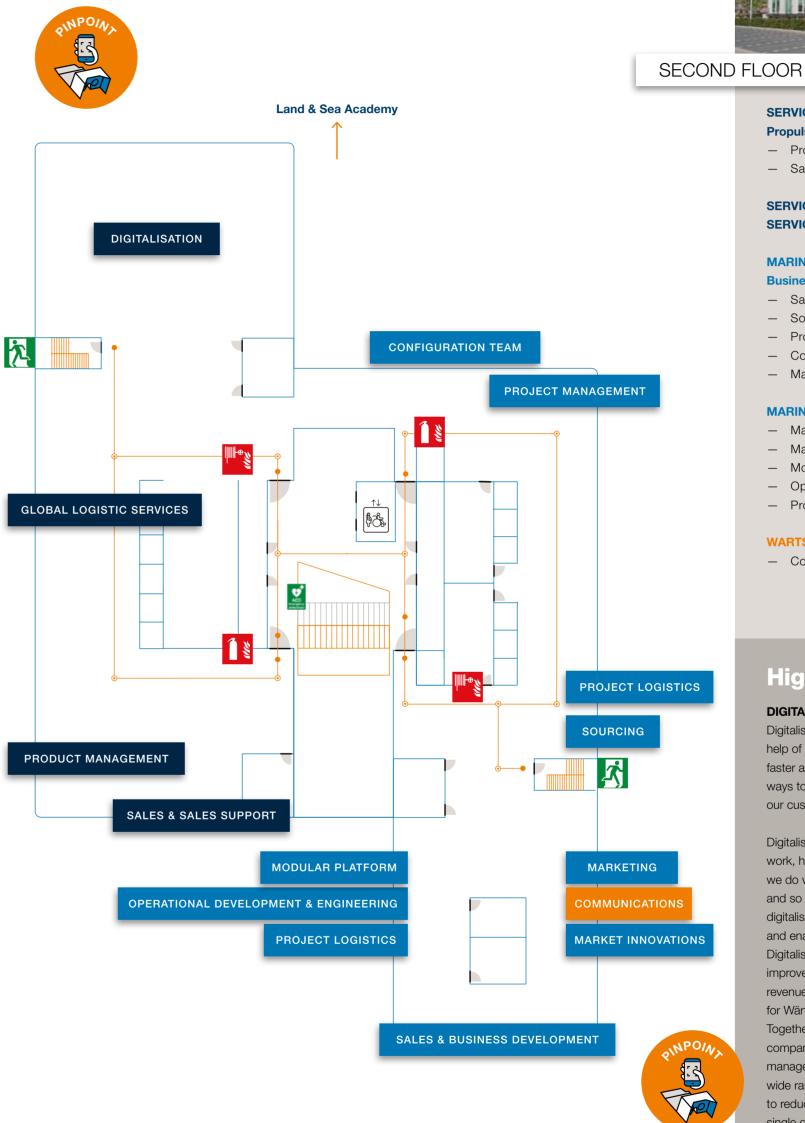
customers to operate throughout the world.

The Propulsion business line develops, sells and delivers propulsion products such as gearboxes, fixed and variable-pitch ships' propellers, thrusters and water jets.

At Propulsion, three product groups can be

- Thrusters & propulsion control systems
- Propellers & gears
- Navy & waterjets

Technology & services centre





Emergency exit



SERVICES

Propulsion System Services

- Product Management
- Sales & Sales Support

SERVICES – Global Logistic Services

SERVICES - Digitalisation

MARINE SOLUTIONS

Business Line Propulsion

- Sales & Business Development
- Sourcing
- Project Management (customer order)
- Configuration team
- Marketing

MARINE SOLUTIONS

- Marketing
- Market Innovations
- Modular Platform
- Operational Development & Engineering
- Project Logistics

