



ARCTIA

# 2020

## Annual review





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Picture: Arctia

# Reliable services in challenging conditions

Arctia enables safe, smooth and environmentally friendly water transport. We produce added value for our customers by combining different services into comprehensive service concepts in an innovative way.

The Group has three business areas: icebreaking, fairway maintenance, and hydrographic surveying. The business areas include a huge amount of experience and expertise, e.g. in oil spill preparedness and response, hydraulic engineering, pipe and cable laying, towing tasks, and the manufacture of plastic spar buoys and other buoys.

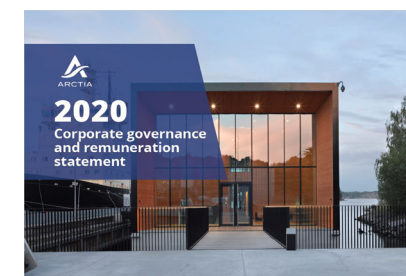
Arctia Ltd is a limited company wholly owned by the State.

The annual report of the Arctia Group consists of the annual review, the corporate governance and remuneration statement, the report on corporate responsibility, and the financial statements. The reports are published as PDF documents online at [www.arctia.fi/en](http://www.arctia.fi/en)

### ANNUAL REVIEW



### CORPORATE GOVERNANCE AND REMUNERATION STATEMENT



### RESPONSIBILITY REPORT



### FINANCIAL STATEMENTS





# Year 2020 in figures

## EMPLOYEES

Total



**417** 442  
278

Offshore personnel



**219** 223  
243

Onshore personnel

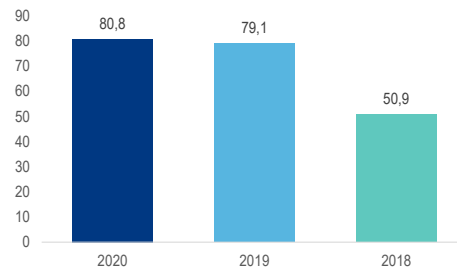


**198** 219  
32



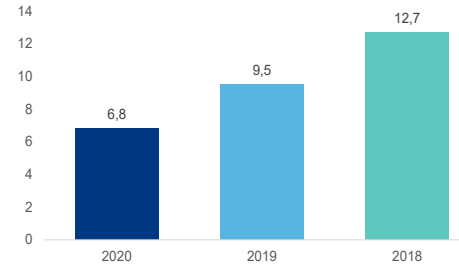
## KEY FIGURES

Turnover M€



**80,8** 79,1  
50,9

Investment M€



**6,8** 9,5  
12,7

Result for the financial year M€

**0,9** -2,0  
1,4

Return on capital invested %

**0,9** 0,1  
0,8

Operating profit M€

**2,4** 0,0  
2,2

The figures for 2018 are not comparable with years 2019 and 2020 due to the merger of Meritaito with the Group on 13 December 2018.





# CEO's review of 2020

During the coronavirus pandemic year of 2020, we continued to build the foundations of new Arctia. While the Group's financial performance improved, it was very polarised in our business units. We were highly successful in preventing the spread of the coronavirus, and the Group's operational activities continued almost normally despite the precautionary arrangements. There were not a single reported coronavirus occurrence in Arctia's workplaces.

When entering the year 2020, our financial forecast looked very challenging. However, versus the expectations, the year turned out to be much better as we exceeded our targets, and the Group's operating profit totalled EUR 2.4 million with a turnover of just over EUR 80.0 million. The positive change was especially due to two significant oil spill recovery projects and lower personnel costs in icebreaking due to the exceptionally mild winter. We progressed to improve the Group's structural profitability, but the challenge is still strongly present and requires additional work. Several analysis were conducted to find out the right way forward, and towards the end of the year the Group and business units strategies were updated. Especially in the fairway maintenance and hydrographic surveying the competition environment is changing and getting tougher. We must keep up with the changes in order to compete successfully.

When looking back to our business and operational activities, the year was somewhat exceptional and two-fold. The historically mild winter meant that only three out of eight icebreakers assisted merchant ships in the

Bay of Bothnia. In the fairway maintenance, turnover and profitability increased to the highest levels in its history due to successful service contracts, projects, and oil spill recovery projects. In the hydrographic surveying, the year was very challenging historically low turnover and negative operating results. In all business units the development work continued to increase operational efficiency. New business development continued for example with the development of our service concepts and extension of the laser surveys in hydrographic surveying to the international market.

