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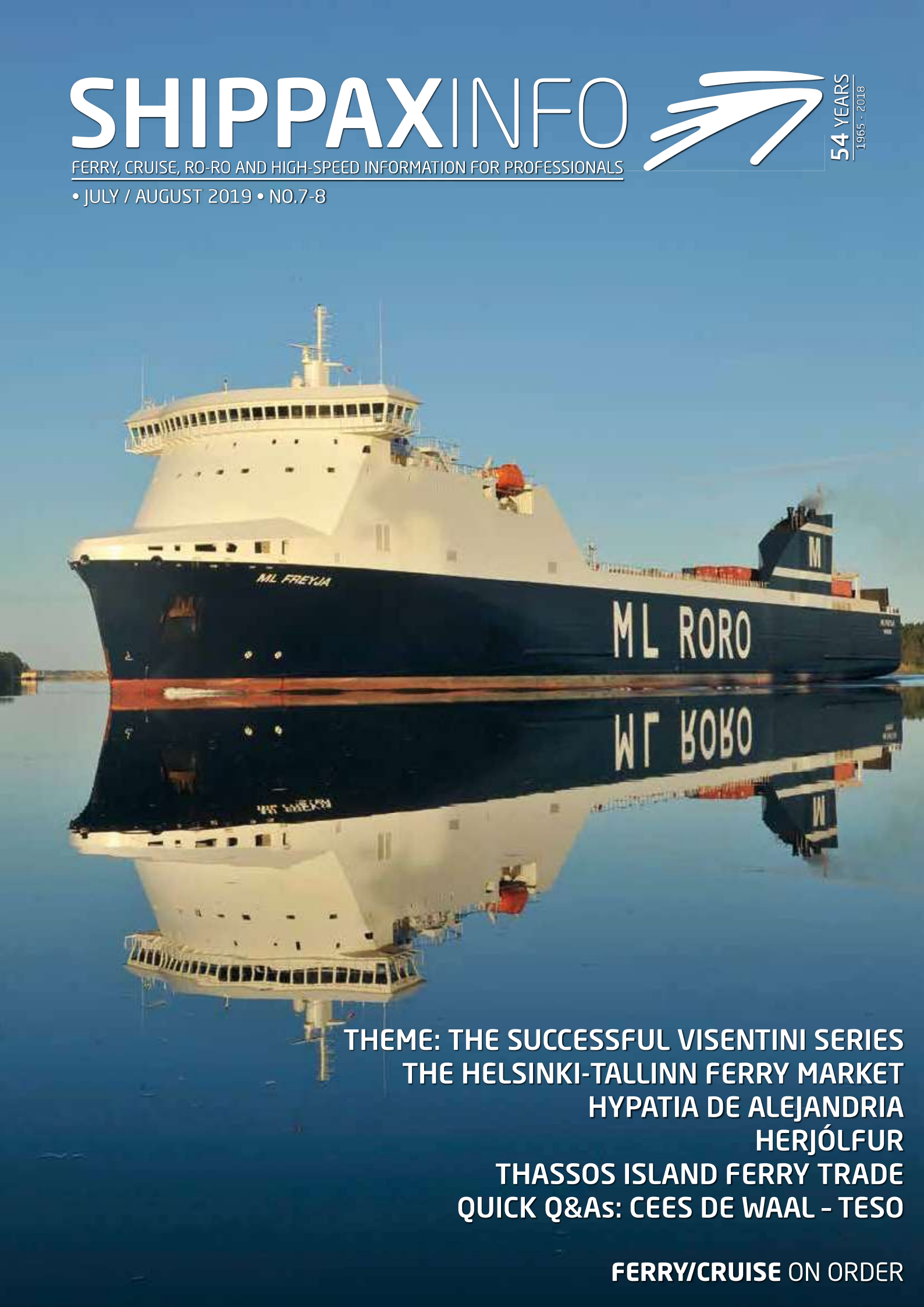


THEME: THE SUCCESSFUL VISENTINI SERIES

THE HELSINKI-TALLINN FERRY MARKET

HYPATIA DE ALEJANDRIA

HERJÓLFUR

THASSOS ISLAND FERRY TRADE

QUICK Q&As: CEES DE WAAL - TESO

FERRY/CRUISE ON ORDER

THEME

VISENTINI – PROBABLY THE MOST SUCCESSFUL FERRY DESIGN

The theme for the March issue of ShippaxInfo was partially dedicated to Stena RoRo's new E-Flexer series, which is currently under construction at the AVIC Weihai Shipyard in China. It is hardly surprising that – when developing the E-Flexer Class – Stena was inspired by the Visentini-built ships. The group has no fewer than eight Visentini ferries in its fleet and there are good reasons for this; fuel efficiency and operational economy are among them.

Although the first ro-pax vessels built by Visentini were introduced on the Irish Sea, one typically associates the ships with Mediterranean ferry companies who operate them in a sunnier environment. Since this is the summer edition, we thought it would be appropriate to highlight the success of the Visentini ships during the last two decades.

Fifty-six per cent of the Visentini ro-pax ferries are deployed in the Mediterranean, with the remaining 44% operating elsewhere. At one stage this ship type was active in all four corners of the world. The 1997-built STRAIT FERONIA – the very first vessel in the popular series – is deployed in New Zealand. One of her close sisters until recently plied the waters along the Mexican West Coast.

The success of the Visentini ships is indisputable. All major European ferry companies have had them in their fleets and many are still operating them. In the following pages, we endeavour to trace the evolution of the design and the company behind it. We have drawn a comparative chart providing an overview of the Visentini ferries versus other popular series, culminating to the latest incarnation – Baleària's LNG-powered HYPATIA DE ALEJANDRIA.

