SCHOTTEL REPORT







POWERFUL HERITAGE. BRIGHT FUTURE.

A look back at one hundred years of SCHOTTEL corporate history

DIGITAL SERVICES

Benefit from data

THRUSTERS IN XXL

Rudder propellers before delivery

No. 19

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100 YEARS OF SCHOTTEL 50° 8' N, 7° 34' E

From boat building to online trainings: our cover story highlights the milestones in the company's growth. Page 10



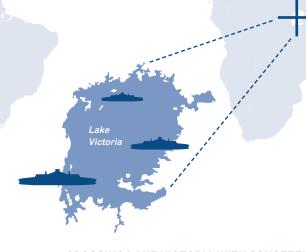
FROM 0 TO 350 30° 9' 36" N, 85° 39' 16" W

After 45 years, Eastern Shipbuilding Group has become one of the most diverse vessel construction companies in the United States with three locations on the coast of Florida's panhandle. Page 16

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CROSSING LAKE VICTORIA WITH SCHOTTEL

1° 0' S, 33° 0' E

In order to ensure the ongoing transport of people and goods on Africa's largest lake, the propulsion system of the ferry Sengerema has been modernized by SCHOTTEL. **Page 06**

100 INCE 1921



CONNECTING CUSTOMERS AND SERVICE STAFF

1° 18' 41" N. 103° 38' E

SCHOTTEL Far East: "Over the past year, our customers have increasingly resorted to remote support. Still, our 15 service engineers are on the road a lot."—In the employee portrait, Service Administrator Wendy Lee describes the role she plays in the process. **Page 08**





DEAR READERS,

2021 is a special year for SCHOTTEL: the 21st November marks the 100th anniversary of the company's founding by Josef Becker. The trained locksmith opened his workshop in a small German village on the Rhine and almost 30 years later he wrote shipping history by inventing the rudder propeller that is steerable through 360 degrees.

Since then, SCHOTTEL has grown continuously with the development, production and sales of marine propulsion systems. Today, our propulsion solutions have made the seven seas their home. What we do, we do wholeheartedly: in all areas, according to the same high standard, all over the world.

POWERFUL HERITAGE. BRIGHT FUTURE.

The customer is the focus of our daily business. Those in the maritime industry who turn to SCHOTTEL have always been able to expect products and services of the highest standard. Our goal is to be the first choice in marine propulsion solutions. To this end, we use our entire wealth of experience and all our innovative strength to improve existing areas and expand into new ones. This and the powerful heritage of Josef Becker will help us to stay on course for a bright future.

Our history is marked by bold decisions at the right time and having the courage to take bigger and bigger steps. Our heartfelt thanks go out to all who have played a part in our company's tremendous achievements and growth. We are committed to honouring Josef Becker's legacy and together with our customers and our team we will continue to steer the company into a bright future.

Kind regards,

Stefan Kaul

Chief Executive Officer (CEO)
SCHOTTEL GmbH

TAKING SERVICE TO THE NEXT LEVEL

ON LAND,operators are able to
access their vessels' data.

Digital products and services open up numerous possibilities for optimizing ship operations—whether for tugs, ferries or offshore supply vessels. SCHOTTEL experts present new solutions and explain how operators can benefit from them in their daily work

he digital products connect the systems on the vessel to the shore: "Basically, we are creating a virtual image of the propulsion system on land, thus providing insights into the propulsion system. This information can then be used to plan operational and strategic deployments better," explains Alexander Neideck, Product Manager Automation & Digital Products at SCHOTTEL.

MORE DATA FOR BETTER DECISIONS

SCHOTTEL MariHub is the modern hub for data collection, processing and evaluation directly on board the vessel: the system records and analyzes signals from sensors, machines and other components. In addition, MariHub functions as a fault monitoring system: the signals are continuously recorded and stored, and warnings and alarms are generated if a limit value is exceeded.

MariHub performs a large part of the analyses independently on board and generates messages based on common process and measurement values. These values can be viewed by means of an integrated control panel on the MariHub system or are sent automatically to the IoT platform MariNet via an encrypted connection. If there is no stable internet connection, the cached data can be transferred automatically or manually at a later time.

