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Supplement February 2018



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Chief Editor: Krischan Förster
Executive Editor: Michael Meyer
Editors: Felix Selzer | Thomas Wägener
Schiffahrts-Verlag »Hansa« GmbH & Co. KG
Stadthausbrücke 4 | 20355 Hamburg | Germany
redaktion@hansa-online.de
Phone +49 (0)40-70 70 80-02 | Fax -214

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»An excellent example«



Reinhard Lükens,
General Managing Director
German Shipbuilding and Ocean
Industries Association (VSM)

Good news was scarce for the global shipbuilding industry last year: The global orderbook continued to shrink. The number of active shipyards in the international newbuilding market has reduced by nearly 2/3 and many of the about 360 shipyards are currently completing their last vessel. Not exactly a great outlook, one should think. However, for German shipbuilders the situation looks quite different.

Ten years ago German yards turned away from building standard ship types, specialising on highly complex passenger ships, ferries, yachts, all types of naval ships and other purpose-built vessels. Early on they had to adapt to the changing market conditions, which helped tremendously to weather the current market storm successfully.

As to marine equipment, VSM members deliver innovative solutions to meet future environmental policy-related and regulatory challenges. Highly effective systems for ballast water management and systems reducing greenhouse gases and harmful substances are now available, as are new, clean options, such as LNG and methanol, providing the means to tackle the maritime energy transition. Electrical as well as hybrid propulsion systems (combining batteries with diesel or gas-powered generators) have also been deployed successfully. And since low emissions are great and no emissions are even better, fuel cell technology is utilized to generate climate friendly energy for on-board use.

The German maritime industry has developed leadership in innovative green technologies and advanced

solutions for challenging projects.

The comprehensive expertise has contributed significantly to the

good results German shipbuilders have achieved even in times of crisis, with the German orderbook climbing to an amazing all-time high of nearly 18.5 bn € in 2016.

This year's Ship of The Year, the 98 m yacht »Aviva«, is an excellent example highlighting the green competence of German shipyards and equipment manufacturers: Her optimised hull design combines outstanding seaworthiness with a resistance reduced by 20%. The propulsion concept, based on a hybrid drive system, is quiet and eco-friendly.

No reason for us to be complacent, however. Rather, we take this as an encouragement to continue driving the development of innovative, and most of all, economically feasible solutions. The compilation of newbuilds delivered in 2017, compiled in this year's Special Edition, highlights further impressive examples of the innovative impetus and versatility of the German shipbuilding and ocean engineering industry.

The German maritime industry looks forward to serving customers and partners with tailor-made and efficient products, designs and services worldwide. Industry delegations, exhibiting on the leading fairs and the German Maritime Export Initiative (GeMaX) are just some examples for our strong commitment to work together successfully on international projects. ■



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German maritime industry – a strong ship braving heavy seas

German shipbuilders have managed to achieve positive results even in times of crisis. Their ability to offer advanced technology is the key

A sense of crisis prevails around the globe. The situation of the global shipbuilding industry reached a new low in 2016, with orders received dropping to 11 mill. Compensated Gross Tons (CGT). This is the lowest level of the past 20 years. New orders have barely increased during the first three quarters of 2017, climbing to a total of 13.5 mill. CGT.

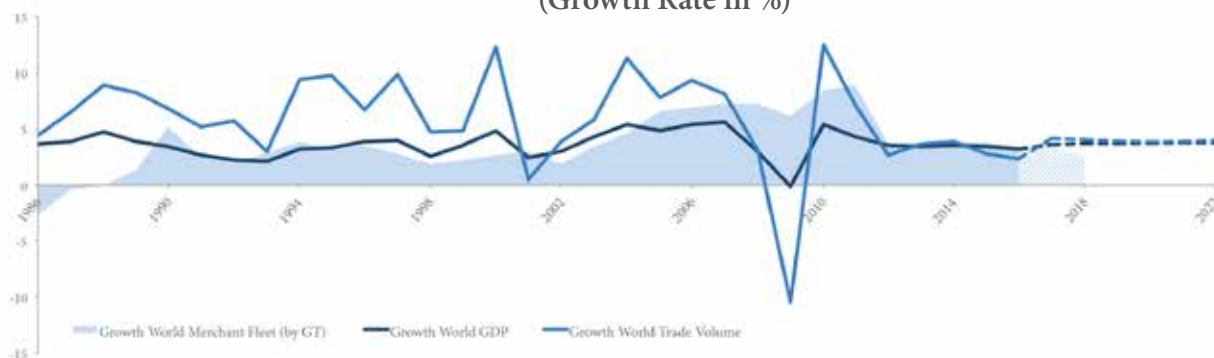
The number of deliveries has again surpassed the number new orders by a wide margin of more than two to one, continuing the downward trend of the global order book since the peak experienced in 2008 to just 40% of that year's level. The slight rise in new orders is mainly owed to an increased demand for tankers and cruise vessels.

Weak trade volume a challenge for shipping

Compared to the crisis year of 2016, incoming orders for tanker tonnage have more than tripled. At the same time, orders for bulk carriers, container ships and general cargo vessels recovered rather slowly during the first three quarters of the year 2017. In many segments, huge overcapacities continue to bear heavily on the shipping industry. Freight and charter rates remain at low levels, as do prices for second-hand tonnage. Since it peaked at 12.5% in 2010, global trade volume growth has slowed considerably. The International Monetary Fund has forecast a growth rate of no more than 4.2% for the year 2017. While growth is expected to continue,



Development of World GDP and World Trade Volume compared to Fleet Growth (Growth Rate in %)



Source: IMF, IHS, Clarksons, chart by VSM

growth rates will be significantly lower than in previous decades. Apart from short-term cyclical factors, the »Fourth Industrial Revolution« will automate and innovate existing production methods in the medium and longer term, shortening transport routes and reducing transport volumes. Structural changes in the global energy markets will contribute to this development. New, energy-saving technologies entering all industry segments, and the increasing share of alternative energy sources in the energy mix will have an impact on the global demand for fossil fuels. A dropping demand for conventional energy sources is certain to cause structural changes in global sea transport. Because of its direct dependence on sea trade, the shipping industry is highly susceptible to factors inhibiting trade volume growth.

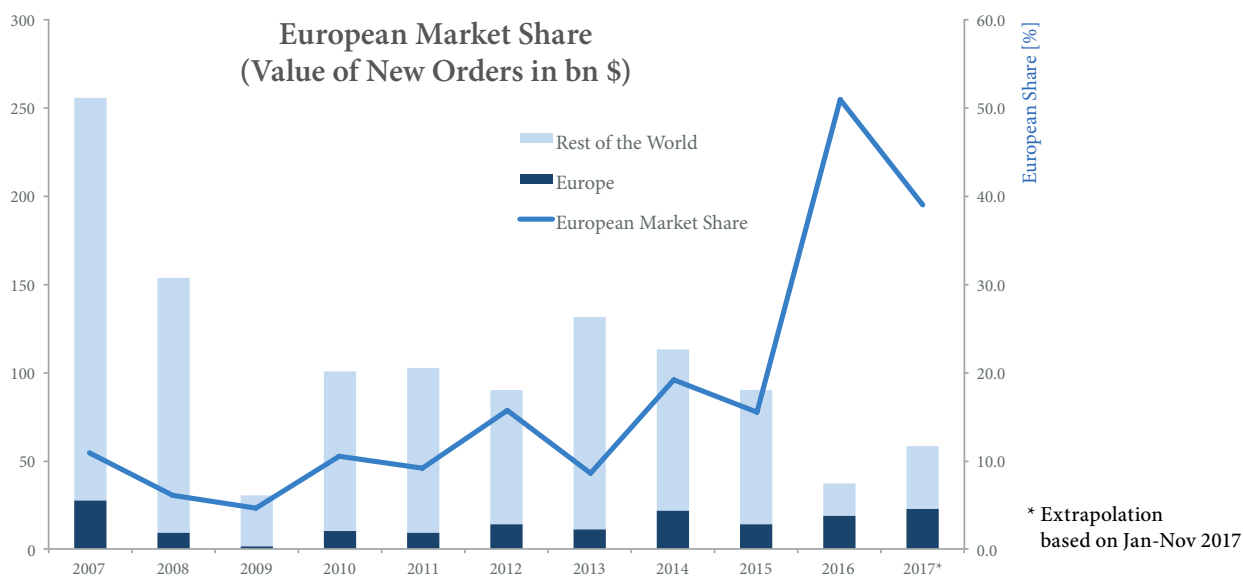
Cruise ship building dominant in Europe

Serving an entirely different market than cargo shipping, the cruise sector is booming. With a never-ending supply of new ideas for trips and on-board attractions, the cruise industry continues to draw holiday-makers, setting record after record. The demand from cruise tourists is exceeding the supply. According to the industry association CLIA, as many as 26 new cruise ships were expected to enter service during the year 2017 alone. Building cruise ships is complex and demanding. River, ocean and specialised cruise vessels must meet a wide range of capacity requirements. What is more, ships travelling to extreme reaches of the planet, from the tropics to polar regions, confront the shipbuilding industry with tough technical challenges. As innovative technologies, such as eco-friendly Liquefied Natural Gas (LNG) propulsion, make inroads into shipping, few yards are capable of satisfying the complex

requirements of advanced cruise ship building. With their capacity fully utilised for years to come, orders for new vessels are facing a supply bottleneck. The European shipbuilding industry is a main beneficiary of this enormous demand from the cruise sector, a fact clearly reflected by current order figures. The European order book has been growing steadily since 2011. Thanks to the booming cruise industry, it reached a value of around 62.1 bn \$ at the end of October 2017. By the same month, new orders worth 18.3 bn \$ had been received by European yards, equivalent to roughly 40% of the global intake. Compared with Asian countries, the European orderbook is the only one showing growth, with new ship orders exceeding the number of newbuilds delivered. Meanwhile Chinese yards are still contending with the challenge of huge overcapacities and low profitability. In Japan, the previous year's downward trend continues, as well, while the South Korean shipbuilding industry, following a catastrophic year 2016 and billions of dollars spent on restructuring, has recently reported a slight increase in new orders.