The Group's structure was simplified, and a significant amount of groundwork was done in terms of policies, directions, guidelines and management systems. This one-off work will offer a good basis for further development to increase Arctia's efficiency. Arctia's corporate responsibility management and focus areas were updated. Particular attention is been paid to occupational safety and environmental issues, both of which are the subject of a new two-year project. More information can be found in the separate annual corporate responsibility report.

In terms of personnel, the highlights of the year are the updated performance management model and its implementation, and the actions based on the new employee satisfaction survey. Dialogue with the employees has been intensified, and we have, for example, agreed a trial for icebreaking shifts for the period 2020–2021. In January 2020, a deeply regrettable fatal occupational accident took place in the Group. This touched deeply everyone at Arctia and resulted also into greater

emphasize and work towards a better occupational safety.

Our year 2020 was very eventful with plenty of work and progress. In accordance with the new strategy we will continue the development of the Group's profitability, expansion of business operations, customer's added value, and responsibility. To tackle the Group's profitability challenge, we also need new kind of thinking and desire to develop operations together with the employees.

I wish to extend warm thanks to all Arctia's employees for your great work and flexibility during the challenging 2020, a year full of coronavirus restrictions. A kind thank you also to all our clients and stakeholders for their confidence in us, and for the good cooperation.

**Maunu Visuri**  
President and CEO





# Operating environment







# Reliable services on the waters around the year

Arctia guarantees the functioning of Finnish society and industry throughout the year by enabling winter navigation and efficient water areas and fairways.

Arctia's operational activities are divided into three business units: icebreaking, fairway maintenance and hydrographic surveying. Within the business units, the company's diverse range of services is divided into icebreaking, fairway maintenance and services in water areas, hydrographic surveying and studies, planning and licensing, hydraulic engineering, and the manufacture of spars and buoys. The company also

implements and provides, e.g. pipe and cable laying, towing operations, oil spill preparedness and response services, and installation and maintenance of underwater structures.

Arctia has developed a comprehensive service concept where the customer can choose the services they need in a versatile way within the framework contract. Customers are able to develop the operations of their water areas with service solutions tailored to their needs.

In addition to the company's largest customer, the Finnish Transport Infrastructure Agency, we also provide services for, e.g. Traficom, ports, enterprises, towns, municipalities, and international customers.

The number of icebreaking assistances in the Baltic Sea area is estimated to increase in the medium term as a result of the growing volume of maritime transport, bigger vessel sizes, and especially the vessels' diminished performance in ice. The maintenance of sufficient icebreaking capacity safeguards winter navigation that serves the needs of trade and industry. As the current fleet ages and the operational needs change, there is pressure to renew Arctia's icebrea-

king fleet in the form of either life-span extensions or new constructions.

In fairway maintenance, in addition to traditional maintenance of safety devices, digitalisation will be utilised to a higher degree. Expansion of remote monitoring and management of safety devices to new sea routes continues, and the further development of smart safety devices and systems continues actively. New service solutions ensure safe and smooth water transport. Changes in the operating environment can be seen in the form of a change in tendering models, which reshapes the operational activities.

On the international scale, the market for hydrographic surveying is estimated to grow, and there is also plenty to survey in the Finnish sea areas for several years to come. Hydrographic surveying is seeking growth through the utilisation of marine data and development of maritime digitalisation. In the short term, international tendering processes have been postponed due to the coronavirus crisis. In terms of the domestic market, the measured volumes have been low and the annual variation has resulted in challenges in the utilisation rate.



Picture: Arctia, Topia Lehtonen

# Strategy







# Arctia enables safe, smooth and environmentally friendly water transport

We want to be a partner that provides the most added value to our customers.

During 2020, the strategy of the Arctia Group and the business units was updated for the period 2020–2022.

Arctia’s core task is clear and its mission is bright. Arctia’s task is to safeguard winter navigation serving the transport needs of the Finnish trade and industry and to ensure safe and smooth water transport throughout the year. The high-quality services and smart solutions produced by Arctia promote the sustainable use of waters. In addition, Arctia provides hydrographic surveying services related to the contingency planning and preparedness of the Finnish Navy.