Stefan Buch, Vice President After Sales Service at SCHOTTEL: "For our customers, the focus is on safe, reliable and economical operation

during the vessel's entire service life. We contribute to this with our data analyses which, in turn, provide the needed information and recommendations for taking corresponding

INSIGHTS IN REAL TIME

action."

Operators benefit from further applications when using SCHOTTEL's own MariNet platform. ProData, the integrated IoT service, allows the data collected by MariHub to be viewed online from anywhere. It provides information on the operation conditions and equipment status and helps to identify optimization potential. The processed data can be used for planning the strategic deployment and development of the entire fleet, which helps to maximize the potential of the vessels.

CONDITION-BASED MAINTENANCE

ProCMS, the condition monitoring service for SCHOTTEL propulsion systems, ensures that



ON BOARD, an intelligent algorithm continuously monitors the status of the propulsion unit.



downtimes are as short as possible and can be planned. An algorithm monitors the latest measured values 24/7 and notifies at an early stage if there are any acute signs of wear or damage to specific components. This minimizes the risk of consequential damage.

Certified SCHOTTEL experts such as Markus Wilbert, Team Manager Service Technical Support, continuously monitor the results: "We analyze the data, constantly adjust limit values and regularly prepare measurement reports. This allows us to make condition-based maintenance recommendations at any time. In this way, we make sure that maintenance is carried out at the right time." The created condition reports are the basis for planning dry-dock maintenance better.

SOLUTIONS FOR ALL VESSELS

Besides the permanently installed MariHub monitoring system, the SCHOTTEL range also includes VibCheck, a mobile system for evaluating the condition of the propulsion system. SCHOTTEL service engineers carry out vibration measurements on the vessel's installed units using a portable measuring device. This measurement data is transferred manually and analyzed by experts. The results enable more targeted maintenance planning and spare parts logistics, especially for older vessels.

Regardless of whether it is a new vessel or has been in operation for years: SCHOTTEL digital services offer a wide range of benefits that can improve troubleshooting, strategic maintenance planning or optimize fleet management.

MORE INFORMATION:



CROSSING LAKE VICTORIA WITH SCHOTTEL

Ferries are an important part of the infrastructure in many areas of the world. And this is no different on Lake Victoria in East Africa. To reliably carry people and supply them with goods, one of the ferries has been fitted with new SCHOTTEL propulsion systems



ith an area of nearly 69,000 square metres, Lake Victoria is the largest lake in Africa—and a vital resource for around 30 million people who live on its shores. It is not only a source of water and fish but also provides them with transport routes. Every day, almost 40 ferries travel across the lake between Tanzania, Uganda and Kenya. One of these ferries is the MV Sengerema. Built in 1985, the vessel transports passengers and cars across the southern part of Lake Victoria seven days a week.

RELIABLE PARTNERSHIP

After more than 30 years of use, the existing propulsion units reached their end of life. The operator TEMESA, which is responsible for the maintenance of the country's ferries, had them modernized by the Songoro Marine Transport Boatyard, which chose SCHOTTEL without hesitation: "We have been successfully working with SCHOTTEL for many years and always experience good working relations, reliable propulsion systems and professional contacts who provide us with guidance and support throughout our projects", explains Major Songoro, General Manager of Songoro Marine.

LIFELONG SUPPORT

In summer 2020, new machinery was installed with two SCHOTTEL RudderPropellers type SRP 90 that could be adapted to the existing vessel structure. Michael Heibel, Team Manager Modernization & Conversion at SCHOTTEL comments: "Thanks to the customized

concept, we were able to keep the effort as low as possible. That translated into minimal downtime for the customer. As a result of this solution, the operator not only benefits from an efficient propulsion system right now but also from reliable service in the future."

SCHOTTEL has always been a leader in the African ferry market. More than 60 ferries with the German propulsion systems are in operation on the continent as a whole. Dirk Wagner, General Manager SCHOTTEL Middle East and responsible for sales and service in the English-speaking countries of Africa, is particularly pleased that this position could recently be further improved through the modernization of the MV Sengerema: "The work paid off: not only did we restore a reliable lifeline for the people who live by Lake Victoria, but following on from this project, we were also able to win two contracts for delivering multiple rudder propellers for two new ferries in the region."