German shipbuilding stands its ground globally

According to reports by Clarksons Research, the number of active shipyards in the international newbuilding market has reduced by nearly two thirds since 2009 and many of the about 360 shipyards are currently completing their last vessel. These numbers document the current tough competitive environment in which German companies must maintain their position. German yards have turned away from standard ship types, instead focusing on passenger ships, ferries, yachts, all types of naval ships and other specialised vessels. This specialisation has enabled the German shipbuilding industry to



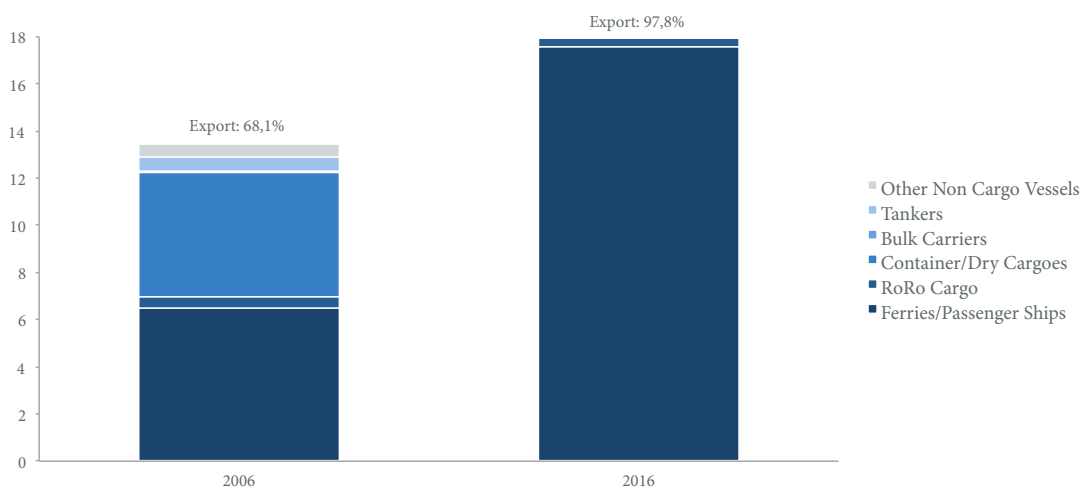
Source: Clarkson, chart by VSM

adapt to a changed market environment and to weather the current market storm successfully.

Significant opportunities for innovative shipbuilding lie the intensifying global discussion of new means to reduce the environmental footprint of the shipping industry. Emissions of climate-damaging exhaust gases, other air pollutants caused by low-purity fuels, carriage of invasive species in ballast water by example have come under scrutiny. Tightening regulations require improved technologies. German marine equip-

ment suppliers take a leading role in developing innovative green technologies and offering advanced solutions for challenging projects. Their comprehensive expertise has helped the German shipbuilding industry achieve positive results even in times of crisis; the German order book actually grew to an all-time high of 18.5 bn € in 2016. This success highlights the leading position of the German maritime sector and encourages the industry to drive product innovation and the development of leading-edge technologies. ■

German Maritime Industry - Development of Product Segments (Value of the Orderbook at the end of the year in billion €)



Source: VSM

New orders for a promising and positive future

Less ships were delivered by German shipyards during 2017. The well-filled order book of numerous shipbuilding companies, however, largely ensures long-term utilization and suggests a positive outlook on the future. By *Thomas Wägner*

The main competences of German shipyards are still the construction of cruise vessels, mega yachts, naval ships and specialized vessels. Especially for the latter, additional competition from Asia may be imminent, as Jörg Mutschler, Managing Director of the German Engineering Association (VDMA), announced last November at the 112th Annual General Meeting of the Schiffbau-Technische Gesellschaft (STG) in Potsdam. Thus, the Asians have realized that they cannot live on the construction of cargo ships alone. Accordingly, they want to cast about for additional business areas, and in this context they also target specialized units. German shipyards in special-purpose shipbuilding do not have to fear competition from Asia, yet. However, they intend to closely follow the Asian vessel evolution

in this segment, says Mutschler. In order to strengthen shipbuilding in Germany, the Federal Government extended the funding programme »Innovative Shipbuilding Ensures Competitive Jobs« by two years at the end of December 2017 to be effective for another two years.



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Creating incentives for increased innovation in the German shipbuilding industry is part of the Federal Government's high-tech strategy. The aim for the shipbuilding industry is to maintain or expand its world market position in highly complex special ships and offshore structures through increased innovation activity, while at the same time securing highly skilled jobs in order to be able to implement innovative solutions.

Less seagoing vessels, more inland ships

Compared to the previous year, the number of seagoing vessels delivered dropped again slightly, while the companies active in the construction of inland vessels have handed over more units to customers than in 2016.

As in the previous year, the Meyer shipyard group delivered two cruise ships built in Papenburg in 2017. In April, »Norwegian Joy« was handed over to Norwegian Cruise Line (NCL), and in October Dream Cruises received the »World Dream«. Meyer Turku Werft, which belongs to the group, also handed over two units to its respective clients last year. In January Tallink welcomed its RoPax ferry »Megastar« and in May »Mein Schiff 6« was transferred from Finland to TUI Cruises. In contrast, the Neptun shipyard, which is also part of the shipyard

group, only delivered two units in 2017, unlike in previous years. These were the two river cruise ships »Viking Herja« and »Viking Hild«, which were handed over to long-term customer Viking River Cruises in March.

German shipyards already achieved an excellent reputation in building new megayachts years ago. Accordingly, they will continue to be awarded newbuilding contracts. In 2017, Abeking & Rasmussen delivered the »Aviva«, at almost 100 m their largest mega-yacht to date, which was chosen by HANSA to be »Ship of the Year 2017« (see p. 30).

Last year Lürssen Group handed over four mega yachts. Two of them, »Amadea« and »Al Lusail«, were constructed at the headquarters in Bremen-Vegesack, while »Areti« and »Aurora« came from Lürssen-Kröger Werft near Rendsburg. In September Lürssen Group secured a minority share in the Norwegian Kleven Verft together with a group of investors. The sailing yacht »A«, built by German Naval Yards in Kiel, was also completed and handed over to its owner by contractor Nobiskrug in March.

There is momentum in German naval shipbuilding, too. However, the F222 frigate »Baden-Württemberg«, which had already been handed over to the German Navy, was returned to its construction yard because of deficiencies in the software and hardware of the command and combat system. In addition, difficul-



»Coral Energeice« was scheduled for delivery in January 2018



One of the main skills of German shipyards is

ties arose with the new radar system and shipbuilding defects on bulkheads and hull were objectionable. The Navy then refused commissioning and the Hamburg shipyard Blohm+Voss was prompted to fix the problems.

Thus, the three-billion-project »F125« with a total of four units has come to a standstill again. The frigate »Baden-Württemberg«, which was built for a six year period, is now scheduled for a longer berthing time in Hamburg, a Federal Office for Equipment spokesman of the Bundeswehr confirmed. Extensive functional evidence at sea had not been provided.

Pella Sietas hands over first newbuilding

Meanwhile, Pella Sietas shipyard celebrated its premiere last year and handed over its first newbuilding after the takeover by the new owner. This was a prototype for Hamburg-based Hadag. In May, the ferry accommodating almost 400 passengers was christened »Elbphilharmonie«. The yard's first two newbuildings, the river cruise ships »Crystal Bach« and »Crystal Mahler« were also delivered by MV Werften Wismar.

The two core competencies of German inland shipyards remain the construction of passenger ships and

design of work boats. Several units of various shipbuilding companies were handed over last year.