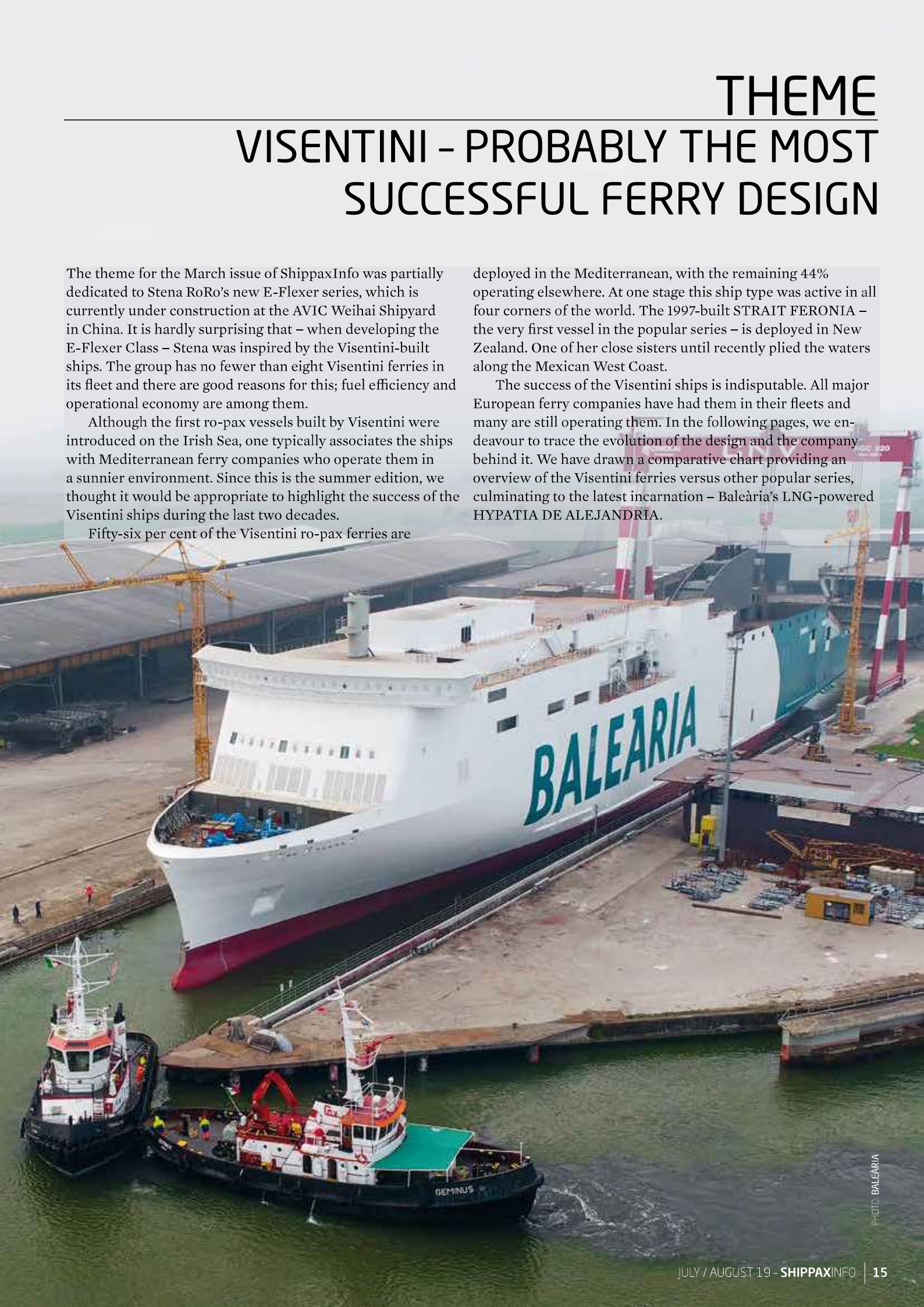


PHOTO: BALEÀRIA

NAOS – A PROMINENT FERRY DESIGNER WITH A DIVERSE PORTFOLIO AND ESTABLISHED VISENTINI PARTNERSHIP

TEXT: PHILIPPE HOLTHOF

NAOS Ship and Boat Design is so much more than just the naval architect behind the successful ro-ro and ro-pax series built by the prolific Visentini shipyard in Italy. Renowned for its fuel-efficient hull designs, the Trieste-headquartered naval architecture consultancy has several interesting newbuilding and conversion projects on the drawing board.

Ro-ro and ro-pax projects represent 90% of NAOS's portfolio. In a recent interview with Shippax, Roberto Prever, the company's president and managing director, expounded the longstanding partnership with Visentini and expressed his concerns over certain regulations governing passenger shipping, including the so-called Safe Return to Port (SRtP).

VISENTINI PEDIGREE

The Visentini Class undoubtedly represents the most successful ro-pax ferry series built during the last 15 years. With its best-in-class hull form, slim bow shape, and twin in-line medium-speed engine setup, fuel efficiency is at the heart of the design. Admittedly, the ships are not the most luxurious and extravagant ro-pax ferries on the market; but the straightforward design and the use of only the necessary equipment make them very economical to operate. A workhorse that has no peers, Visentini ro-pax ferries are not only popular in the Mediterranean, but also in other parts of Europe, and even the rest of the world. All major European ferry companies use them.

Visentini typically builds its ro-ro and ro-pax ferries on speculation and there is no exception with the current two units under construction at its Donada site.

Known as yard numbers 229 and 230, the vessels are a lengthened version of the standard design with a total length of 203.28 metres. The freight lanemetre intake will be increased to 2,566, spreading over three enclosed decks. The fixed car deck in the lower hold – a standard feature on all Visentini ro-pax ferries for the purpose of increasing the freeboard in compliance with the Stockholm Agreement – has a capacity of about 99 cars. Another 156 cars can be parked abaft of the accommodation block, which follows the proven Visentini layout, with restaurant and bar facilities forward on Deck 5 (the equivalent to Deck 7 on most other ferries) and passenger cabins on Deck 6. As on HYPATIA DE ALEJANDRIA – the first LNG-powered Visentini ro-pax –

PHOTO: PHILIPPE HOLTHOF

Roberto Prever is NAOS's president and managing director. At the entrance to the board room there is a roll-up showing some of NAOS's future, current and past projects.

The 1999-built OPTIMA SEAWAYS is an early-generation Visentini ro-pax. A scrubber has been retrofitted to comply with the SECA rules in the Baltic Sea.

the bridge deck has been extended to hold a lounge containing 75 reclining seats and a bar that gives access to the aft sun deck. Each of the ships has a capacity of up to 1,000 passengers and crew – 616 passengers can be accommodated in 157 cabins.

Visentini already installed scrubbers on the 2017-built freight ro-ro ML FREYJA. The latest newbuilds will also be scrubber-equipped. When delivered in May next year, Yard Number 229 will be chartered by Trasmediterránea. The charterer or buyer of Yard Number 230 has yet to be announced.