NEWS



TRADE FAIRS 2022

10-13 JANUARY // NOR-SHIPPING Oslo, Norway

16-18 MARCH // **ASIA PACIFIC MARITIME** Singapore

24-26 MAY // NAVALIA Vigo, Spain

06-10 JUNE // POSIDONIA Athens, Greece

21-23 JUNE // SEAWORK Southampton, UK

COMPATIBLE WITH ELECTRIC MOTORS OF ALL TYPES AND **MANUFACTURERS**

The novel SCHOTTEL LE-Drive ("Embedded L-Drive") allows a free choice of electric motors of all types and manufacturers for diesel-electric or purely battery-powered vessels. The installation height of the LE-Drive, including the electric motor installed on top of it, is comparable to that of a Z-Drive. Due to this extremely low dimension, the LE-Drive is suitable for every common vessel design. The omission of the upper gearbox further increases mechanical efficiency by approximately 3 percent. At the same time, fuel consumption is reduced. Another benefit: reduced vibration and noise levels noticeably improve comfort on board.



Z-Drive

LE-Drive

Comparison of installation heights. The LE-Drive is available for SCHOTTEL RudderPropellers and SCHOTTEL EcoPellers.





WHAT CUSTOMERS ARE SAYING ABOUT SCHOTTEL



José Ramón Regueira, Commercial Director at Nodosa

Nodosa has been building, modifying and repairing ships for more than 50 years. The Spanish shipyard has already delivered over 300 vessels, including numerous fishing vessels, tugs and workboats, ferries, offshore vessels, and yachts.

WHICH ARE THE NEW **CHALLENGES FOR YOUR COMPANY TO MEET?**

Right now, a magnificent field is opening up for new vessels that run on clean and environmentally friendly energies. This is also what we are observing as a newbuilding and repair yard: the demand for reliable, energy-efficient, and lowemission equipment is increasing significantly.

WHAT ARE THE REASONS FOR YOUR PARTNERSHIP WITH SCHOTTEL?

SCHOTTEL is the ideal supplier to meet our customers' requirements in the field of propulsion. Its reliability is beyond any doubt and this gives us, the responsible shipyard, peace of mind.

WHAT DOES SCHOTTEL SUPPORT LOOK LIKE?

Our technicians and ship managers, who really know SCHOTTEL from the most critical moments during installation and commissioning, are convinced by the overall reliability, but also by the attention that SCHOTTEL pays to every little detail related to its equipment. There is also the clear, specific, and precise documentation, as well as the highly qualified technicians with a very strong sense of cooperation. And there is always someone at the other end of the line ready to give us their best service—in a simple, friendly, and attentive manner. Regarding after-sales, I can tell you a fact that surely speaks for itself: in the 20 years of cooperating with SCHOTTEL, no customer of ours has ever had a single serious problem related to SCHOTTEL equipment, I think this is the best that can be said for any supplier.

My congratulations and admiration for having mastered these first 100 years so well. I wish SCHOTTEL continued success for the next 100 years.



one are the days when the entire company corresponded via a single email address, alongside the fax machine and telex. Unlike in 2005, Service Administrator Wendy Lee now needs two monitors to coordinate spare parts and fitters.

In the office, she is like a coordinating interface between customer and service staff; the one who creates quotations and invoices for spare parts, prepares and follows up on service assignments in detail, procures spare parts from the German head office, and manages the travel arrangements of the service engineers. "The sales territory of SCHOTTEL Far East and the subsidiary in Australia covers all of Southeast Asia and the neighbouring areas in East Asia, Australasia and Oceania," 51-yearold Wendy explains. "Over the past year, our customers have increasingly resorted to remote support. Still, our 15 service engineers are on the road a lot." In a common year before the pandemic, she supervised around 300 assignments.

FOCUS ON TEAMWORK

A lot of tasks are similar, but there is no standard routine: "There are many situations where assistance is required and I need to make the necessary arrangements quickly. For example, scheduling our mechanics on short notice to solve problems on site and get the vessels back into operation. The short billing windows afterwards are also critical, especially if the work had to be extended unexpectedly," says Wendy Lee, pointing out potentially stressful situations. The current pandemic has made travel preparations a lot more challenging. This has also affected her personally, as travelling is one of her hobbies.