Growth of the order book

The order books of German shipyards are mostly filled encouragingly well. The shipyard group Meyer calculates a capacity utilization and long-term secured employment until 2023. Clients, thus, rank among almost all large cruise liners of the world. In 2017, the shipbuilder established new standards in the industry, especially with regard to environmental technologies. According to the company, twelve cruise ships with gas propulsion are currently in the order book. It is said that intensive research is being done on fuel cell technology and other technical innovations for passenger ships.

After Viking River Cruises received »only« two river cruise ships from Neptun shipyard last year, at the same time the Americans ordered six units of the popular longship class to be delivered in the first quarter of 2019. Thus, the new LNG tanker »Coral Energice« for Anthony Veder and the almost 76 m long ferry »Norderaue« commissioned by Wyker Dampfschiffs-Reederei Föhr Amrum are the only two ships Neptun has planned to deliver this year.



the construction of cruise vessels



F222 »Baden-Württemberg« is the first vessel of the F125 class



Photo: Frank Behling

DFDS received two sister ships last year, one of them was the »Tulipa Seaways«



German shipyards delivered rescue boats in different sizes

MV Werften Wismar plans to hand over river cruise ships number three and four to Crystal River Cruises this year. This completes the commissioned quartet. In addition, the construction of the »Crystal Endeavor«, the first of three luxury expedition yachts, has started in mid-January. The prototype is considered the world's largest megayacht with ice class.

The order book of Lürssen Group is also full. It is always difficult to get detailed technical information on specific yachts and projects as there are usually declarations of secrecy between shipyard and customer. But

observers of the market and expert report on numerous projects.

The largest order in the naval business was secured by a consortium consisting of Lürssen, German Naval Yards and ThyssenKrupp Marine Systems (TKMS). The German Navy placed an order for a total of five corvettes. In August, the Federal Cartel Office granted the approval for the order which had already been planned for some time. Initially, the contract was awarded to Lürssen Group and TKMS. Following a successful lawsuit by German Naval Yards, the company is now completing the consortium.

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Photo: DGzRS

Flensburger Schiffbau-Gesellschaft (FSG) was pleased to receive several orders shortly before Christmas. In the beginning of December 2017, the parent company Siem from Norway initially placed an order for the construction of two RoRo vessels, and shortly thereafter the shipbuilding company signed a contract with the Irish Continental Group (ICG) for a new RoPax ferry. Meanwhile, another contract from Australia is on the horizon. The TT-Line Company wants to build two passenger ferries in Flensburg, a letter of intent has already been signed.

Fassmer shipyard is also experiencing anything but lack of work. Based in Berne at the Unterweser river, the yard continues the construction of lifeboats for the German Maritime Search and Rescue Service (DGzRS) this year. In addition, a nearly 44 m long fire-fighting boat destined for Hamburg Port Authority (HPA) is scheduled to be finalized this year, to be complemented by three 86 m vessels for the Federal Police.

In December 2017, Hadag ordered a second passenger ferry from Pella Sietas, to be delivered in September this year. It will be a sister ship to »Elbphilharmonie«. Furthermore, the completion of a dredger is expected at the end of 2018. ■



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Teamwork, the key to success

German shipbuilding is doing well. The order books of almost all domestic shipyards are filled until 2020. For the first time in years, more projects are in the pipeline than the yards can handle. Cooperation is key to guarantee success in this environment. By *Frank Behling*

In the process of finding common ground, medium-sized companies are teaming up to join forces. The most recent example is the cooperation of Fassmer and German Naval Yards in Kiel for the construction of research vessel »Atair« which is also designed for surveys and wreck search.

The 74 m ship's keel was laid at the Kiel shipyard. In 2019 it will be transferred to the Fassmer shipyard on the Weser river where commissioning will be prepared in spring 2020. »Of course we are often asked why we have the ship built in Kiel,« says shipyard boss Harald Fassmer and immediately refers to the corporate identity as a medium-sized company. »The newly built vessel's size could not have been realised at our yard in Berne. We had the choice of building a new multi-million euro ship-lift or finding a partner. And so we are now laying keel in Kiel,« Fassmer explains.

As for resort ship »Helgoland«, the shipyard had previously been in search of a production site. The hull/shell construction for »Helgoland« was manufactured in Poland. »Atair« is not just about building a shell. »Consequently, we are very happy that we have found German Naval Yards in Kiel as a very reliable and competent partner,« says Fassmer.

»We will also equip the ship in Kiel and install essential components there,« says Project Manager Christian Schmidt. »I try to be on location in Kiel at least once a week,« the Fassmer engineer says. To be present frequently is a fast task at a dis-

tance of 250 km. In a shipyard in Eastern or Southern Europe, a complete team would have to stay on site creating relevant costs. Like his boss, Schmidt is also enthusiastic about the conditions in Kiel. »We find everything we need here,« says the engineer. The shipyard provides large cranes, halls and the equipment of the sections can largely be done in the halls. »Of course that makes our job easier and ensures high quality,« explains Schmidt. The capital of Schleswig-Holstein once was the starting point of his professional career. After his studies at the University of Applied Sciences Kiel he completed his first professional years in Kiel. Then he changed for Fassmer, and now he has become an expert for everything related to LNG. He implemented a liquefied natural gas solution for the propulsion of »Helgoland«. This is why his boss Harald Fassmer also put the next projects under his supervision, which turned out a success: Fassmer was awarded by the German Federal Government to build the »Atair«. The novel research vessel will also get a propulsion concept based on LNG. Quite few shipbuilders already have the competence for this type of fuel. Fassmer entered the bidding process and won. The order volume amounts to some 114 mill. €. There was a catch: The production capacity in

The recent example of German shipyard cooperation: The »Atair«, to be constructed at German Naval Yards and Fassmer

Berne was exhausted. Three boats for the Federal Police, several projects for offshore companies as well as the maritime search and rescue vessels of the DGzRS are already filling the halls until the end of the decade.

There are already more projects for the Fassmer-GNY cooperation. »We can easily imagine to realise further common projects soon,« says Fassmer, addressing that the Federal Government is the largest shipping company with 600 vessels in Germany. While the keel of »Atair« was laid, Monika Breuch-Moritz, President of the German Federal Maritime and Hydrographic Agency BSH also made it clear that today's »Atair« already has two sisters called »Wega« and »Deneb«. »We will have to take care of a replacement for these vessels,« she says. In concrete terms, other newbuildings are also on the agenda. The German Customs will award the first major new construction project featuring an LNG drive this year. The Federal Ministry of Research is preparing the tender for the replacement of the research ships »Meteor« and »Poseidon«, while the Directorate General for Waterways and Shipping (GDWS) will award the construction of two multi-purpose vessels to replace »Scharhörn« and »Mellum« this year. LNG is also intended as the fuel of the future for these units.

»In addition, the newbuilding turned out to be too large,« says yard director Harald Fassmer. It quickly became clear that a partner had to be found. When building »Atair«, Fassmer thus decided in favor of a national partnership. »Projects of this magnitude pose a big challenge. That's why it is important to have good and smoothly functioning cooperation,« Fassmer says. Both compa-

nies are medium-sized but with very different structures and production capacities. For example, German Naval Yards features a building dock of 426 m with no limits during construction. Fassmer offers the expertise of a specialist shipyard and can handle even complex jobs reliably and on a tight schedule.

Lürssen shipyard pioneered this type of cooperation. In 2004, this yard started work on »Octopus« with HDW as a shipyard partner located in Kiel. Abeking & Rasmussen from Lemwerder has also used a Baltic shipyard as a workbench so far. In 2015, the Bremen shipyard had the 98 m hull for mega-yacht »Aviva« built in Flensburg and then transferred to the Weser.

Shipyard Meyer Werft is Germany's number one in cooperative shipbuilding. Located in Papenburg, Rostock and Turku, Germany's largest shipyard has now become a group. For example, Meyer designed newbuilding »Sonne« in Papenburg and built it in Rostock. Today, Meyer has the sections with LNG propulsion technology for the new Carnival ships built in Rostock and towed to Papenburg and Turku. In order to coordinate these projects at the three locations, Meyer has replaced the road by air as a means of transport. For quite some time now, Meyer shipyard has transformed into an aircraft owner. Up to three planes fly engineers and managers back and forth between the sites. The flagship of the Meyer Airline is a Citation jet with seven seats based at airfield Leer-Papenburg. Other aircraft will be chartered when needed. The air connection enables employees of large projects to commute between locations in less than two hours. This is important for the seven newbuildings of the Carnival Group, of which three are being built in Papenburg for Aida and P & O and four ships in Turku for the Costa and Carnival brands. Meyer Turku has the capacity to deliver newbuildings all-season, according to customer preference. At the home location Papenburg, the shipyard is bound to specifications during the transfer on the river Ems which allot only limited time slots. ■