LUDICROUS RULES

Since the keels of these two ships were laid before 1 July 2010, they didn't have to comply with Safe Return to Port (SRtP) regulations. When we met in his Trieste office in early June, Prever expressed his scepticism over the SRtP regulations imposed by the IMO. "I have the impression that it has been created by people without practical experience," he elucidated. "The current SRtP rules give a false feeling of safety. It's like making it mandatory for journalists to always have two pens in hand at all times, without specifying whether or not these pens could write properly. Rather than having two so-so pens, you'd be better off to have one very good pen."

Prever went on to voice his disappointment over the specifics of SRtP. "I call for more realistic SRtP rules. The two main considerations for SRtP are flooding and fire. But long before SRtP became mandatory, we had designed ro-pax ferries for Visentini with B/5 longitudinal bulkheads spanning almost the full length, protecting the engine room and all of the ship's vital parts from flooding. We regard this as an extremely safe solution and the COSTA CONCORDIA's loss of power generation and capsizing would hardly have happened with such a B/5 arrangement. Most of the SRtP compliant ships literally follow the SRtP rules without having the double shell (B/5 or similar longitudinal compartmentation), for the simple reason that this is not an SRtP requirement. But when you have rocks that penetrate the shell – like in the COSTA CONCORDIA case – or you damage the transversal bulkhead that typically separates the forward from the aft main engine room to comply with SRtP rules, you completely lose control of all vital parts of the ship. You can avoid these problems with a full-length B/5 double skin, something that has been a NAOS ➤

"Long before SRtP became mandatory, we had designed ro-pax ferries for Visentini with B/5 longitudinal bulkheads spanning almost the full length, protecting the engine room and all of the ship's vital parts from flooding."

and Visentini philosophy almost since the time we designed the first ro-pax ferries for Visentini."

NAOS has several newbuilding projects on the drawing board and, obviously, these will comply with SRtP rules. "We adhere to the B/5 double skin for almost the full length and have added a centreline bulkhead, but it is of course more complicated than just the transversal and longitudinal subdivision," Prever pointed out. "SRtP are just four pages in SOLAS without much explanation. So, it's too vague a regulation whereby some class societies have a pragmatic approach and follow the spirit of the law whilst others are stricter and follow the letter of the law. Generally speaking, SRtP is basically a rule imposing redundancy instead of impose increased safety of systems."

Prever also cast his doubts on the fairness of the Energy Efficiency Design Index (EEDI) in its current form. "The higher the deadweight, the better EEDI since you prove to transport more," he explained. "This is logical and we didn't have to change anything on HYPATIA DE ALEJANDRIA by virtue of its reasonably good deadweight. Still, a review or reformulation of EEDI is desirable, as this index is not taking the real social benefit of a ro-pax into account. The fact that the EEDI is proportional to the deadweight is not fair for the typical cruise ferries with a relatively low freight lanemetre intake. They are penalised for being defined as 'ro-pax' vessels, while a pure cruise vessel that carries a vast of volume entertainment equipment, which can be regarded as cargo, escapes from this penalty. It's so absurd that a pure cruise vessel with exactly the same characteristics and volume as a cruise ferry with a ro-ro deck would probably meet the EEDI requirement, whereas the cruise ferry wouldn't."

NEW PLATFORM

When discussing current and future projects, besides the existing yard numbers 229 and 230, Prever revealed that there were two more Visentini projects on the drawing board, namely yard numbers 237 and 238. These ro-paxes more or less started out as a next-generation concept design for Brittany Ferries.

"We had had long discussions with Brittany Ferries and they were eager to add a new generation Visentini on their UK-Spain service," said Prever. "It started with one ship and we worked for more than one year with Brittany Ferries; but for reasons beyond our control the project fell through which probably led to Brittany Ferries opting for Stena's E-Flexer Class instead."

NAOS had already started developing a new ro-pax generation for Visentini before Brittany Ferries came into the picture. "This was the very reason why Brittany Ferries approached us," said Prever. "Besides Brittany Ferries, there was also interest from other parties, including Stena RoRo. The original concept called for a 200-metre-long hull with a 2,700-lanemetre intake. We have further optimised the design and increased the length to 206 metres and a 2,750-lanemetre intake. As befits a Visentini Class ro-pax, there will be a separate car deck, but the design has been developed in such a way that cars will be completely separated from trucks, using a dedicated entrance and ramp. Unlike the earlier platforms, flexibility is at the heart of the design. The Mk I version has a capacity of 1,000 persons with 230 four-berth passenger cabins, something that can be extended to 2,000 persons and 330 cabins in the Mk II version. The new Visentini Class has also been future-proofed for later conversion into double-deck drive-through mode, scrubber installation, and it will be LNG-ready, including the installation of Type C on-deck LNG tanks, similar to those of Baleària's HYPATIA DE ALEJANDRIA and the soon-to-be-delivered sister MARIE CURIE."

The ships will have a 22.5-knot service speed at 85% mcr and 15% sea margin. The 'Flex Bow', which further adds to the fuel efficiency the Visentini ships are renowned for, has been somewhat modified. "We always try to find the best bow shape with the least resistance, the newbuildings will be no exception," Prever pointed out.

Construction of yard numbers 237 and 238 is expected to start as soon as construction of yard numbers 229 and 230 reaches a more advanced stage. The ships will be built for an undisclosed European operator – believed to be a Mediterranean one – and the contract is expected to be signed in a not-too-distant future.

PHOTO: NAOS

A preliminary rendering of Siremar's newbuilding project for the longer routes from the Sicilian mainland.

CORSICA PROJECT

NAOS's newbuilding design portfolio extends far beyond the boundaries of Visentini partnership. In May last year, Corsica Sardinia Ferries announced a newbuilding project for a totally new generation of Bastia-max ro-pax ferries. Designed from scratch it soon turned out that NAOS had been selected to develop the ship's conceptual design.

The project has now entered a new phase with Corsica Sardinia Ferries talking to primarily Chinese yards. Due to the price difference between Chinese and European builders, it is very unlikely that the ship or ships (one ship, plus one option) will be built in Europe.