If time allows, she also supports other departments. "SCHOTTEL Far East can only work as a close-knit team. As service staff I am part of the team and assist where necessary—be it in the warehouse or in accounting. And so, every completed job, small or large, is a collective achievement of which I am proud." Over the years, she has seen the team grow from 16 to 29 employees, yet she can still recognize a family spirit that is further promoted at team events.

Before being employed at SCHOTTEL, Wendy Lee worked in administration for a local trading company. With the change and the growth of the company, her qualifications and responsibilities have increased, too. Today, she benefits from the comprehensive view of the company she acquired throughout the various stages of her career: "I started as a receptionist and office clerk, became



In a common year before the pandemic, Wendy Lee supervised around 300 assignments as Service Administrator.

a spare parts salesperson and finally a service administrator. The skills required in each role varied and I always had to adapt quickly. In all the years at SCHOTTEL, I have made many and valuable experiences."

In her current position, she also benefits from the knowledge gained from being in interpersonal contact with others: "We want our customers to be satisfied with the overall quality of products and services. This also means that we adapt to their different personalities and their various demands. Thanks to the experience acquired throughout my career, I can apply this skill in my current job."

Even though her workplace is the office, from time to time her job does take her to a harbour: "At one of our customers, PSA Marine Pte Ltd, I inspected a vessel with SCHOTTEL propulsion systems, which was a nice change from my normal desk job. The PSA Capella is an impressive tug in harbour service. We looked at the whole ship; the engine room and bridge with the controls were of particular interest, of course. These visits help me to understand the work of our service technicians better when they make sure that SCHOTTEL equipment is maintained in working order."

"I AM HAPPY TO CONTINUE THIS COURSE!"

Personally, the mother of a 17-year-old daughter constantly strives to increase her education level and to stay fit and healthy in order to face any future challenges in her career positively: "I am very proud to play my part in the growth and success of SCHOTTEL Far East." And she laughingly adds: "As far as I am concerned, I am happy to continue this course."



SCHOTTEL FAR EAST 4 Tech Park Crescent Singapore 638128

POWERFUL HERITAGE. BRIGHT FUTURE.

In 1921, Josef Becker sets up a workshop in a small village on the Rhine. In 1950, his invention of the rudder propeller that is steerable through 360 degrees initiates a multitude of developments that allow SCHOTTEL to grow into a global company



After the First World War, in the midst of hyperinflation, Josef Becker registers his own locksmith's business with the authorities. "When we founded the business, we may have had no money, but we had courage," he later says

reminiscently. **21 November 1921** is also the day of another life-changing decision: he marries Magdalena Karbach, whose commercial skills will make a major contribution to the success of the

future SCHOTTEL shipvard. With a

fundamentally new succeeds in entering the

1921

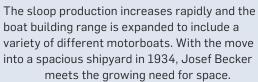
future SCHOTTEL shipyard. With a dinghy design—the sloop—Josef Becker boat building business in 1925.

1897

Josef Becker, the **founder** of today's SCHOTTEL GmbH, is born on 14 July 1897. After finishing school, he starts an apprenticeship as a locksmith

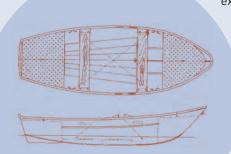
in his father's smithy in Spay, Germany. This is followed by working in a shipyard in nearby Koblenz. Here, he acquires the shipbuilding expertise that, along with great craftsmanship and his visionary inventiveness, he will put to good use in his growing company.

1934



The new site is located at the SCHOTTEL river section, exactly at Rhine kilometre

578.5. To make sure



that skippers familiar with the Rhine can locate it straight away, Josef Becker decides to rename his company SCHOTTEL-Werft. To this day, **Spay** is the company's headquarters, which is continuously expanded until the construction of the new production site in Dörth in 2015.