Arctia’s vision is to be a partner that provides the most added value to its customers. The company offers the most cost-effective icebreaking services in the Baltic Sea area, it produces maritime service concepts as the market leader, and it is a provider of and forerunner in marine data and maritime digitalisation. The cornerstones of the renewed strategy are bringing profitability to a sustainable level, managed





growth, providing added value to the customer, and working together in a responsible way.

Bringing profitability to a sustainable level means that all business units must be made structurally profitable. To support this work, Arctia has launched four spearhead projects, which focus on, e.g. achieving higher efficiency of work, the development of technical services, increasing the efficiency of administration, and improving operational management on the basis of a real-time situational picture. In addition to organic growth, managed growth includes utilisation of digitalisation and the opportunities of commercialising information management. Providing added value to the customer relies partly on partnership thinking where we deepen our current customer relationships with the Finnish Transport Infrastructure Agency and Traficom and also develop, e.g. our service concepts. Working together in a responsible way is down to us at Arctia: responsible, safe and environmentally friendly conduct in our everyday tasks.

The groundwork for the strategy was laid during 2020 with the theme “putting the home base in order”. The programme for 2021–2022 consists of 12 spearhead projects for ensuring the implementation of the strategy.



Picture: Arctia



# Business operations





# Historically mild ice winter

Year 2020 and the icebreaking season 2019–2020 were characterised by the mild winter and the COVID-19 pandemic.

The winter of the period 2019–2020 was mild. According to the Finnish Meteorological Institute, the smallest ice cover in the measurement history so far was recorded in the period, with a maximum extent only 37,000 km<sup>2</sup>. The previous record-low ice extent in the measurement history was 49,000 km<sup>2</sup> in 2008. In a so-called normal ice winter, the average ice cover is about 170,000 km<sup>2</sup>.

During the period, three of Arctia's eight fairway icebreakers were in operation: Kontio, Otso and Urho, assisting in the Bay of Bothnia. Icebreaking was not required in the Bothnian Sea in this season, and the Gulf of Finland was also practically free of ice. Icebreakers Voima, Sisu and Polaris spent their winter in the Katajanokka home port, and Fennica and Nordica in Pikku-Hietanen in Kotka. There were no offhire or power reduction cases during the season. However, there were a few breakdowns, but they had no significant impacts on the operational capability of the vessels.

Coronavirus created challenges, for example, to crew changes and shift rotation travel, as well as visits

by subcontractors and the authorities. Flying and travelling by train were abandoned, and crew changes were mainly carried out with private minibuses and car pooling. In addition, the crew of icebreakers in icebreaking standby at berth were transported home to wait for a call to icebreaking duties. This way, it was possible to reduce the risk of infection in icebreaking duties and in terms of icebreakers at berth.

## Operating days in total



**322**

547  
662

## Assistance in total



**696**

1,709  
2,027

2020    2019    2018







In the summer, icebreakers Otso and Urho were docked at the Fayard A/S dockyard in Denmark. The dockings were originally scheduled for June but, due to the coronavirus pandemic, they were eventually postponed to August with respect to both vessels.

### ESCORT TUG AND HARBOUR ICEBREAKING SERVICES IN THE BALTIC SEA

The winter of the 2020 season in the Bay of Bothnia was extremely mild, and therefore harbour

icebreaking and assistance tasks in the ports were carried out to a lesser degree than in the previous years. The exceptional period due to coronavirus and the paper industry strike also significantly reduced the volume of shipping in the Bay of Bothnia during winter 2020. In the open water season, the company succeeded in the sale of its services: especially the fourth quarter was busy.

During the year, the new-generation harbour icebreaker Ahto carried out four escort tug assistances in Luleå. Correspondingly, Vilja, the new escort

tug in Luleå, assisted in Röyttä in Tornio during the docking of the harbour icebreaker Jääsalo of Arctia Karhu. Transport of crew to the Ajos wind turbines was continued with the RIB boat in the same way as in the previous year.

An LNG tanker visited the Tornio LNG terminal regularly throughout the year. In connection with the visits, the vessel is escorted in with two tugs and out with an ASD tug. In addition, during the vessel's discharge, a tug is manned so that it can assist the vessel within a few minutes, if necessary.

The company's harbour icebreaker Jääsalo underwent a five-year docking as planned in August 2020. The docking was carried out by Suomenlahden Telakka Oy in Loviisa.