Like NAOS's latest project for Visentini, flexibility will be key with the 175-metre-long and 26.4-metre-beam stern-only loading ro-pax being designed for an eventual drive-through conversion. The ship's main vehicle deck will have a capacity of 1,050 freight lanemetres or 251 cars. There is a hoistable deck with a capacity of 53 cars. Another 246 cars can be carried on a dedicated car-only upper deck, bringing the total capacity to 550 cars. The two passenger decks have a capacity of 1,900 passengers, 456 of whom can be berthed in 116 cabins, including four two-berth cabins for passengers with reduced mobility.

When first announcing the project, Corsica Sardinia Ferries said the ships would be both scrubber- and LNG-ready, but, more than one year on, it has reportedly set its mind on LNG propulsion. Unlike the configuration of HYPATIA DE ALEJANDRIA, which has on-deck LNG tanks, on the Corsica ships the LNG tanks will be placed in the hold. The company clearly wants to make a statement with its new ships and could even consider using methanol as main fuel. "We are awaiting the answer from engine manufacturers on whether or not a dual-fuel LNG engine could be easily converted to methanol propulsion," Prever explained. Unusually, the ships will have three main engines, similar to Townsend Thoresen's Spirit Class of the early eighties. At 85% mcr, the ships will have a service speed of 24.5 knots.

Besides NAOS, Aprocos is playing an active role in the project in advising Corsica Sardinia Ferries on the interior layout. The Finnish company, which has executed quite a lot of projects for Tallink Silja Line, could be selected as the ships' interior designer.

SIREMAR SHIPS

Besides the new projects for Visentini and Corsica Sardinia Ferries, there is another newbuilding project that is high on the agenda with an order expected to be finalised before the end of this year. It concerns a 120-metre-long ferry for Siremar, with an option for a sister ship. The SOLAS (EU class A navigation rules) compliant ship(s) are meant to replace ageing tonnage currently serving the Aeolian Islands on the one hand and the long-distance routes to Lampedusa and Pantelleria on the other.

NAOS has also embarked on a second project for Siremar, but Prever admitted that this was still in an early stage. "Destined for the Egadi Islands, located close to the Sicilian mainland, this will be a shortened version of 100 metres and will meet EU class B navigation rules (60 miles)," Prever said. "Sicily will get a significant amount of money to renew its ageing coastal ferry fleet and although it comes with a lot of bureaucracy, I somehow have good hopes that these ships eventually will be built. It's not a government requirement to build these ships in Italy, but they should be built by an EU shipyard. We have talked to Fincantieri, WestSea

Viana Shipyard, Remontowa, and also received quotes from Turkey although it is doubtful that the ships will be built there, as Turkey is not an EU member. We expect that San Giorgio del Porto will also bid."

The latter is heavily involved in the new 147-metre-long and 19-metre-beam railway ferry for Rete Ferroviaria Italiana (RFI), the Italian State Railways. This will be a near sister to MESSINA, yet another NAOS design, completed by Nuovi Cantieri Apuania in 2013. Some improvements have been implemented, including using eight-cylinder, instead of six-cylinder main engines, a new type of propulsion pods (Azipull 100 CPP) instead of STP 1515 FPP, the removal of hydraulic clutches, a simplified engine room arrangement, and an extra passenger elevator.

BEYOND NEWBUILDINGS

NAOS's activities are by no means limited to newbuilding projects. Its portfolio also contains a few high-profile retrofit and conversion contracts.

The Spanish ferry operator Baleària has embarked upon an ambitious LNG retrofit programme. This includes the LNG retrofit of at least two Visentini-built ro-pax ferries. The NAPOLES has already been successfully retrofitted. The sister ship SICILIA will follow after the summer. The retrofit sees the installation of two on-deck LNG tanks. Baleària has contracted NAOS to prepare the structural drawings and make all

NAOS AND VISENTINI: HAND IN GLOVE

Cantiere Navale Visentini was founded in 1964 by Francesco Visentini, who passed away earlier this year at the age of 95.

Francesco had a much younger brother, Atillio. With their father having passed away when Atillio was still young, Francesco assumed the paternal role. He and Atillio jointly developed Cantieri Navale Visentini as a quality builder of ro-ro and ro-pax ships. They had remained a close-knit team until about 15 years ago when they decided to each go his own way. Atillio then took control of the yard.

Although not having entirely released his hold, Atillio has delegated the shipyard's day-to-day management to his second son, the 48-year-old Andrea. Carlo, Atillio's eldest son, is in charge of Visemar, the yard's shipowning arm. Marco, the youngest son, is also working at the yard. Atillio's daughter, Francesca, is active in the hotel business.

Francesco, the yard's founder, had two sons, Giovanni and Mario, who are no longer on speaking terms with their cousins. Giovanni is a shipowner who recently took delivery of the AVIC Weihai Shipyard-built ROSA DEI VENTI. Mario is a farmer.

Visentini entered the ferry segment in the late seventies/early eighties as a builder of simple double-enders for the Messina Strait. The first small ro-ro vessel, the 800-lanemetre MERZARIO LIGURIA, was delivered in 1981. A series of longer and modified newbuilds followed in the mid to late eighties and early nineties. Already back in those days, ships like FRANZ, ROBUR, MAIOR, ROMEA, and ALTINIA, to name but a few, were built by Visentini on speculation.

All these ships had a common thread: they were designed by Maierform, the then leading ro-ro naval architect, a company founded in 1844 by Fritz Franz Maier, with offices in Geneva, Bremen, and Trieste.

After graduating as a naval architect from the Università degli Studi di Trieste, Roberto Prever joined the Trieste office of Maierform in 1991. There he met Carlo Prasselli, the company's technical director who had been instrumental in the design of all ro-ro vessels built by Visentini.

When Mr Maier junior died, the once successful company collapsed, albeit the Trieste office survived thanks to investors from Sicily and the Italian west coast. However, the new ownership proved to be short-lived as there was no chemistry between Visentini, the company's main customer, and Maierform's new owners, which ultimately led to its bankruptcy.

This didn't affect the excellent relationship between Visentini and Carlo Prasselli, quite the contrary. Visentini asked Prasselli to design a new generation of ro-ro vessels, which he duly did through NAOS Ship and Boat Design, a naval architecture consultancy set up in 1993 by Prasselli and Prever prior to the bankruptcy of Maierform Trieste.

In those days Prever was one of the few naval architects in the ro-ro and ro-pax field who had the ability to use the BMT (British Maritime Technology) software.