An innovative ship propulsion system, the first to combine steering and propulsion, paves the way for the future of Josef Becker's company. The starting point for his ideas is the well-known

outboard drive. He continues to make improvements to this drive until he designs a Z-drive without a separate rudder blade. Instead it has a propeller that can be steered 360 degrees around its own axis without any restrictions. His rudder propeller allows him to venture into completely uncharted territory: it enables a vessel to use the full power of its propulsion engine for manoeuvring. Domestic and foreign orders start pouring in in quick succession. In the 1960s, the emerging offshore industry demands larger and larger power units. Today, SCHOTTEL supplies approx. 20 types of power units ranging from 190 to 6,190 kW. Over the decades, all components have been optimized in terms of quality, flow

behaviour, noise emissions and power density and have been equipped with numerous technical innovations.



SCHOTTEL equips the first harbour tug with rudder propellers. Thanks to its exceptional manoeuvring capabilities, the Janus attracts attention and marks the starting point for a revolution 1967 in the pusher and tug boat market.

1958 While Josef Becker limits sales to the domestic market, partly due to a lack of foreign language skills, his son-in-law Franz Krautkremer focusses on internationalization. In 1958, the foundation of SCHOTTEL Netherlands in The Hague paves the way for it. In addition to France, sales territories on other continents are accessed by means of subsidiaries in the USA, the Far East and Brazil. Today, SCHOTTEL is represented in all of the world's key shipping centers.

1963

From the very beginning, customer proximity, expert advice and personal After Sales Service lie at the heart of

the SCHOTTEL philosophy, actively exemplified by Josef Becker, who attaches just as much importance to customer service as he does to the production of high-quality propulsion units. Thanks to fast support, today's service staff still ensures that downtimes are reduced to a minimum and vessels are ready for operation again as quickly as possible. In the past, the team communicated by letter, today it also has remote maintenance at its disposal.



With the introduction of CAD software in design, the era of pen, paper and drawing board comes to an end after 60 years. Prior to the use of digital design models, project planning and the integration of propulsion systems into a ship's design took several weeks—now, the process is completed in only a matter of days. Since then, continuous investments in **research & development** have always kept expertise and software at the highest level.

1980



1981 sees the launch of the Masterpilot, a robust control module that particularly proves its worth in tugs. From 2001 onwards, the MasterStick is developed, a customized joystick system that allows up to six propulsion units to be manoeuvred with just one lever. Today, SCHOTTEL's portfolio of cutting-edge **propulsion control systems** ranges from the hand-operated steering wheel directly on the propulsion unit to the remote-controlled, computer-assisted MasterStick.

1981



12

In 1986, the shipyard receives its first

spectacular large-scale ferry order for 96 rudder propellers for British ro-ro ferries. Time and again, SCHOTTEL has responded to the current requirements of the ferry industry with

1986

innovative propulsion solutions, positioning itself as the global leader. Since long before that, propulsion units from Spay have spearheaded the global tugboat market. During the offshore boom, which continues until 2015, the company secures a 20 percent market share in the platform supply vessel segment. Nowadays, SCHOTTEL products can be found on almost all vessel types. In addition to Tug & Offshore Energy and Ferries & Passenger Vessels, the company has a stable market position in the Merchant Vessels and Navy & Governmental segments: both for new vessels and modernizations. Automation, propulsion control and hybrid propulsion systems extend the product range which is supplemented by marine services.





SCHOTTEL takes over the company Wismarer Propeller und Maschinenbau GmbH (WPM), thereby expanding its product range to include controllable pitch propellers up to 30 MW. In addition, Wismar is now a production, testing and assembly site for particularly large SRP propulsion systems from 2-6 MW as well as for all retractable propulsion systems. Seven production and storage halls are available for this purpose on the 6-hectare site. Wismar has also established itself as an important service site.

1998

In Spay, the **SCHOTTEL Academy** is founded as a training center for Service customers and staff. The aim of customer training is to provide

crews with detailed knowledge enabling them to repair possible damages themselves and carry out maintenance tasks independently. This knowledge is imparted by means of 250 training modules with different content levels. In addition to Spay, Germany, three

2010

other locations now offer training and education: Houma, USA, Singapore, Fremantle, Australia. Another training center is being established in Itajaí, Brazil.

When Spay no longer offers any room for expansion, the decision is made for a new production site in nearby **Dörth**. 2015

With 23,000 square metres of production and office space, SCHOTTEL can both expand its vertical range of manufacture and increase its production capacity by around 30 percent. A modern apprentice workshop for the next generation, optimized production processes, a motivating working environment and committed environmental protection are the hallmarks of one of the most modern rudder propeller factories.