In 2020, the company organised an oil spill preparedness and response exercise together with the Emergency Service of Kemi off the coast of Tornio.

Arctia Karhu Ltd is an enterprise jointly owned by Arctia (90%) and Kemin Satama Oy (10%). The company's fields of operation include harbour icebreaking, towing and assisting ships, cargo transport and other functions in support of waterborne transport in Finland and abroad. Arctia Karhu Ltd offers harbour icebreaking services over the wide expanse of the Bothnian Arc and in the entire area of the Baltic Sea. In 2020, Arctia Karhu's harbour icebreaker Ahto assisted ships in Ajos in Kemi and the harbour icebreaker Jääsalo provided assistance to ships in the Port of Röyttä in Tornio. The harbour icebreaker Ulla served as a backup vessel.



Picture: Arctia



# Digitalisation of fairway maintenance transforms the markets and operating models

The development and extension of digitalisation enables upgrading of the traditional operating model.

Traditional fairway maintenance work is undergoing a transformation as a result of digitalisation and new operating models. In order to better respond to market demands, Arctia has developed a service entity where the services in water areas were conceptualised into solutions that are more suitable for the customer segments. Arctia's service concept is modular and tailored to the customer needs. During the past year, service contracts were signed with different ports, including the ports of Helsinki, Turku, Rauma, Pori, Naantali and Hanko. The total number of multi-annual service contracts signed in 2020 was 14.

The expansion of remote monitoring and management of maritime safety devices is a significant improvement in terms of the users of the fairway, the customers and the company. Access to real-time information about the status of maritime safety devices increases fairway safety and improves predictability in the maintenance of the fairway infrastructure. The ability to predict maintenance visits reduces the travel miles of vessels attending to fairway maintenance

which, in turn, decreases the environmental load and that way contributes to achieving the environmental targets of the company and Finland.

Remote monitoring and management of maritime safety devices already includes more than 1,800 safety devices, with 1,421 illuminated and 389 non-illuminated devices. The number increased by about 300 new safety devices during 2020 in keeping with the target. As a result of the EU's InSea project, Arctia was able to include in the service five safety devices in the Port of Stockholm area. Remote management also expanded in the inland water area when 39 safety devices along the Haukivesi-Joensuu channel were added to the service. The development and extension of digitalisation to apply the channel networks in Finnish waterways enables upgrading of the traditional operating model.

Operational activities in all fairway management services continued uninterrupted despite the coronavirus pandemic. The 2020 turnover of the fairway management business was highest in history at EUR 29.2 million. This was favourably affected by the oil



Picture: Jaakko Jaskari





spill recovery projects and increased efficiency in project operations implemented during the year.

In 2020, Arctia managed all the fairway maintenance contract areas put out to tender by the Finnish Transport Infrastructure Agency along the coast of Finland and, in the inland waterways, the Lappeenranta, Kuopio and Keitele fairway maintenance areas. The most significant contracts won by Arctia were the fairway maintenance of the Archipelago Sea–Bothnian Sea–Åland Islands for 2020–2025 tendered by the Finnish Transport Infrastructure Agency, and fairway maintenance for the government of Åland.

In January 2020, there was a serious occupational accident on a fairway vessel, resulting in the death of one person. The accident touched every single employee of Arctia. Despite previous inputs in aid of occupational safety, the extremely sad and unfortunate accident highlighted the meaning of occupational safety in all our work areas. Investment in occupational safety was stepped up, and the frequency of occupational accidents in fairway maintenance fell by a significant 30 per cent to 25.22 (36.83 in 2019).

### ARCTIA MAINTAINS A KEY WATERWAY FROM LAKE SAIMAA TO THE SEA

Arctia operates the Saimaa Canal and its movable bridges and manages the canal's electrical, construction and mechanical maintenance. Seven of the eight locks of the canal are operated from the remote control centre located in Mälkiä in Lappeenranta. In addition to the Mälkiä remote control centre, the Brusnitchnoe lock located in the leased area of the Saimaa Canal is manned. The service contract

tendered by the Finnish Transport Infrastructure Agency concerning the operation and maintenance of the Saimaa Canal is valid until the end of January 2024.