Photo: Behling

Deliveries & contracts of German shipyards in 2017

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa/ Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Abeking & Rasmussen Schiffs- und Yachtwerft Aktiengesellschaft, Lemwerder												
											www.abeking.com	
6501	Yacht *	Aviva		4,600	750	98.40	16.70	3.95			20.0	05/2017
6502	Yacht			2,000	400	74.50	12.80			2 x Caterpillar 3516B		2018
* Hull built by Flensburger Schiffbau Gesellschaft (FSG)												
Abeking & Rasmussen Special Vessels												
SV 6503	SWATH@A&R	Houston	Houston Pilots			25.65	13.00	2.80			19.5	06/2017
SV 6504	SWATH@A&R	Bayou City	Houston Pilots			25.65	13.00	2.80			19.5	08/2017
Schiffswerft Hermann Barthel GmbH, Derben												www.barthel-werft.de
194	Work boat	Fink	WSA Schweinfurt	24.5		15.70	4.00	0.85	210	Iveco N67ENTM45.10	18.0*	06/2017
195	Work boat	Habicht	WSA Schweinfurt	24.5		15.72	3.99	0.85	210	Iveco N67ENTM45.10	18.0*	07/2017
196	Work boat	Hase	WSA Minden	24.5		15.88	4.00	0.85	210	Iveco N67ENTM45.10	18.0*	09/2017
197	Work boat	Aschendorf	WSA Meppen	24.5		15.29	4.00	0.85	210	Iveco N67ENTM45.10	18.0*	08/2017
198	Work boat	Elera	WSA Verden	32.5		15.49	4.78	0.90	220	Iveco C87ENTM38.31	17.5*	12/2017
199	Work boat	Friedrichsfeld	WSA Duisburg	32		15.49	4.78	0.90	220	Iveco C87ENTM38.31	17.5*	02/2018
200	Dredger	Wittenberg	WSA Dresden	250		36.70	9.70	0.90	2 x 279	2 x MAN D2866 XE	12*	03/2018
201	Work boat		WSA Emden	100		21.00	6.00	1.20	2 x 221	2 X Volvo Penta D9	15*	10/2018
202	Work boat / dive support	Rán	WSA Berlin	82		29.10	5.10	0.90	210	Iveco N67EN- MT45.10	15*	06/2018
Schiffswerft Bolle GmbH, Derben, Neuderben												www.schiffswerft-bolle.de
199	Work boat	Griep To II	WSA Kiel-Holtenau			36.92	11.92	1.35	2 x 400	2 x Deutz TCD2015 V08M	15*	02/2017
201	Pram	DP 4264	WSA Minden			26.86	7.56	0.55		Without engine		I/2017
202	Pram	DP 4266	WSA Koblenz			35.26	8.00	1.50		Without engine		I/2017
203	Pram	DP 4284	WSA Dresden			16.20	8.00	1.50		Without engine		II/2017
204	Passenger ship/ AquaCabrio	Sunliner	Wurm & Köck		220 pass.	45.00	8.20	1.00	2 x 169	2 x Deutz BFM1013		04/2017
205	Passenger ship/ AquaCabrio		WSA Bremen			75.00	9.50	1.00				2018
206	Pram									Without engine		2018
207	Pram									Without engine		2018
208	Pram									Without engine		2018
209	Passenger ship											2019
Theodor Buschmann GmbH & Co. KG, Hamburg												www.theodor-buschmann.com
	Tug*		Multtraship Towage & Salvage			32.00			5,300	2 x ABC	14.0	2018
	Tug*		Multtraship Towage & Salvage			32.00			5,300	2 x ABC	14.0	2018

*Only hull, subcontract from Maaskant SY, to be completed in the Netherlands, in co-operation with Damen Shipyards

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa/ Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Erlenbacher Schiffswerft Maschinen und Stahlbau GmbH, Erlenbach am Main												www.die-schiffswerft.de
	Work boat	OHF 277	OHF Hafen- und Flussbau	470		46.00	8.50	2.00	2 x 390	2 x Deutz		08/2017
	Work boat	Bojenleger 1	Via donau	84		19.80	6.04		80	100 KVA aggregate Iveco NEF Te2F		08/2017
Fr. Fassmer GmbH & Co. KG, Berne / Motzen												www.fassmer.de
5090	Offshore survey vessel	Fugro Venturer	Fugro N.V.	2,729	830	71.00	15.40	4.50	3,124	4 x Caterpillar C32	13.0	06/2017
8080	OPV80 (mate- rial package) *	ARC Victoria	COTECMAR / Colombian Navy			80.00					21.0	I/2017
1885	Rescue vessel	Anneliese Kramer	German Maritime Search and Rescue Association (DGzRS)			27.90	6.20		2 x 1,440	2 x MAN 16V 2000	24.0	II/2017
6060	Rescue boat	Hans Dittmer	German Maritime Search and Rescue Association (DGzRS)			10.10	3.60				19.0	2017
6070	Rescue boat	Secretarius	German Maritime Search and Rescue Association (DGzRS)			10.10	3.60				19.0	2017
6080	Rescue boat		German Maritime Search and Rescue Association (DGzRS)			10.10	3.60				18.5	2018
6044	6 x CPV44 (Design and material package)		Destini Ship- building Berhad / MMEA Coast- guard Malaysia			44.00					24.0	2018
7020	Rescue vessel	Berthold Beitz	German Maritime Search and Rescue Association (DGzRS)			20.00					22.0	2017
7021	Rescue vessel		German Maritime Search and Rescue Association (DGzRS)			20.00					22.0	2018
7030	Fire fighting vessel		Hamburg Port Authority (HPA)			43.50					12.0	II/2018
7040	Patrol vessel	Potsdam	German Federal Police			86.00					21.0	IV/2018
7050	Patrol vessel	Bamberg	German Federal Police			86.00					21.0	IV/2018
7060	Patrol vessel	Bad Döben	German Federal Police			86.00					21.0	IV/2018
7070	Sounding and scientific research vessel	Atair	Federal Maritime and Hydrographic Agency of Germany (BSH)			76.00					13.0	I/2020

* License, design and material package OPV80

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa/ Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Ferus Smit Leer GmbH, Leer											www.ferus-smit.nl	
421	Multipurpose	Symphony Spirit	Symphony Shipping	7,000	10,500	122.50	17.00	7.95	3.000	MaK 6M 32	13.5	10/2017
422	Multipurpose	Symphony Space	Symphony Shipping	7,000	10,500	122.50	17.00	7.95	3.000	MaK 6M 32	13.5	01/2018
433	Multipurpose	Symphony Performer	Symphony Shipping	7,000	10,500	122.50	17.00	7.95	3.000	MaK 6M 32	13.5	01/2017
434	Multipurpose	Symphony Provider	Symphony Shipping	7,000	10,500	122.50	17.00	7.95	3.000	MaK 6M 32	13.5	04/2017

The facility in Leer is a subsidiary of Ferus Smit in Westerbroek, NL. Newbuildings are shared between these two yards.

Schiffswerft Fischer, Könnern											www.schiffswerft-fischer.de	
4	Deck pram	DP 4274	WSA Magdeburg			26.00	5.10	1.20		Without engine		02/2017

Flensburger Schiffbau-Gesellschaft mbH & Co. KG, Flensburg											www.fsg-ship.de	
769	RoRo	Meleq	Alternative Transport	32,770	11,978	209.79	26.00	6.80	2 x 9,600	2 x MAN 8L48/60CR	21.3	04/2017
770	RoRo	Fadiq	Alternative Transport	32,770	11,978	209.79	26.00	6.80	2 x 9,600	2 x MAN 8L48/60CR	21.3	12/2017
771	Ro-Pax	W. B. Yeats	Irish Ferries	55,000	7,445	194.80	31.60	6.70	4 x 8,400	4 x MaK 8M43C	22.5	06/2018
772	RoRo	Gardenia Seaways	DFDS	32,336	11,917	209.79	26.00	6.65	2 x 9,600	2 x MAN 8L48/60CR	21.3	07/2017
773	RoRo	Tulipa Seaways	DFDS	32,336	11,917	209.79	26.00	6.65	2 x 9,600	2 x MAN 8L48/60CR	21.3	09/2017
774	RoPax		Brittany Ferries	42,500	6,080				29,770	Dual fuel	22.0	05/2019
775	RoRo		Siem RoRo Carriers	32,770	11,820	187.00	31.00		2 x 9,600	2 x MAN 8L48/60CR	21.3	10/2018
	2 x Ferry*		TT-Line Company			212.00	31.50					2021