2021

Within just a few years, the invention of the rudder propeller makes SCHOTTEL a worldrenowned manufacturer of propulsion systems. It marks the start for developing an extensive portfolio that includes propulsion systems for a wide range of ship types as well as digital products. Today and in the future.

SCHOTTEL is commemorating the company's 100th anniversary with a brochure that can be provided on request.

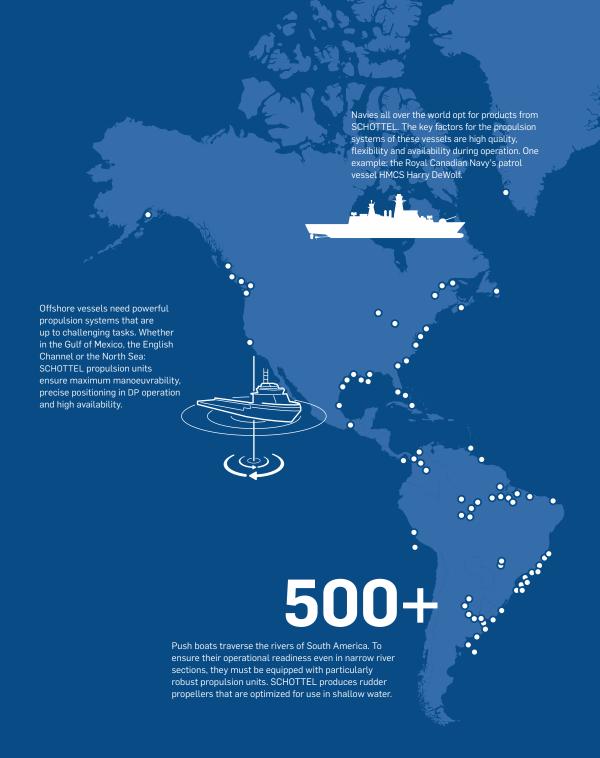


FIND OUT MORE:

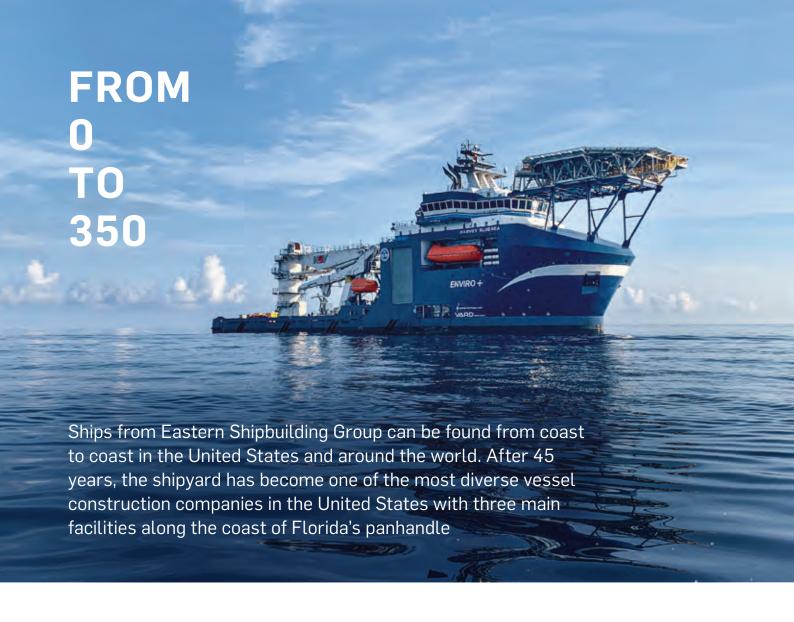


FROM GERMANY TO THE ENTIRE WORLD

Whether azimuth thruster or controllable pitch propeller, main propulsion unit or manoeuvring aid, propulsion system or digital solution: SCHOTTEL products are used worldwide in vessels of all types and sizes. The world map locates the 500 vessels most recently equipped with SCHOTTEL propulsion units







eadquartered in Panama City, Eastern Shipbuilding Group runs three locations: in Panama City, in Allanton, and in Port St. Joe. The business was founded by Brian R. D'Isernia in 1976 on one acre of leased property on Watson Bayou in Panama City. He had already taken a few steps in his career by then, including a law school degree. As a commercial longline fisherman, he learned firsthand that the only way to get the type of vessels he wanted was to design the vessels, write the specifications, and build them himself.