In addition to the Saimaa Canal, Arctia managed in the inland waterways the shallow waterway canals Heinävesi–Tahko and Rautalampi–Iisalmi, as well as the canal along the Varistaipale–Taivallahti route and, for the time being, also the canals along the River Kokemäenjoki.

### CHALLENGING PROJECTS IMPLEMENTED BY HYDRAULIC ENGINEERING SERVICES

Arctia continued its successful repairs of maritime safety devices. The most significant of these tasks was the repairs to the Porvoo lighthouse and the sector light in Kölhällen. Both sites are located in a challenging sea environment south of Porvoo in the Gulf of Finland. During the year, Arctia also carried out condition surveys on ferry stations and built two reserve ferry stations.



Picture: Arctia, Pavel Sarantsin



The cleaning project of contaminated soil in the Haapasaari quay area took longer than planned by several months due to the growing volumes of masses. The project was successfully completed in autumn 2020, and it was carried out in cooperation with the hydrographic surveying unit.

Hydraulic engineering operations were spared from the worst impacts of the coronavirus pandemic although the repair work of the Kökar Coast Guard Station was postponed by several months due to the pandemic, resulting in a busy start to the autumn. In 2020, hydraulic engineering services deployed work-site software to facilitate reporting and monitoring related to construction sites.

### VIITTATEHDAS HAD A BUSY YEAR IN PRODUCT DEVELOPMENT

Viittatehdas in Joensuu manufactures spars and buoys made from HD polyethylene. In 2020, they were sold to Sweden, Latvia, Estonia and Russia in addition to Finland. Products were also exported to Norway through Sabik Marine Oy.

In terms of product development, year 2020 was particularly busy: Viittatehdas designed and implemented, for example, the Sniffer buoy as part of the Intelligent Sea project, as well as the navigation buoy equipped with a flowmeter and water level sensor. It also implemented a fuel cell enclosure integrated into the buoy pipe. As part of the project, it also designed a solar panel frame that can also be integrated into the body of the buoy. The rotation casting moulds required for the manufacture of the solar panel frame are soon to be finalised by our partner.

All in all, Arctia implemented a total of 14 different product development projects.

In the spring, Viittatehdas set a number of new targets to implement the strategy, nearly all of which achieved the desired end result. The targets were exceeded by far in the most traditional meters of the factory:

- productivity: +8%
- security of supply: 97%
- stock value: -7%

One of the greatest efforts was the development of the enterprise resource planning system (Sonet) in support of the order-delivery process and especially the management of purchases. This development work will have a great impact on speeding up stock rotation.



Picture: Arctia, Sanna-Mari Mäkinen





# Challenging year in hydrographic surveying

Arctia's strategic task is to provide hydrographic surveying services related to the contingency planning and preparedness of the Finnish Navy under all conditions. Arctia has one of the largest hydrographic survey fleets in Northern Europe. Each year, Arctia surveys thousands of square kilometres of seabed in Finland and in the European waters in accordance with the highest international quality standards.

Year 2020 was challenging in hydrographic surveying. The new tendering of the Ministry of Transport and Communications (EUR 0.8 million) stayed clearly at its lowest level since the start of the incorporated operations in 2010. The COVID-19 pandemic delayed major overseas tendering for hydrographic surveying until 2021. At EUR 5.4 million, the turnover of hydrographic surveying remained considerably below the previous year's figures, yielding negative results.