NAOS is derived from 'naus', an ancient Greek word for 'ship'. "Both Carlo and myself thought that 'naus' sounded a bit weird. So it became NAOS and all

PHOTO: PHILIPPE HOLTHOF

The founders of NAOS Ship and Boat Design: Carlo Prasselli (l.) and Roberto Prever (r.).

necessary stability calculations.

NAOS is also contracted for Stena's lengthening project of STENA LAGAN and STENA MERSEY. The Stena Group, through its Stena RoRo and Stena Line brands, operates and/or controls no fewer than eight Visentini Class ro-pax ferries.

Stena Line will replace STENA LAGAN and STENA MERSEY, the Birkenhead (Liverpool)-Belfast Visentini units, by two E-Flexers currently under construction at AVIC Weihai Shipyard.

Stena plays its cards close to its chest when it comes to the future deployment of STENA LAGAN and STENA MERSEY, but it is likely that they will remain in the Stena Line fleet. According to Prever, the ships' lengthening and conversion plans that Shippax had reported earlier are in an advanced stage. A new 36-metre midship section will be added, increasing the vessel length to 222.6 metres. The freight intake will increase from 2,238 to 2,875 lanemetres and the number of cars on the dedicated car decks from 170 to 280. The number of passengers will only marginally increase from 970 to 1,000, but 74 passenger cabins will be added, bringing the total to 194. So, post lengthening, STENA MERSEY and STENA LAGAN's characteristics will come close to that of the E-Flexer Class. The pair's loading operation design is stern-only. There were some concerns over whether or not the 'Flex Bow' would allow for a conversion to drive-through mode, but, according to Prever, this has all been ➤

the rest is history," said Prever. Initially Prasselli held a 75% stake and Prever 25% of the company. Today Prever is the majority shareholder.

The 1995-built LINDA, currently the EUROFERRY MALTA of Grimaldi Lines, was NAOS's very first project. So successful was the project that, since then, the designs of all ro-ro and ro-pax ferries built by Visentini has been entrusted to NAOS.

The NAOS office was initially located on the ground floor of Prasselli's home. In 2012, a first-floor apartment in downtown Trieste was bought. Four years later, NAOS added office capacity when it purchased an apartment on the second floor of the same building.

The company has also expanded outside Italy. It opened an office in Split in the late nineties. This branch employs about ten people today, mainly ex-Brodosplit employees. Initially it was fully controlled by NAOS. Some of the employees have now become partners. A similar setup is found in NAOS Iberia, created in 2016 and located in Barcelona, which is behind the introduction of Dassault Systèmes' 3DExperience, a single platform for all marine design disciplines, which, according to Prever, is the most advanced solution for shipbuilding, guaranteeing a very safe and efficient design that also helps to reduce production costs for the yard.

The Gothenburg-based ScandiNAOS is the Scandinavian offshoot, which was founded 15 years ago following the design and introduction of the 'S Class' series (SPAARNEBORG, SCHIEBORG, and SLINGEBORG) for Wagenborg. In collaboration with Per Fagerlund – one of ScandiNAOS's co-founders – these ships were specifically designed for Stora Enso. Fagerlund was responsible for the development of Stora Enso's logistics chain, including the development and application of Stora Enso Cargo Units (SECUs) or the so-called Stora Boxes.

"The cooperation between Per Fagerlund and ourselves started with a visit to the 2,250-lanemetre LINDA ROSA," Prever explained. "Someone had told Per that the NAOS-designed LINDA ROSA held potential for Stora Enso's envisaged Gothenburg-Zeebrugge service. He visited the ship in Marseille and found our company name on one of the plans on display on board. He contacted us and then visited us in the company of a Swedish shipbroker from Stockholm. He elaborated his ideas on how to design the ships for the Stora Enso trade, and that's how it all started. He recommended having the engine room forward and long shaft arrangement to avoid casings and create completely straight lanes with a maximum clear opening of the stern ramp. That's how the S Class was born which ultimately led to the creation of our Gothenburg office. This project paved the way to the similarly conceived TRANSTIMBER and its two sisters, which were built by Finnyards."

ScandiNAOS primarily focuses on energy-efficient and sustainable shipping. In recent years it has been specialising in alternative fuels in general, and methanol in particular, focusing on energy efficiency through the EffShip project and its successors. It has played a key part in converting STENA GERMANICA to methanol propulsion. ■

PHOTO: UWE JAKOB

Per Fagerlund's visit to LINDA ROSA – currently Stena RoRo's MONT VENTOUX – eventually led to the design of the 'S Class' freighters for Stora Enso trade between Gothenburg and Zeebrugge.

PHOTO: FRANK LOSE

STENA MERSEY and STENA LAGAN will be lengthened by 36m. The ship's bows will be modified to allow for double-deck drive-through loading.

solved. The ships will emerge from their conversions as drive-through double-deck loaders and the stern ramp will be modified from wire to hydraulic lifting. However, during this major conversion, it is understood that Stena Line will not take the opportunity to install scrubbers.

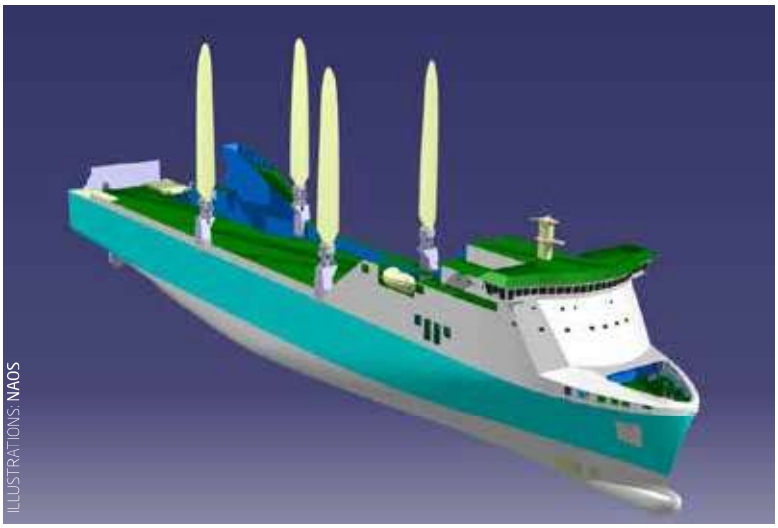
FORWARD THINKING

One of the walls in NAOS's boardroom is decorated with a large picture of ML FREYJA. A scale model of the ship can also be found in a corner of the same room. The model is curiously fitted with what could be best described as four vertical wind turbine blades – something that is missing from the real ML FREYJA.