In the beginning, the order book featured relatively small longline commercial fishing vessels made of steel. After 45 years, Eastern Shipbuilding Group has become one of the most diverse vessel construction companies in the United States, with a large portfolio ranging from trailing suction hopper dredgers, tugs and towboats, nearly all kinds of passenger vessels, merchant carriers and more. "In 2016, the award for the USCG Offshore Patrol Cutters marked one of the most significant events in our company history as it was our entrance into the major government shipbuilding program," says Joey D'Isernia, President of Eastern Shipbuilding.

From only ten employees in 1976, and the first fishing boat named after the founder's mother, the workforce has now grown to approximately 1,300 employees and contract workers across the three main shipbuilding facilities, making it the biggest employer along Florida's panhandle. Since its beginnings, the company has established a portfolio of more than 350 vessels. Although most of them are Jones-Act-compliant and were built for US based companies, a remarkable number of foreign flag vessels have been exported to locations such as Brazil, Colombia, and Canada.

THREE STATE-OF-THE-ART FACILITIES

The Nelson Street facility and operational headquarters in Panama City, is dedicated to the OPC project to ensure continuous and uninterrupted construction of those critical national security assets. This has allowed for process optimization and has resulted in enhanced producibility and lifecycle cost reductions for the USCG. Additionally, ESG has invested in the country's first-ever on-site production facility to support the C5ISR system testing for this order. It is said to be the most technologically advanced telecommunications testing facility for marine

1,300 employees and contract workers

660
tonnes lifting capacity at Allanton shipyard



and procedures serve to minimize the overall environmental footprint whether it is carbon emissions, keeping the waterways clean, or reducing waste through recycling.

"SCHOTTEL SHARES OUR PHILOSOPHY OF QUALITY"

Eastern has enjoyed a long partnership with SCHOTTEL that is represented by 63 joint projects including tugs, fire boats, platform supply vessels, multipurpose supply vessels, and heavy-lift crane vessels. President Joey D'Isernia: "We are proud to work with the best engineers and innovators in the industry. We partner with companies like SCHOTTEL who share our philosophy of quality and results and when we find those like-minded suppliers, we remain loyal to them."

The shipyard is very familiar with the large SCHOTTEL product range such as the Rudder-Propellers, TransverseThrusters, CombiDrives, and ControllablePropellers. Some of the milestones in the partnership are projects such as the ten-vessel OSV series and two MPSVs for Hornbeck Offshore Services, the Boldini PSV in a series of five vessels, and tugs for McAllister Towing and Transportation. A particular highlight are the Harvey Gulf ships with SCHOTTEL RudderPropellers which won the prestigious Boat of the Year Award in 2017.

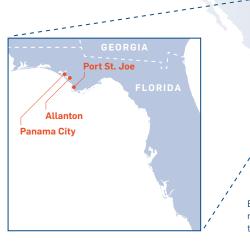
STILL A FAMILY BUSINESS

Since its founding, ESG has grown to be one of the top shipyards in the U.S. by reinvesting millions of dollars back into the business. It is still held privately as a multi-generational family business with Joey D'Isernia as president since 2015. He is one of six sons to founder and CEO Brian D'Isernia, with all six working in the firm. The company sticks to its origins and anchors itself to local culture and people in many ways. "Our community is our home, and we want to do our part to help it thrive," comments Joey D'Isernia—At ESG, all signs point to the future.

on 10 hectares (24 acres) and has over 600 metres (2,000 feet) of waterfront leading into St. Andrew's Bay and out to the Gulf of Mexico. Among other assets, it is outfitted with three aluminium and steel production buildings, marine railways, and has a lifting capacity of 45 to 400 tonnes. The Allanton facility provides space for the commercial side of the business thanks to even greater dimensions. It boasts state-of-theart steel processing equipment as well as project-supporting workshops such as a carpentry, warehouse, and a sandblasting & painting shop. Allanton shipyard houses the company's administrative staff, together with personnel from engineering, project management, HR, etc.

vessels in the country. Nelson Street shipyard sits

Recently, a third main shipbuilding facility in Port Saint Joe, Florida, was opened. This yard is dedicated to the final outfitting and testing of newly constructed commercial vessels, as well as topside repairs. ESG has embarked on a \$50 million, 15,000 tonnes dry-dock project to provide full vessel maintenance services for both commercial and governmental customers. ESG takes great pride in the fact that all facilities are ISO 14001 compliant. Processes



Eastern Shipbuiding Group runs three locations along the Gulf Coast.