* MoU, order not yet placed

Formstaal/Ostseestaal GmbH & Co. KG, Stralsund											www.ostseestaal.de	
8	Electro-solar seminar vessel	Orca ten Broke	Seminarschiff Fluxservice	155	200 pass.	35.50	8.25	1.10	110	Kräutler	13*	08/2017
9	Electro-solar car ferry	Sankta Maria II	Gemeinde Oberbillig	65	45 pass., 6 cars	28.00	8.90	1.40	4 x 20	4 x Kräutler	13*	11/2017
10	Solar vessel/passenger ship	Aluna	Weißer Flotte Stralsund	20	60 pass.	18.50	5.45	0.60	2 x 15	2 x Kräutler	12*	07/2017
11	Electro-solar passenger ship*			25	80 pass.	23.00	5.00	0.70	2 x 20	2 x Kräutler		11/2017
12	Electro-solar passenger ship*			20	60 pass.	18.50	5.45	0.60	2 x 15	2 x Kräutler	14*	10/2017
13	Electro-solar passenger ship*			105	200 pass.	28.00	8.00	1.20	2 x 75	2 x Kräutler	17*	03/2018
14	Electro-solar passenger ship*			80	120 pass.	31.00	8.00	1.10	2 x 75	2 x Kräutler	17*	08/2018
15	Electro-solar passenger ship*			35	80 pass.	22.00	5.40	0.80	2 x 45	2 x Kräutler	16*	01/2018

* Not yet confirmed

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa / Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
German Naval Yards GmbH, Kiel www.german-naval.com												
	2 x Frigate*		Algerian Navy	3,700		121.00				Combined diesel and gas		2016/ 2018
	4 x Corvette*		Israeli Navy	2,000		90.00						2019
	5 X Corvette K130**		German Navy									2022- 2025

* Only bow section, subcontract from TKMS, ** together with Lürssen Group and TKMS

Nobiskrug GmbH, Rendsburg www.nobiskrug.com												
787	Sailing yacht*	A*	A. Melnitschenko	12,600	1,450	145.00	24.88	8.00				03/2017
789	Tug	Bagalut	German Naval Yards			12.00	4.00	2.20		Volvo Penta DH9		07/2017
	Yacht			5,000		80.00						2019

* Built at German Naval Yards, Kiel

Hitzler Werft GmbH, Lauenburg www.hitzler-werft.de												
832	Ice tug	Hugo Lentz	Hamburg Port Authority (HPA)			23.00	7.00	2.60	1,066	ABC 6DZC	11.0	03/2017
833	Ice tug	Johannes Dalmann	Hamburg Port Authority (HPA)			30.00	8.50	3.20	1,354	ABC 8DZC	12.0	03/2017

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Lloyd Werft
MAN MAN Diesel & Turbo
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TGE Marine Gas Engineering
VOITH
WÄRTSILÄ Wärtsilä SAM Electronics
ZEPPELIN Power Systems **CAT**
ZE MOTION AND MOBILITY

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa/ Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Lloyd Werft Bremerhaven GmbH, Bremerhaven											www.lloydwerft.com	
	Yacht		Roman Abramowitsch									

Lloyd Werft is owned by Genting Group

Lübecker Yacht Trave Schiff GmbH, Lübeck											www.luebeckyacht.de	
242	Survey boat	Hafenlot	LKN SH			7.00	2.20	0.40	90 PS	Suzuki	40.0*	03/2017

Fr. Lürssen Group											www.luerssen.com	
Fr. Lürssen Werft GmbH & Co. KG, Bremen-Vegesack												
	Yacht	Amadea			4,000	104.00	16.80	4.10			22	03/2017
13692	Yacht	Al Lusail				123.00	20.00					08/2017
13693	Yacht	Thunder			9,194	136.00						2018
	Yacht	Shu				146.00						2018
	Yacht	Sassi				147.00						IV/2018
	Yacht	Tis/ Palo Alto				111.00	16.85					2018
	Yacht	Sherasheda				130.00						2019
	Yacht	Redwood				139.00						2019
13703	Yacht	Lightning				135.00						2019
	5 x Corvette K130 **		German Navy									2022– 2025

* Bow section to be built by Lürssen and to be shipped to TKMS Hamburg.

** In cooperation with TKMS and German Naval Yards, Lürssen Group holds shares of Kleven Verft, Norway

Lürssen-Kröger Werft GmbH & Co. KG, Schacht-Audorf												
13698	Yacht	Areti		2,850		85.00	14.80					11/2017
	Yacht	Aurora				74.00	13.20	3.75		2 x MTU 16V4000 M63	18	06/2017
	Yacht	Fiji				95.00						2019

Peenewerft, Wolgast												
	About 100 patrol boats (IPV60)		Saudi Arabian Coast Guard									2016– 2019

Blohm + Voss Shipyards, Hamburg											www.blohmvooss.com	
ARGE	Frigate F 125*	F 222 Baden- Würt- temberg	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2018
ARGE	Frigate F 125*	F 223 Nordrhein- Westfalen	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2018
ARGE	Frigate F 125*	F 224 Sachsen- Anhalt	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2019
ARGE	Frigate F 125*	F 225 Rheinland- Pfalz	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2020

* Subcontract from TKMS; bow section to be built by Lürssen and to be shipped to TKMS Hamburg

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa / Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Lux Werft und Schifffahrt GmbH, Niederkassel-Mondorf www.lux-werft.de												
211	Ferry	Mary Roos	Bingen Rüdeshheimer Fähr- und Schifffahrtsgesellschaft		600 pass.	62.00	17.20	1.25	2 x 294			01 / 2017
212	Passenger ship	Utting	Bayerische Seenschifffahrt		500 pass.	49.90	10.10			2 x Volvo Penta		03 / 2017
213	Ferry	RheinSchwan	Weisbarth Schifffahrt OHG		100 pass.	26.60	6.40					09 / 2017
214	Passenger ship	St. Nikolaus	Rursee Schifffahrt Heuken		250 pass.	30.00	7.20					02 / 2018
215	Passenger ship		SGH Schifffahrtsgesellschaft Hallwilersee		200 pass.	34.20	6.50					03 / 2018
216	Passenger ship	Wachau II	Wilfried Meyer		120 pass.	21.90	4.90					05 / 2018
Werftgruppe Meyer www.meyerwerft.de												
Meyer Werft, Papenburg												
694	Cruise ship	Norwegian Joy	Norwegian Cruise Line	167,800	ca. 4,200 pass.	334.00	41.40	8.40	76,800	3 x MAN B&W 12V48 / 60CR + 2 x 16 V48 / 60CR	23.2	04 / 2017



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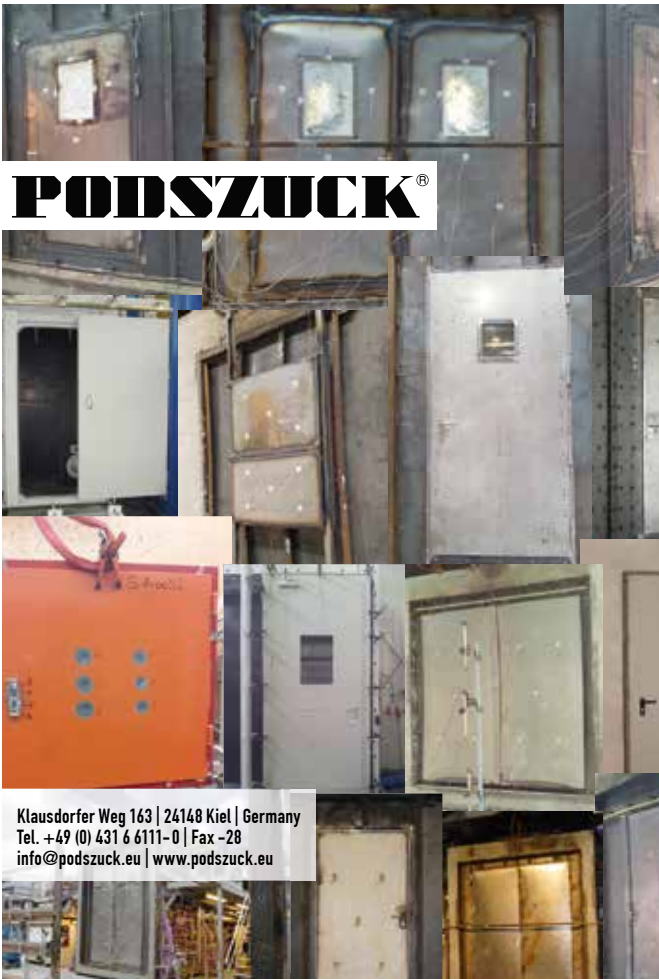



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Service-Telefon
+49 5977 73-247