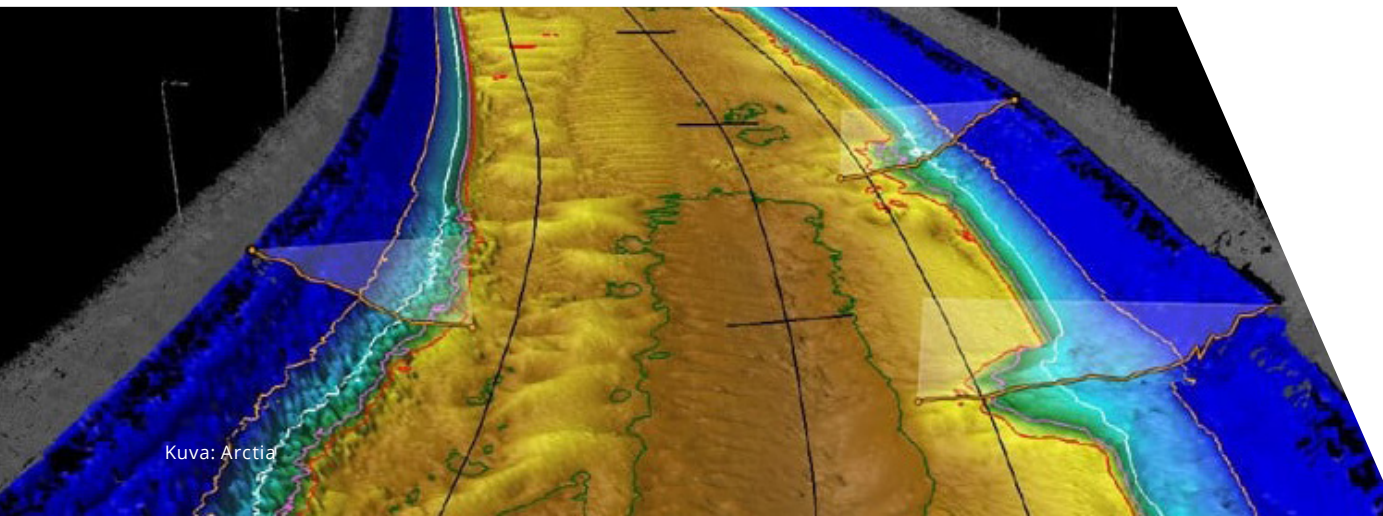
## HYDROGRAPHIC SURVEYING FOR THE FINNISH HYDROGRAPHIC SURVEYING AUTHORITIES

In 2020, Arctia completed the high-classification measurement project for the Helsinki-Porkkala area (HEPO2018) for the Finnish Transport and Communications Agency Traficom, and the laser scanning of the Archipelago Sea and the Gulf of Finland (LiDAR2019) continued. A smaller

hydrographic surveying project in the Vaasa region (BSVA2020) was also implemented.

The majority of tasks carried out for the Finnish Transport and Communications Agency were to complete measurement projects started in the previous years, and therefore the work focused on the processing of materials. As there were no tenders concerning major new measurement projects as in the past, no field measurements were carried out any more for the Finnish Transport and Communications Agency in the autumn season. As a result of less work, it was necessary to lay off some members of the field personnel towards the end of the year.

The restriction measures resulting from the COVID-19 pandemic hampered and delayed the processing of classified materials. Classified facilities deployed protection measures outlined by Arctia's coronavirus steering group, such as the use of protective masks, improving the hygiene level, and physical distances.





## MEASUREMENTS FOR THE UK HYDROGRAPHIC OFFICE AND GERMAN ENVIRONMENTAL AUTHORITIES

In spring 2020, Arctia carried out hydrographic surveying under the Civil Hydrography Programme for the UK Hydrographic Office. The survey areas were located on the coasts of England, Scotland and Wales. The surveys were carried out with the Pohjameri and Kaiku vessels. Furthermore, surveys were performed under a subcontracting arrangement with several remote-controlled unmanned survey vessels (USV).

Laser surveys were carried out by aeroplane (Bathymetric LiDAR) for the German environmental authorities. The survey area was located off the island of Sylt on the North Sea coast. The equipment used in the project was the Leica Chiroptera 4X system, which is currently the only commercial equipment that meets the international quality criteria for hydrographic surveying in Europe. The survey

results were excellent and the customer was particularly satisfied with them. Laser surveys were also demonstrated to the Danish authorities.

## SURVEYS, PLANNING AND CONSULTING RELATED TO HYDRAULIC ENGINEERING

In 2020, Arctia implemented several seabed surveys related to hydraulic engineering. The surveys provided support, e.g. for the building of fairways and ports and for urban construction. Aquatic structures, piers, canals and dams were modelled for the authorities, municipalities and ports.

Fairway planning, and expert and consultancy services were produced in a total of some forty projects. Three persons were also leased to the hydrographic surveying authority for expert tasks.

## DATA MODELS AND UTILISATION OF DATA

Measured data and plans are presented as different 3D point clouds, data models and plans based on

data models, as well as chart materials. The data models enable electronic processing and updating of data, for example, in different stages of construction.