"This is a Wing Sail Module, which we have developed in-house," Prever said, pointing at the model, with a perceptible measure of pride. "It is meant to give an additional thrust to the ship in order to reduce the mechanical propulsion. We have funding from the local government to finalise and build one prototype, which we expect to install on a Visentini ro-ro next spring. This prototype will be a 1/3 scale. So, rather than 45-metre it will be 15-metre high. This is a modular concept and the rotating blades or sails can fold down, something that is useful in stormy weather conditions or when entering a port. It's a fully automated system that is based on existing technology. Actually, it's made of solid fibreglass, similar to the blades used in wind farms. Although it can also be installed on a ro-pax, it's primarily aimed at pure ro-ro ships. As the sail modules are mounted on the sides, they don't interfere with the cargo flows or take away cargo space. We expect the power saving to be in the range of 3% to 10% on average. The first application will be a retrofit and we have LOIs with Stena, Grimaldi, and Visentini. We compared our Wing Sail Module with Flettner rotors and came to the conclusion that we had a higher range of utilisation and overall performance. What's more, the windage area of a Flettner otor can cause problems during manoeuvring in bad weather." He added that the payback time required for a Wing Sail Module was only three to five years.

Fuel efficiency has been NAOS's mantra since day one. With the introduction of the Wing Sail Module, it is poised to further reduce the environmental footprint of ro-ro and ro-pax ferries.

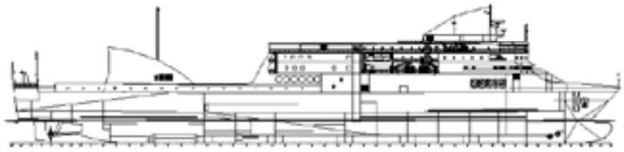
Close to 15 people work in the NAOS head office in Trieste. With a dynamic team of specialists and Prever at its helm, over the years, NAOS has demonstrated its prowess not just as a front-running naval architectural firm, but also a forward thinker in the field of ferry designs. ■


ILLUSTRATIONS: NAOS

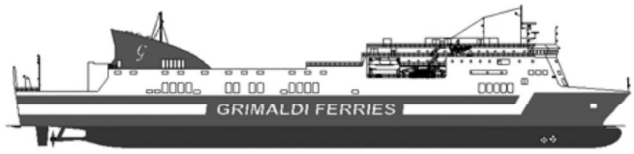
The shape of things to come? NAOS's Wing Sail Module is a modular concept, the blades of which can fold down.

THE VISENTINI CLASS

COMPILED BY: **NIKIAS IOANNIDIS**



MARK I



MARK II

MARK III

MARK IV (LNG)

MARK V (jumbo)

More than 50% of Visentini Class vessels are currently deployed in the Mediterranean, with one out of three in Spain.

SALES PRICES

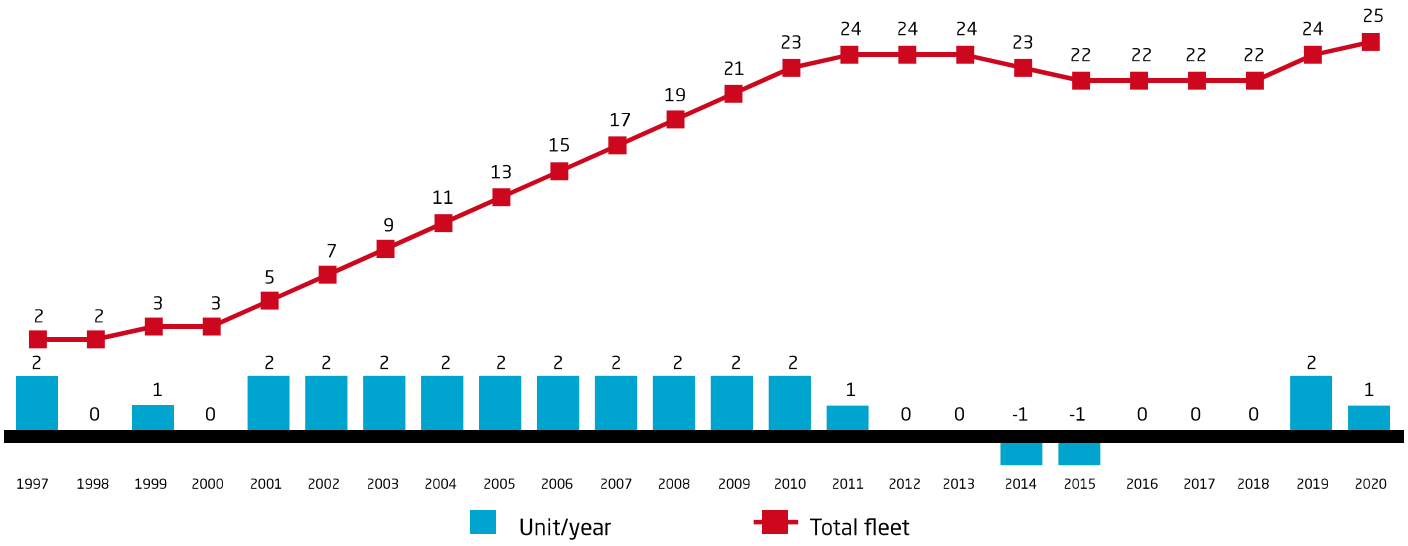
SICILIA	€30m
NAPOLES	€30m
AF CLAUDIA	€40m
HEDY LAMARR	€55m
HYPATIA DE ALEJANDRIA (*)	€100m

(*) newbuilding

OPERATORS & NUMBERS OF SHIPS

Stena AB (*)	8
Baleària	5
Trasmediterránea	3
Grimaldi Lines	3

(*) Stena AB: Stena Line operates five Visentini Class ships. Stena RoRo owns three Visentini Class ships which are all chartered out to third parties.