August Storm GmbH & Co. KG · August-Storm-Straße 6 · 48480 Spelle
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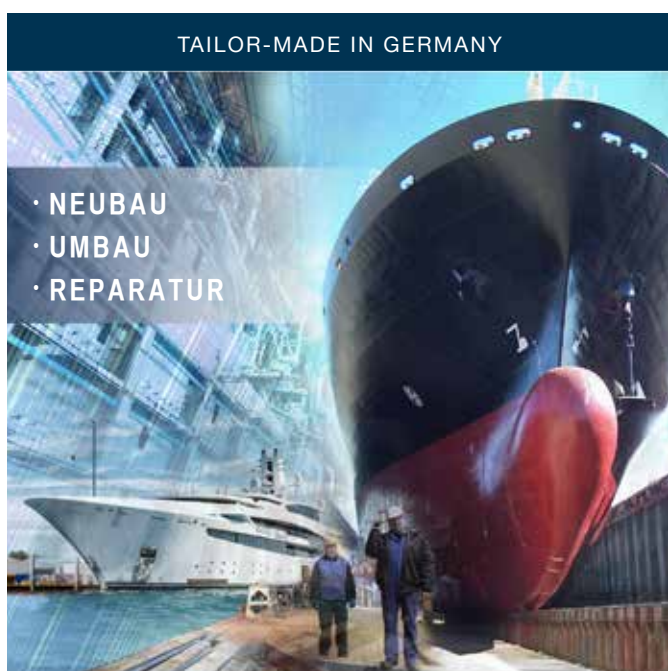
Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa/ Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
696	Cruise ship	AIDAnova	Aida Cruises	183,900						MaK	17.0	2018
700	Cruise ship	Spectrum of the Seas	Royal Caribbean Cruise Line	168,600	10,500 (4,180 pass)	348.00	41.40	8.50	67,200	2 x Wärtsilä 12V46DE 2 x Wärtsilä 16V46F	22.0	2019
705	Cruise ship		Disney Cruise Line	139,300								2021
706	Cruise ship		Disney Cruise Line	139,300								2023
707	Cruise ship	Norwegian Bliss	Norwegian Cruise Line	167,800		334.00	41.40	8.40	76,800	3 x MAN B&W 12V48/60CR + 2 x16 V48/60CR	23.2	2018
708	Cruise ship		Norwegian Cruise Line	167,800		334.00	41.40	8.40	76,800	3 x MAN B&W 12V48/60CR + 2 x16 V48/60CR	23.2	2019
709	Cruise ship		Aida Cruises	183,900							17.0	2021
710	Cruise ship		P&O	184,000	5,200 pass.							2020
712	Cruise ship	World Dream	Dream Cruises	151,300	ca. 3,300 pass.	335.35	39.70	8.30	76.800	2 x MAN B&W 12V48/60CR + 2 x16 V48/60CR DE	23.4	10/2017
713	Cruise ship		Royal Caribbean Cruise Line	168,600	10,500 (4,180 pass.)	348.00	41.40	8.50	67,200	2 x Wärtsilä 12V46DE 2 x Wärtsilä 16V46F	22.0	2020
714	Cruise ship	Spirit of Discovery	Saga Cruises	55,900		236.00	31.20	7.30	21,600	MAN	18.0	2019
	Cruise ship	Spirit of Adventure	Saga Cruises	55,900		234.24	30.80	7.30	21,600	MAN	18.0	2020
718	Cruise ship		Disney Cruise Line	139,300								2022

* Order placed at Neptun, built in Papenburg

Neptun Werft, Rostock
www.neptunwerft.de

567	River cruiser	Viking Herja	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT	20.0*	03/2017
568	River cruiser	Viking Hild	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT	20.0*	03/2017
569	River cruiser	Viking Sigrun	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT		
570	River cruiser	Viking Einar	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT		
571	River cruiser	Viking Tir	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT		
572	River cruiser	Viking Vali	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT		
576	River cruiser	Viking Ullur	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT		
577	River cruiser	Viking Sigyn	Viking River Cruises		190 pass. 95 cabins	134.90	11.45	1.60	2 x 994 2 x 492	2 x CAT32 ACERT 2 x CAT18 ACERT		
	2 x Section	AIDAnova	AIDA Cruises			120.00	42.00					2017
575	LNG tanker	Coral Energiece	Anthony Veder		190 pass. 95 cabins	163.90	24.50	7.60		MaK 8M46DF	15.5	01/2018
578	Ferry	Norderaue	Wyker Dampf- schiffs-Reederei		1.200 pass.	75.88	16.40	1.85			12.0	01/2018

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa / Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
	Section		Royal Caribbean Cruise Line			140.00						2018
	Section		Costa Crociere (Turku)			140.00	42.00					2018
	Section		Norwegian Cruise Line			140.00						2018
	Section		Royal Caribbean Cruise Line			140.00						2019
	Section		Costa Crociere (Turku)			140.00	42.00					2019
	Section		P&O			140.00						2019
	Section		Aida Cruises			140.00	42.00					2020
	Section		Dinsney Cruise Line			140.00						2020
	Section		Costa Crociere (Turku)			140.00	42.00					2020
	Section		N.N. (Turku)			140.00						2021
	Section		N.N. (Turku)			140.00						2021




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Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa / Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Meyer Turku Shipyard Oy, Turku												www.meyerturku.com
1391	Ro-Pax ferry	Megastar	Tallink Group	49,000	6,300, 2,800 pass.	212.00	30.60	7.50		LNG	27.0	01 / 2017
1390	Cruise ship*	Mein Schiff 6	TUI Deutschland	99,430	7,900, 2,500 pass.	293.60	35.80	8.05	45,200	2 x Wärtsilä 12V 46, 2 x Wärtsilä 8L 46F		05 / 2017
	Cruise ship	Mein Schiff 1 (ex Mein Schiff 7)	TUI Deutschland	111,500	7,900, 2,500 pass.	315.70	35.80	7.90	45,200	4 x Wärtsilä		I / 2018
	Cruise ship	Mein Schiff 2 (ex Mein Schiff 8)	TUI Deutschland	111,500	7,900, 2,500 pass.	315.70	35.80	7.90		4 x Wärtsilä		I / 2019
1394	Cruise ship		Costa Crociere	183,200	6,600 pass.	337.00	42.00	8.80		4 x	17.0	2019
	Cruise ship		Costa Crociere	183,200	6,600 pass.	337.00	42.00	8.80		4 x	17.0	2021
	Cruise ship		Carnival Cruise Lines	183,200								2020
	Cruise ship		Carnival Cruise Lines	183,200								2022
	Cruise ship		Royal Caribbean International	200,000								2022
	Cruise ship		Royal Caribbean International	200,000								2024

MV Werften
www.mv-werften.com
MV Werften Rostock-Warnemünde GmbH

215	HVDC conver- ter platform*	DolWin gamma	GE			85.00	54.00					2017
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* Nordic Yards contract, built by Nordic Yards at the facilities of MV Werften Rostock

MV Werften Stralsund GmbH

	3 x Yacht	Endeavor Class	Crystal Yacht Ex- pedition Cruises	20,000								2019- 2021
125	Cruise ship		Star Cruises	201,000	5,000+pass.	340.00	45.00	9.20	96,000	MAN		2020
126	Cruise ship		Star Cruises	201,000	5,000+pass.	340.00	45.00	9.20	96,000	MAN		2021

MV Werften Wismar GmbH

120	River cruiser	Crystal Bach	Crystal River Cruises	3,100	110 pass.	135.00	11.50	1.65	3,080			08 / 2017
123	River cruiser	Crystal Mahler	Crystal River Cruises	3,100	110 pass.	135.00	11.50	1.65	3,080			09 / 2017
128	River cruiser	Crystal Debussy	Crystal River Cruises	3,100	110 pass.	135.00	11.50	1.65	3,080			03 / 2018
129	River cruiser	Crystal Ravel	Crystal River Cruises	3,100	110 pass.	135.00	11.50	1.65	3,080			04 / 2018

MV Werften owned by Genting Group

Neckar Bootsbau Ebert GmbH, Neckarsteinach
www.nebo.de

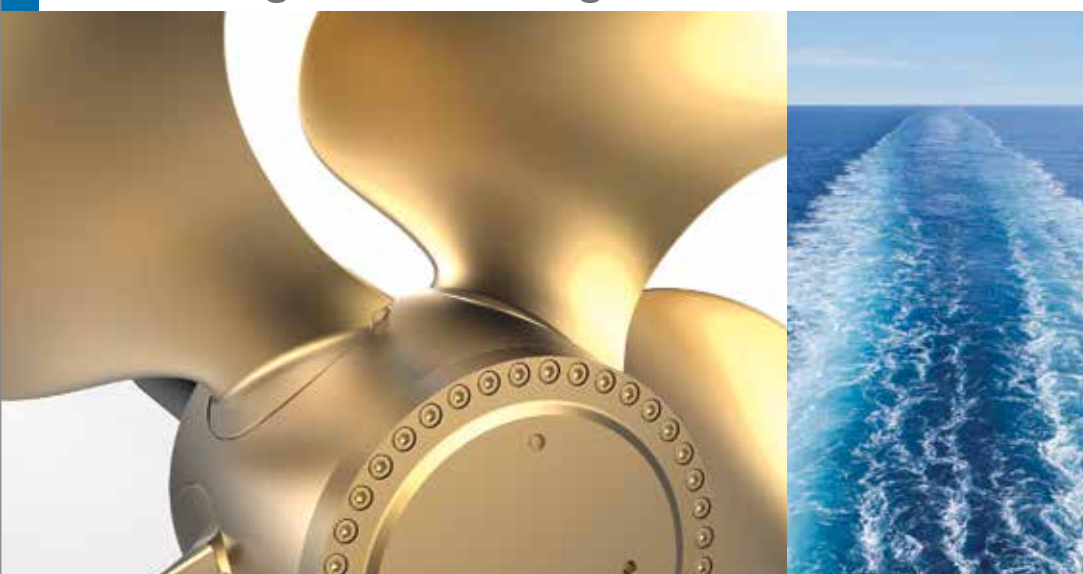
	Fire fighting vessel	Pamina 1	Branddirektion Karlsruhe			15.50	5.10	0.80	2 x 588	2 x MAN D2676LE423		07 / 2017
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Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa / Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Neue Ruhrorter Schiffswerft GmbH, Duisburg www.nrsrw.de												
	Push boat	Veerhaven 98	ThyssenKrupp Veerhaven			76.50	11.45	4.02		Kooiman bug rudder		04 / 2017
	Push boat	Veerhaven 99	ThyssenKrupp Veerhaven			76.50	11.45	4.02		Kooiman bug rudder		08 / 2017
	Push boat	Veerhaven 100	ThyssenKrupp Veerhaven			76.50	11.45	4.02		Kooiman bug rudder		12 / 2017
	Hopper barge	K516	Felbermayr			70.00	11.45	3.17		Verhaar Omega VBS1200sr		06 / 2017
	Hopper barge	K517	Felbermayr			70.00	11.45	3.17		Verhaar Omega VBS1200sr		12 / 2017
	Push boat	Veerhaven 101	ThyssenKrupp Veerhaven			70.51	11.46	4.02		Kooiman bug rudder		2018
	Push boat	Veerhaven 102	ThyssenKrupp Veerhaven			70.52	11.47	4.02		Kooiman bug rudder		2018
	Push boat	Veerhaven 103	ThyssenKrupp Veerhaven			70.53	11.48	4.02		Kooiman bug rudder		2018