WARTSILA NETHERLANDS

Communications

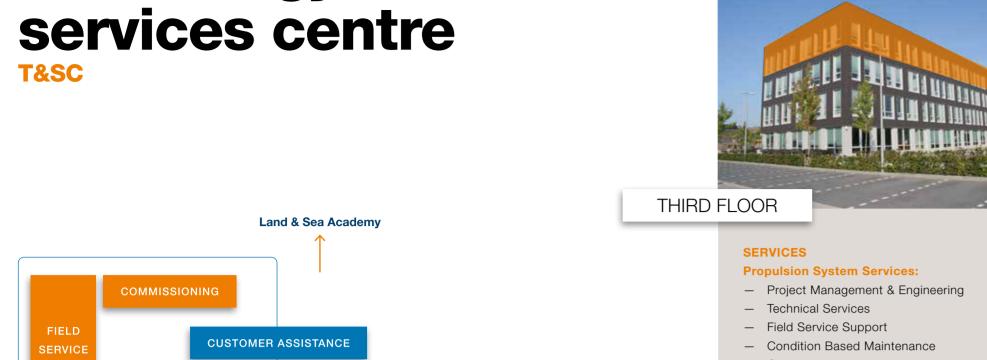
Highlight

DIGITALISATION AT WÄRTSILÄ SERVICES

Digitalisation is about rethinking services with the help of modern technology to make services easier, faster and more valuable. Digitalisation enables new ways to increase revenue and growth potential for our customers.

Digitalisation will touch almost all aspects of our work, how customers engage with us, what do we do with the data collected from our equipment and so on. Wärtsilä is building a comprehensive digitalised approach which optimises operations and enables growth together with our customers. Digitalised services create value as digitalisation improves safety, transparency, availability, efficiency revenue increase and eventually growth – not only for Wärtsilä but our customers and partners too. Together with Eniram, a Finland-based technology company providing the marine industry with energy management and analytics solutions, we offer a wide range of performance optimisation services to reduce fuel consumption and emissions. From single onboard applications for trim, speed and engine optimisation to comprehensive fleet analysis. Through the acquisition of Eniram Wärtsilä takes a solid lead in marine digitalisation.

Technology & services centre



SUPPOR' **INLAND WATERWAYS** CONDITION BASED MAINTENANCE TECHNICAL SERVICES

Commissioning

SERVICES - Customer Assistance

SERVICES - Inland Waterways (IWW)

Highlight

Services: Propulsion System Services

Propulsion System Services wants to support its customers throughout the entire lifespan of their installations. This sometimes starts at an early stage, during the first discussions with customers. And it doesn't stop after commissioning: we keep supporting our customers until the end of their installation's operational life. This means that we feel responsible and that we take full responsibility instead of simply delivering parts or sending a maintenance specialist to make a quick fix to a problem. Over the course of time, we have introduced new products and services to increase the efficiency, reliability and safety of the ships that are in operation.

Propulsion System Services offers a gamut of services, including.

- Delivery of original spare parts
- Propeller repair
- Worldwide field service
- Overhaul of all propulsion systems
- Retro fitting controls
- Retrofitting tunnel thrusters, steerable thrusters and controllable pitch propellers
- Propeller improvement package
- Underwater repair of propellers and seals
- Delivery of spare sub-assemblies, such as underwater removable parts, lower gearboxes and hubs.

The Product Management within Services is a strategic and tactical function that aligns with and operates through the network of stakeholders to maintain or improve the commercial performance of services products.

In Propulsion System Services the Product Management department is enhanced with additional functions such as Strategic Alliances, Innovation and Product Development, Sales Development and Pricing.

Land & Sea Academy

Land & Sea Academy

One of Wärtsilä's ten specialised Land and

Sea Academies is located in Drunen. Training

and education are offered here (internal and

external) in the area of the maintenance and

operation of engines, propulsion systems,

1200 m² building has all of the facilities:

electrical systems and control systems. The

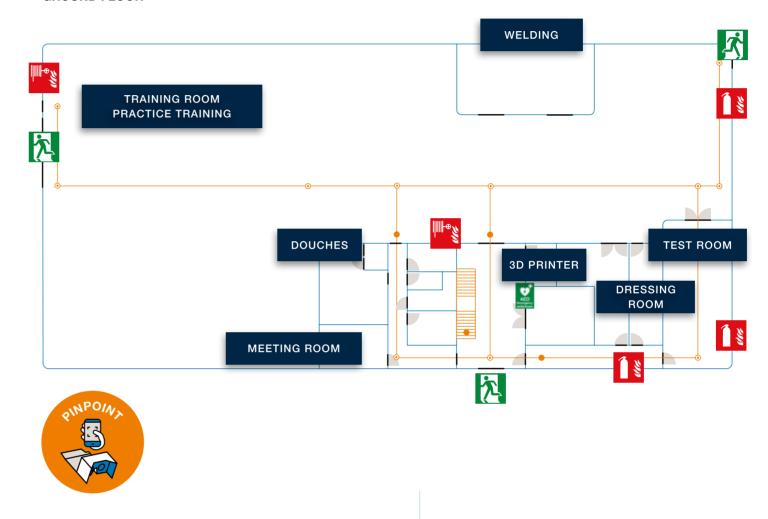
modern training rooms and resources, test

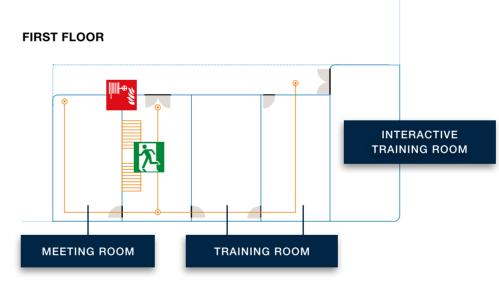
rooms and simulators. Training courses can be custom designed for the customer - both in terms of content and where and how the

training course can be taken. This can be done at the Academy itself in Drunen or on

board/at the customer's location.

GROUND FLOOR





An overview of the range of training courses:

- Variable-pitch propellers (including control systems)
- Gearboxes
- Gearboxes
- Seals, Bearings & Propeller shaft guidesSteerable thrusters (including control
- systems)
- Transverse thrusters (including control systems)
- Water jets (including control systems)

 Propulsion Control System retrofit
- Propulsion Control System retrofit
- Propulsion training for shipyard employees
- Dual-fuel engines
- Engine operation UNIC C2/C3
 Electro-technical & Automation
- Electro-technical & Automation
- Propulsion Condition Monitoring Service (PCMS)



PROJECT MANAGEMENT & ENGINEERING



Keep it safe together

The safety of our employees and of our guests is always paramount. By following the instructions below, we can jointly safeguard everyone's safety.

The following regulations concerning the health and safety of both our employees and our visitors apply on the Wärtsilä grounds. We expect you to use these regulations. Therefore, please read the text below carefully.

- +31 (0)88 980 4333 Emergency number
- Should you encounter any unsafe situation, notify your Wärtsilä contact person of this.
- Upon arrival, you must register at the reception desk as a visitor. You will
 then receive a visitor's pass. We request that you wear this visibly. Upon
 departure, you must log out and return the badge.
- We request that you follow the instructions of corporate emergency responders in the event of an emergency. You can recognise these employees by their fluorescent jackets.
- When taking stairs, hold onto the banister.
- Don't use the elevator during emergencies.



Smoking is permitted only in the areas indicated.



Access for those less than 16 years of age is permitted only under supervision.



Emergency number +31 889804333



The speed limit is 15 km/h.



Taking photos is permitted only after receiving Wärtsilä's permission.



Deposit waste in the wastebaskets indicated.



Wear your visitor's badge visibly.



Park in the designated areas. Company transport always takes priority.



As a visitor, you are under the supervision of a Wärtsilä employee.



Gathering area. Follow the instructions given by the "BHV" personnel (corporate emergency response) - recognisable from their fluorescent jackets.







Safety instructions in the Land & Sea Academy practical training room.

Safety resources

- Throughout the hands-on training activities, the use of safety shoes and overalls is mandatory.
- In addition, when working with hydraulic tools, the use of safety goggles and gloves is mandatory.

Hoisting

- Visitors may not use machines e.g. cranes without the help and supervision of the instructor
- Never walk under a suspended load.
- Never hoist a load above people.

Walking paths

- Use only those doors and paths intended for pedestrians.
- Be aware of rolling forklifts and bridge cranes.
- Pay attention to where you walk. The floor may be uneven.

During practical training sessions, wearing the following PPE is mandatory at the trainer's instruction:



Hearing protection required in certain areas



Safety shoes Mandatory



Safety goggles Mandatory



Safety gloves Mandatory



Work overalls are mandatory.