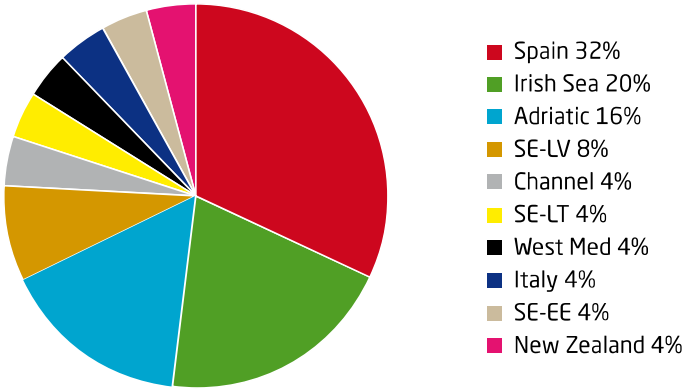


The 2001-2010 period was the golden era for the Visentini Class vessels. On average two units per year were built and delivered. Today the fleet consists of more than 20 units.

The competition from the Apuania Class ships and the slowdown in demand have resulted in the Visentini series not receiving a single new order in the last eight years. New LNG and Jumbo versions could revive the interest and attract orders in the near future.

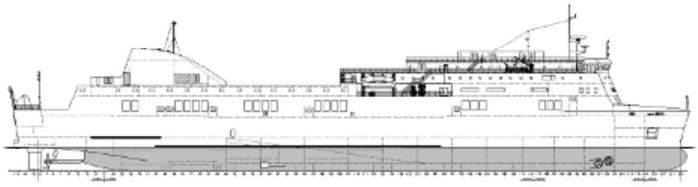
Visentini (1997-present)	25
E-Flexer (2019-present)	9
Apuania (2007-2010)	8

Where do Visentini Class vessels operate



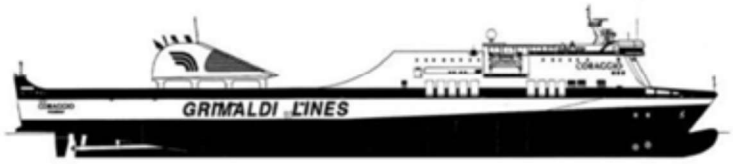
Many Visentini vessels were built with North European market deployment in mind. But most of them now serve in the Mediterranean where the 2,200-lanemetre and 190-car capacity configuration appears popular. With the imminent arrival of the Stena E-Flexer newbuilds, we expect to see more Visentini Class vessels being relocated to the Mediterranean soon.

CAPACITY CONFIGURATION



800 pax

2,200 lanemetres



500 pax (original design)

2,600 lanemetres

1,000 persons

3,100 lanemetres

CHARTER MASTER

Visentini Class vessels have proven to be much in demand in the charter market, with an amazing 96 charter contracts so far.

Stena RoRo's CONNEMARA is the frontrunner in this regard. But many contracts for this vessel are short term. The ship was once known as NORMAN ASTURIAS.

contracts

96

KEY CHARTERS

CONNEMARA	16
STENA FLAVIA	9
CUIDAD DE PALMA	9
OPTIMA SEAWAYS	8
CIUDAD DE CADIZ	7
SCOTTISH VIKING	5
STRAIT FERONIA	5
EPSILON	4
STENA HORIZON	4
ETRETAT	4

SMART SHIP, SMART SHIPOWNER

PHOTOS: BALEÀRIA

Visentini's long series of ro-pax ferries has defied expectations, now operating all over the world, from Mexico to China and the Mediterranean to the Baltic, and have found themselves in the fleets of the world's leading ferry operators such as Stena, DFDS and Grimaldi. Spanish operators are confirmed fans with Baleària owning three of the class prior to the delivery of the HYPATIA DE ALEJANDRIA.

Without changing the design's original basic concept, Visentini has introduced incremental changes to the NAOS-designed vessels which have added extra accommodation, car decks etc. without needing to change the vessel's hull form, compartmentation or main machinery. Visentini's biggest challenge came with Baleària's requirement for LNG-fuelled ro-pax ferries but this has been tackled with relative simplicity, locating two Type C LNG tanks on the aft deck.

Visentini has always preferred large HFO burning in-line medium-speed engines on its vessels for the sake of reliability and low fuel consumption. Most recently, MAN 9L48/60 engines were favoured for the Baleària contract, but Wärtsilä has supplied its dual fuel 9L46DF engines, manufactured at Wärtsilä's factory in Trieste for the HYPATIA DE ALEJANDRIA and MARIE CURIE. The main engine room, as per the Visentini standard, is located between the B/5 longitudinal bulkheads. The vertically offset MAN-Renk gearboxes each have 1,800kW PTOs. Rolls-Royce/Kamewa has supplied the two cp propellers.

From an operator's perspective, one of the most attractive features of the class has been the relatively low fuel consumption despite the high service speed. The fine hull form, featuring the NAOS 'Flexbow' and semi-skeg aftbody has been augmented by an interceptor plate at the transom. This has resulted in a very good trial speed of 24.65 knots at 85% mcr.

Directly aft of the main engines, three gensets provide extra power when manoeuvring and in port. Two of the gensets are standard Caterpillar diesel gensets, each with an output of 2,000kW while the third, larger genset is a Wärtsilä 9L20DF dual fuel genset with a 1,600kW power output at 1,200rpm. ➤

The two Wärtsilä LNGPac on-deck tanks.

TANKS ON THE OUTSIDE

In order to minimise the length of cryogenic piping, Visentini chose to locate the two 165m³ Type C LNG tanks, also supplied by Wärtsilä, on the aft deck behind the funnel in a similar arrangement to the VIKING GRACE. The double-pipe ventilation is disguised within an aft mast, located between the two tanks. The bunker stations are also located on each side at upper deck level aft. As on all the Visentini ro-pax Class, the large engine control /switchboard room is located on the main deck underneath the portside fixed ramp. The vessel is equipped with a pair of Fincantieri fin stabilizers. Twin 1,300kW bow thrusters have been supplied by Rolls-Royce.

Despite the recent delivery, the HYPATIA DE ALEJANDRIA and MARIE CURIE are not compliant with the latest SRtP rules as their keels were laid before the implementation date. Visentini would have been forced to completely redesign the vessels to comply, significantly increasing the cost.