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Hersteller und Betreiber modernster Schiffe bauen weltweit auf die Qualitäten unserer Produkte. Alle bewährten Antriebsfamilien werden kontinuierlich weiterentwickelt und gleichzeitig den neuesten Anforderungen angepasst.

ESCHER WYSS Verstellpropeller.

Ein starker Partner heute wie auch in der Zukunft.



Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa/ Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
Pella Sietas GmbH, Hamburg-Neuenfelde												
www.pellasietas.com												
1314	Port ferry	Elbphilharmonie	Hadag		400 pass.	29.98	8.40	1.70	2 x 368	Diesel-electric Siemens	12.0	04 / 2017
	3 x Sections	AIDAnova	Aida Cruises (Meyer Werft)									05- 06 / 2017
	Unknown number of sections		Aida Cruises (Meyer Werft)									12 / 2017- 2018
1315	Port ferry		Hadag		400 pass.	29.98	8.40	1.70	2 x 368	Diesel-electric Siemens	12.0	09 / 2018
	Trailing suction hopper dredger		GDWS			132.00	23.40	6.90	14,000	Diesel-electric	13.0	12 / 2018

Peters Werft GmbH, Wewelsfleth
www.peters-werft.de

*Currently no projects announced, active in repair and refit

SET Schiffbau- und Entwicklungsgesellschaft Tangermünde mbH, Tangermünde / Genthin												
www.set-schiffbau.de												
196	House boat	Floating Germany				19.95	6.40	0.85				03 / 2017
197	Multifunctional ship	Leysand	NLWKN			40.50	9.00	1.38	750	Scandiesel	20*	11 / 2017
198	Double ended ferry	Farge	Fähren Bremen Stedingen		249 pass.	60.00	14.00	1.29	1.180	Scandiesel (diesel-electric)	13*	02 / 2018
199	Shallow water ship	Hooge	LKNSH			22.50	6.90	0.92	442	Volvo Penta	19*	04 / 2018
200	Pram	ETK				20.00	6.00	0.90				11 / 2017
201	Dredger		WSA Magdeburg			36.00	9.60	1.00	588	Volvo Penta	13*	12 / 2018
202	Tug boat	Trischen	LKNSH			22.50	7.50	1.10	450	Scandiesel	19*	11 / 2018

Stahlbau Müller, Spessart
www.stahlbaumueller.de

12	Passenger ship	Seeheilbad Zingst	Reederei Poschke		250	28.00	8.00	1.20	2 x 279	2 x MAN D2876		11 / 2017
14	Passenger ship	Renate	Reederei Schweiger		120	50.00	10.25	0.70	2 x 380	Diesel-electric Schottel		I / 2018
15	Car ferry		for Mariaposching			33.00	7.50	0.80	2 x 90	Diesel-electric Kalkman		I / 2018
	Kasko for tug		Shiptec, end customer unknown			12.00	3.50					I / 2018

Tamsen Maritim GmbH, Rostock
www.tamsen-maritim.de

1601	Rescue boat	Nimanaoa	German Maritime Search and Rescue Association (DGzRS)		8 t	10.10	3.20	0.96	280	Cummins 6 BTA 5.9 N	34.0	11 / 2017
1602	Rescue boat	SRB 70	German Maritime Search and Rescue Association (DGzRS)		8 t	10.10	3.20	0.96	280	Cummins 6 BTA 5.9 N	34.0	02 / 2018
1603	Rescue boat	SRB 71	German Maritime Search and Rescue Association (DGzRS)			10.10	3.20	0.96	280	Cummins 6 BTA 5.9 N	34.0	07 / 2018

Yard- No.	Newbuilding Type	Name	Owner	GT	tdw t	Loa / Lpp m	Bmld m	D m	kW/ HP	Engine Type	kn km/h*	Delivery M./Y.
1604	Rescue boat	SRB 72	German Maritime Search and Rescue Association (DGzRS)			10.10	3.20	0.96	280	Cummins 6 BTA 5.9 N	34.0	10 / 2018
1605	Rescue boat	SRB 73	German Maritime Search and Rescue Association (DGzRS)			10.10	3.20	0.96	280	Cummins 6 BTA 5.9 N	34.0	01 / 2019
1606	Rescue boat	SRB 74	German Maritime Search and Rescue Association (DGzRS)			10.10	3.20	0.96	280	Cummins 6 BTA 5.9 N	34.0	05 / 2019
1607	Rescue boat	SRB 75	German Maritime Search and Rescue Association (DGzRS)			10.10	3.20	0.96	280	Cummins 6 BTA 5.9 N	34.0	05 / 2020

ThyssenKrupp Marine Systems GmbH

www.thyssenkrupp-marinesystems.com

TKMS, Kiel

	Submarine	S 42	Egyptian Navy			62.00	6.25					08 / 2017
	AIP Submarine HDW class Dolphin		Israeli Navy		2,200 (Displacem.)	68.00				Diesel-electric / fuel-cell		2017
	4 x Submarine HDW class 218SG		Singapore Navy			72.00						202 / 2024
	4 x Submarine*		Norwegian Navy									2025
	4 x Corvette**		Israeli Navy		2,000	90.00						2019
	2 x Submarine		Egyptian Navy			62.00	6.25					
ARGE	5 x Corvette K130***		German Navy									2022-2025

* Order is expected for 2019, the vessels will be build in partnership with Norwegian companies,