USA

Wismar, Germany: high-level technology from the Baltic Sea

LARGE DIMENSIONS

he Wismar SCHOTTEL subsidiary specializes in the development and production of particularly large propulsion systems (see p. 13). In a production and storage area of 15,000 square metres, propulsion units for extra powerful vessels are manufactured. Even though the site is experienced with large dimensions, each machine is impressive in its size like these customer specific versions.

ROFIL

SCHOTTEL

RUDDERPROPELLER TYPE SRP 610

Input power 3,000 kW

Propeller diameter 3.3 m

Characteristics: a total of four of these electrically driven rudder propellers form the main propulsion system of a crane vessel. For over 70 years, the rudder propeller has been covering numerous configuration options and can thus be installed for a wide range of ship designs and areas of application.



PROFILE

SCHOTTEL RETRACTABLE RUDDERPROPELLER TYPE SRP 610 R

Input power 3,250 kW

Propeller diameter 3.0 m

Characteristics: the retractable unit is equipped with a propeller shaft inclined downwards by 8 degrees to reduce interactions between the propulsion units as well as between the units and the hull, and to increase propulsion efficiency. When retracted, the SRP-R functions as a fully 360-degree steerable propulsion unit. It is based on proven rudder propeller technology.

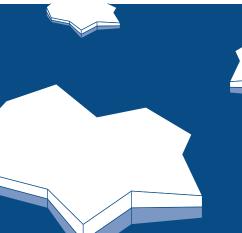
ROFILE

SCHOTTEL RUDDERPROPELLER TYPE SRP 710

Input power 3,700 kW

Propeller diameter 3.4 m

Characteristics: with input powers of up to 3,750 kW and propeller diameters of up to 3.6 metres, the SRP 710 is one of the larger rudder propellers in the SCHOTTEL portfolio. Two of the rudder propellers shown here for a salvage tug achieve a bollard pull of over 120 tonnes.





OUTLOOK

Half as thick:

the Arctic ice is only half as thick as it was around 130 years ago—this is what scientists from the MOSAIC research expedition have stated in a first interim report. The researchers from 40 nations took tens of thousands of samples of ice, water and air during their historic expedition as they drifted through the Arctic on an ice floe with their ship Polarstern. 1

Living in extreme conditions:

the British Antarctic
Survey recently
announced that a research
team accidentally came across sponge-like
organisms while drilling. The animals live
under 900-metre-thick ice shelves in total
darkness on a rock. They continue to baffle
researchers when it comes to what they feed
on in their inhospitable environment of water
that is around –2 degrees Celsius. 2*

98 %

of all internet traffic flows through the world's oceans. There are many thousands of kilometres of cables connecting the continents. The latest cable has been in operation since last February: Google's "Dunant" submarine cable, in which data races back and forth between Europe and the USA at a record speed of 250 terabits per second. 3*

On average, each person will eat **19.8 kilograms** of fish in 2020, according to projections by the Food and Agriculture Organisation of the United Nations. After many years of increasing global fish consumption, the figures have dropped again slightly.

The **flow of** the Atlantic Gulf Stream has slowed by about 15 percent since the middle of the 20th century. According to a recent study by Nature Geoscience, this probably makes it weaker than ever before. Possible consequences are rising sea levels on the US East Coast and more extreme weather events in Europe. 5*

In June, after years of discussion, geographers from the National Geographic Society recognized the Southern Ocean as the fifth ocean—and based this conclusion on ecological delimitation: the Antarctic Circumpolar Current

No.

separates the waters from the adjacent oceans. Thousands of species live only there and nowhere else in the world. 64

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