THE VISENTINI EVOLUTION

All the vessels in Visentini's long ro-pax series have had a common 'thread' but have been gradually evolving as a result of both service experience and customer demands. For example, bow thruster capacity has been increased and the level of passenger facilities has also been improved. As both shipbuilder and shipowner, Visentini are uniquely placed to respond to market demand. The switch to LNG was prompted by Baleària's strong vision for more environmentally friendly ferries but Visentini was not prepared to take that risk as a shipowner. Baleària themselves ordered the pair of newbuildings at a reported price of EUR 100 million each, a rare outcome for Visentini, where the vast majority of vessels have been owned in-house.

The Visentini concept fits well into the role that many ferry companies feel comfortable with. Budget airlines are here to stay so apart from a few city routes where cruise ferries have found their own niche, the freight-orientated ro-pax is the vessel of choice. Stena's E-Flexer concept is similar, albeit larger. Most passengers will now travel to the Balearics by plane. The ever-larger fast ferries are also playing an important role during the busiest summer holiday season, but the year-round breadwinner will be a ro-pax that can economically transport a freight-dominated mix of vehicles and passengers.

Bunkering LNG from a road tanker.

FOOD BY APP

The HYPATIA DE ALEJANDRIA has all the familiar Visentini features; three totally enclosed freight decks, for obvious reasons after the catastrophic fires on two of the class, with two supplementary car decks. The passenger facilities include a 350-seat self-service cafeteria with a separate small à la carte restaurant on the starboard side forward. The complete 1,800m² area, including a small shop and children's play area was outfitted by long-term partner IGI Allestimenti. One of the new features to enhance convenience and reduce queuing are the 'eatsy' consoles which allow the passenger to order food and drinks remotely. When the order is ready, the passenger is alerted via an App. The cabin deck above (Deck 6) offers 121 four-berth cabins with a total of 488 beds. Several rooms on decks 5, 6 and 7 are fitted out with pullman-type seating with a 404-person total capacity.

At the aft end of the bridge deck (Deck 7), a 64-pullman-seat room is located at the aft end of the deck, complemented by a 68-seat bar which leads, via sliding doors, onto an outdoor 'beach' zone. Two Jacuzzis are surrounded by 37 beach loungers plus 76 normal seats are served by a dedicated barbecue-serving area. Baleària has specified a high level of connectivity on board with Wi-Fi access in all the public areas and cabins. The so-called 'smart ship' service introduces a number of very innovative digital functions for the first time on a ferry.

The à la carte restaurant on the starboard side forward on Deck 5.

The 'eatsy' food ordering consoles.

A standard four-berth inside cabin.

One of the rooms with reclining seats.

Sun loungers around the Jacuzzis on Deck 7, Bridge Deck.

Direct access from the car deck to the reception area.

The HYPATIA DE ALEJANDRIA has its own digital platform which gives easy smartphone access to cinema, television, online games and other media. When the boarding pass is received via SMS, the enclosed QR code gives keyless access to the cabin. If a passenger brings a pet on board, the kennels which are located at the aft end of Deck 5, are equipped with pet CCTV which can be accessed via a smartphone App.

Access for passengers to the accommodation is enviably simple from the car deck located aft on Deck 5 to the accommodation block forward. With no need to use lifts or climb stairs, car passengers are well-served. The same can also be said for foot passengers who can enter the ship via a separate ramp on the starboard side of the stern ramp/door. Immediately on entry to the ship, two sets of escalators are provided to gain easy access to Deck 5, followed by a protected passageway on the starboard side.

SINGLE POINT OF ACCESS

None of the Visentini Class have been built with bow access. However, two will soon be converted, adding bow doors. The wire-operated stern ramp, designed by MacGregor, has a length of 17m and 14.0m width. The portside leads directly to a fixed two-lane wide slopeway up to the 5.0m high upper vehicle deck which has a 930-lanemetre intake, while the starboard side gives access ➤

"Baleària's strong commitment to LNG sets the company apart, not only in Spain but actually as a world-leader."

Access on the portside to the upper deck and on the starboard side into the main deck.

into the 4.87m high main deck with 886 lanemetres. Access into the lower hold is via a 4.0m wide fixed ramp, covered with a 50m long end-hinged watertight cover. While comparatively narrow, the lower hold gives a useful 240 lanemetres for freight plus 78 cars on the 1.9m high car deck above it. The top car deck on Deck 5, with parking for 88 cars, is accessed via a hoistable 30m long by 2.9m wide ramp.

NEW DESIGNS FROM NAOS

Once the HYPATIA DE ALEJANDRIA's sister ship MARIE CURIE is delivered later this summer, the second last in the current series will be chartered by Trasmediterránea when delivered in spring 2020. The vessel is a lengthened version, equipped with more powerful main engines but is not LNG-powered. Visentini will then start building the first in a new class of 28m beam ro-pax ferries which corresponds to the maximum possible size that can be constructed at its existing facilities. Again designed by Trieste-based NAOS, the series will still retain the winning features of the existing design, namely a relatively high service speed with comparatively low fuel consumption combined with a good freight intake.

BALEÀRIA AT THE CUTTING EDGE

Baleària's strong commitment to LNG sets the company apart, not only in Spain but actually as a world-leader. No other ferry operator, even in Scandinavia, has made such a bold statement at a considerable financial penalty for the company itself. While Baleària has received a measure of subsidy from the EU, the extra cost of conversion far exceeds any subsidy. While the cost of LNG itself may be comparable with low sulphur fuel, it is a considerable penalty compared with HFO which is still used by most ferry operators in the Mediterranean. So far, Baleària is bunkering LNG from road tankers but this will soon change as other lines, notably some cruise operators, start to dip their toes in LNG, requiring the use of specialist bunker barges in Barcelona and Valencia. Baleària's 'woke' attitude also extends to the naming of its ships. Both the HYPATIA DE ALEJANDRIA and MARIE CURIE being pioneering women scientists who did not receive the recognition that they deserved when making their scientific discoveries. ■

MAIN PARTICULARS

IMO	9498755
Class	RINA
Length oa	186.48m
Beam	25.6m
Depth to main deck	9.15m
Draft	6.75m
GT	28,658
Dwt	7,718t
Main Engines	2 x Wärtsilä 9L46DF-B
MCR	2 x 10,300kW
Speed at trial draft	24.65 knots at 85% mcr
Speed at 6.6m service draft	23.6 knots at 85% mcr
Lanemetres	2,194m plus 166 cars
Persons on board (max)	880

SHIPPAXDATABASE