In 2020, Arctia piloted the production of a 4D harbour chart in the EU-funded InSea project. The Port of Naantali is used as the pilot site in the project. The purpose of the project is to provide a precise-scale electronic harbour chart (bENC) in cooperation with the authorities. The chart will include information that helps navigation in the harbour, e.g. with respect to the waters and the pier structures. Arctia's role is to provide the survey and chart materials. The authorities will approve and publish the materials for official ENC distribution.

## KATAKRI AUDITING

In accordance with the Territorial Surveillance Act, hydrographic surveys in the Finnish territorial waters are subject to a permit. These permits are granted by the Defence Command. Arctia's subsidiary Meritaito and the Finnish Defence Forces have signed a security agreement committing to high-security processes and operating models. In 2020, a security audit was implemented in accordance with the new Katakri criteria. The processes and premises were audited to the highest classification level at the civilian level (STII). In addition, in 2020 the company prepared for the audit of the information system section (section I), which will be implemented in spring 2021. The audited methods and the security agreement enable fluent permit processes for high-security level hydrographic surveying.



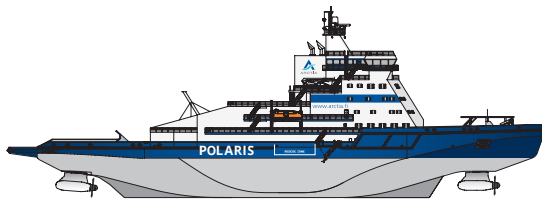
Picture: Arctia



# Strong and versatile fleet of special vessels

Arctia's vessels include the conventional icebreakers Voima (commissioned in 1954, refurbished in 1979 and 2016), Urho (1975) and Sisu (1976, refurbished in

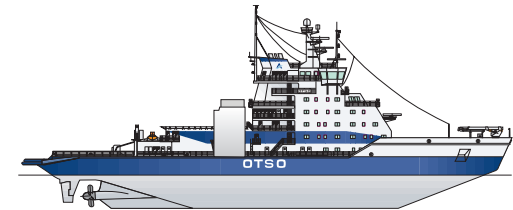
2019), Otso (1986) and Kontio (1987), multipurpose icebreakers Fennica (1993) and Nordica (1994), harbour icebreaker Ahto (2014), as well as Polaris (2016).



IB POLARIS 110 / 24 / 8.0 / 22,000



IB KONTIO 98.6 / 24.2 / 8.0 / 15,000



IB OTSO 98.6 / 24.2 / 8.0 / 15,000



IB SISU 106.6 / 23.8 / 8.3 / 16,200



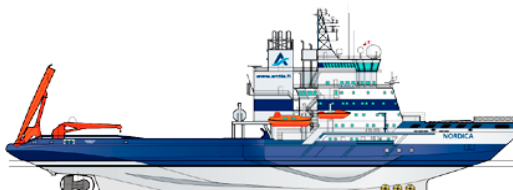
IB URHO 106.6 / 23.8 / 8.3 / 16,200



IB VOIMA 83.5 / 19.4 / 7.0 / 10,200



MTM FENNICA 116.0 / 26.0 / 8.4 / 15,000



MTM NORDICA 116.0 / 26.0 / 8.4 / 15,000



HIB AHTO 40.0 / 12.8 / 5.5 / 3,600

# Fleet 31 December 2020

Arctia has a large fleet of hydrographic survey, fairway maintenance and hydraulic engineering vessels. Arctia owns and uses seven hydrographic surveying vessels, which are suitable for survey sites in the open sea, on the coast and in inland waterways.

The company's fleet includes four fairway vessels suitable for heavy marine operations, as well as four Oili-class vessels suitable for medium-heavy tasks. The fairway vessels are equipped for oil spill response.

In addition, Arctia has several Meri1000, Meri2000 and Meri4000 class fairway maintenance boats and a versatile hydraulic engineering fleet. Further information about Arctia's fleet is available on the [company's website](#).



M/V Keila 13.0 / 3.9 / 0.9



MPV Pohjanmeri 78.3 / 11.6 / 3.2



MSV Seili 50.5 / 12.2 / 3.8



Fairway maintenance vessel Oili 2.0 / 6.6 / 2.1



Fairway maintenance vessel ORV1 17.7 / 5.0 / 1.3



Fairway maintenance vessel Meri2000 15.0 / 5.0 / 0.8

Length, m / Beam, m / Draught, m





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