** Leadership in design and construction of submarines within the German Submarine Consortium (GSC)

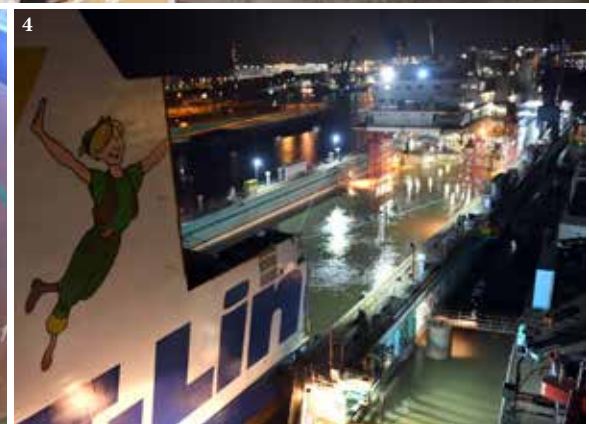
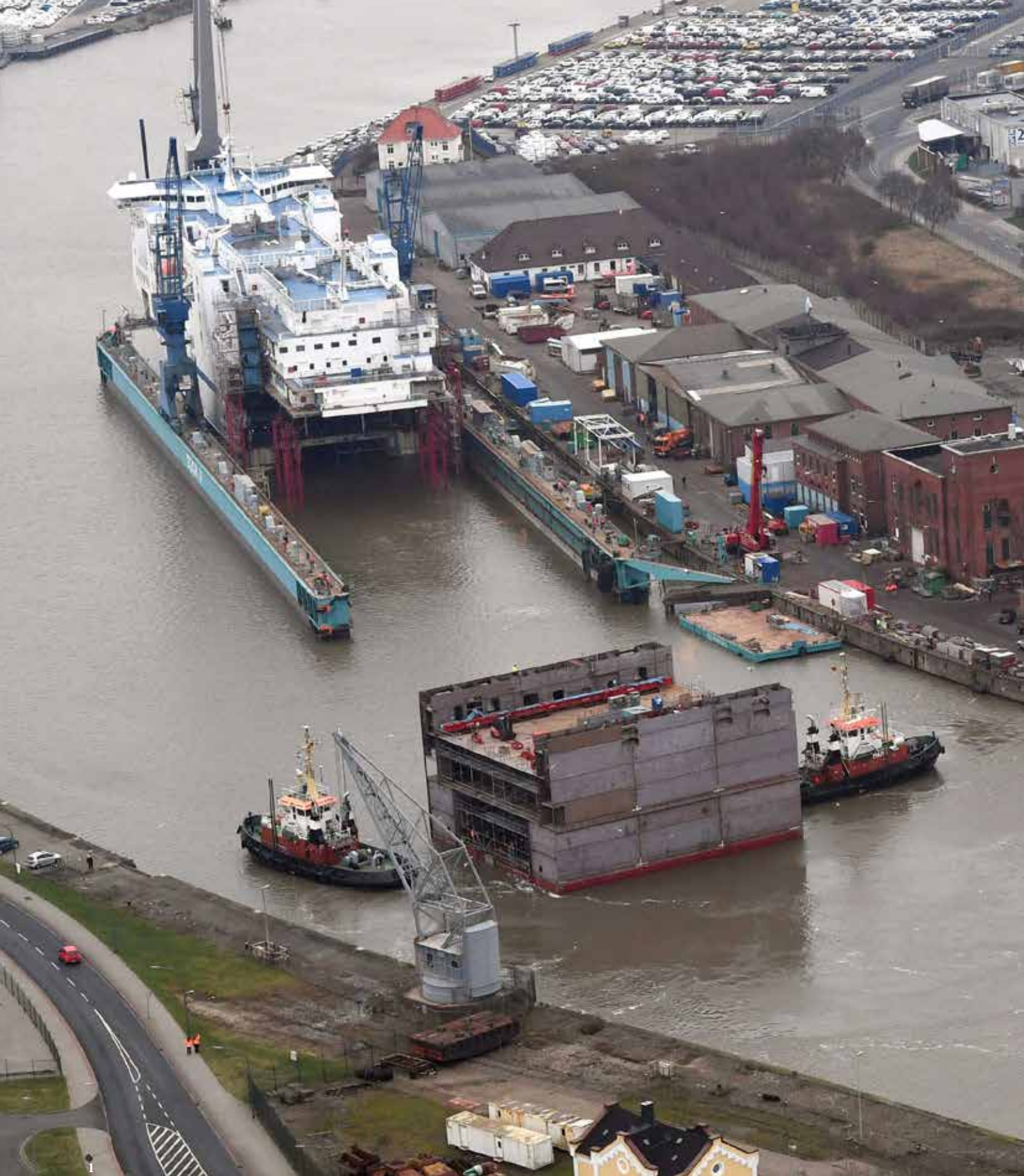
*** In cooperation with Lürssen Group and German Naval Yards

TKMS Hamburg

ARGE	Frigate F 125*	F 222 Baden-Württemberg	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2018
ARGE	Frigate F 125*	F 223 Nordrhein-Westfalen	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2018
ARGE	Frigate F 125*	F 224 Sachsen-Anhalt	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2019
ARGE	Frigate F 125*	F 225 Rheinland-Pfalz	German Navy			149.52	18.80	5.00	31,600	MTU 20V4000 plus gas turbine MTU GE LM 2500 (29,000 kW)	26.0	2020

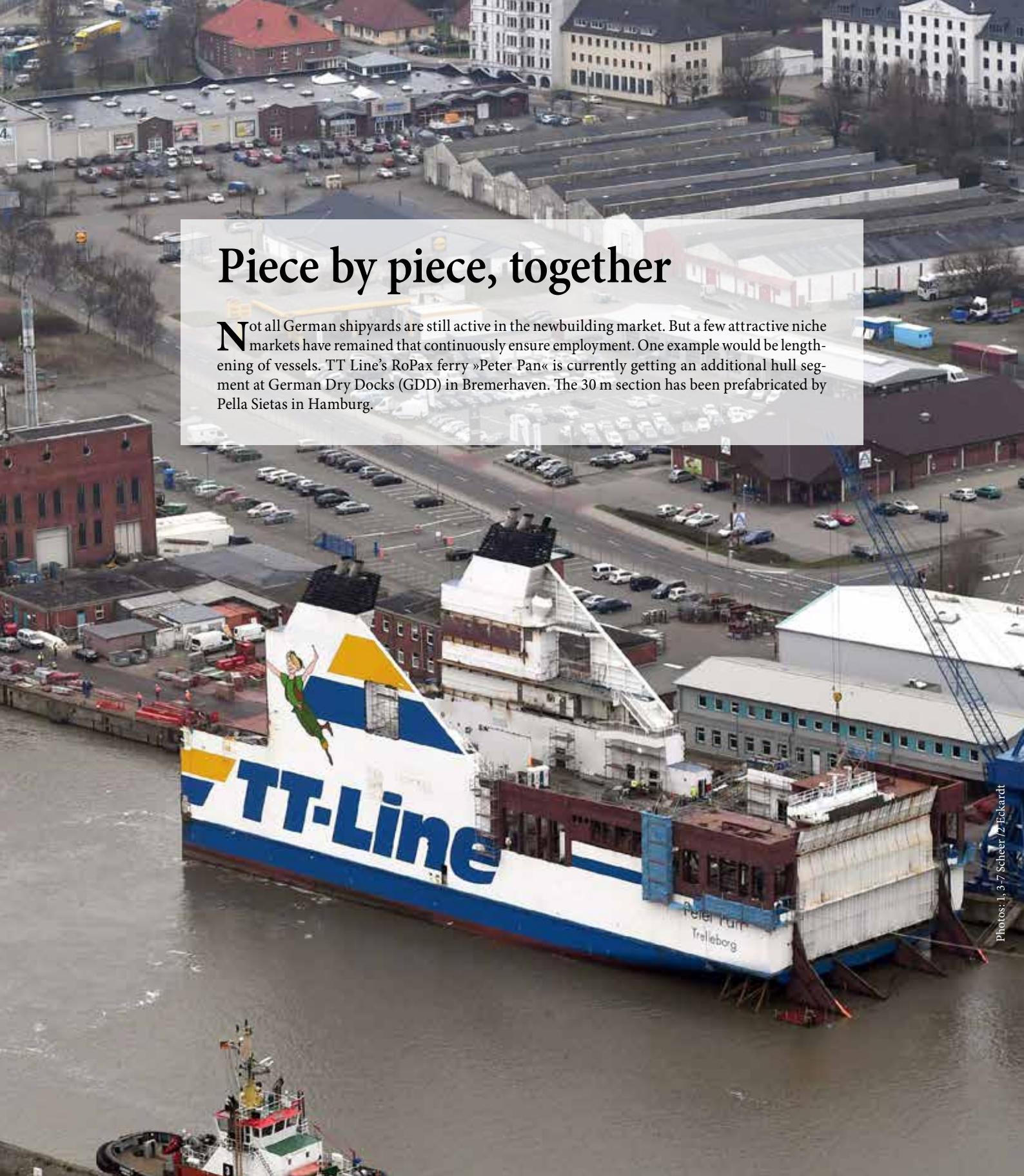
* Subcontracted to B + V Shipyards; bow section to be built by Lürssen and shipped to TKMS Hamburg, In cooperation with Lürssen and German Naval Yards

All information without guarantee, no claim for being complete



Piece by piece, together

Not all German shipyards are still active in the newbuilding market. But a few attractive niche markets have remained that continuously ensure employment. One example would be lengthening of vessels. TT Line's RoPax ferry »Peter Pan« is currently getting an additional hull segment at German Dry Docks (GDD) in Bremerhaven. The 30 m section has been prefabricated by Pella Sietas in Hamburg.



Photos: 1, 3-7 Scheer / Eckardt



»Ship of the Year 2017« award for Abeking & Rasmussen

Now in its 33rd year, the annual award »Ship of the year« for the German shipbuilding market is again issued by HANSA. This year, Abeking & Rasmussen is honoured for the »Aviva«

The innovative mega yacht – the biggest project in the 100-year-history of A&R – succeeds the RoRo vessel »Searoad Mersey II«, built by Flensburger Schiffbau-Gesellschaft and the Multipurpose Rescue Vessel »Murman«, which was delivered by former Nordic Yards.

The design was developed by specialist Reymond Langton, based on the 2007 built yacht of the same name. For the exterior, the designer cooperated with Toby Silverton.

It is the second time the Lemwerder-based shipyard was chosen for this prestigious award. Back in 2009, Abeking & Rasmussen was honoured for building the SWATH Pilot Vessel »Elbe«.

However, »Aviva« is not the first yacht chosen in the history of HANSA's award, a fact that demonstrates the expertise German shipyards have gained through the years. The first one was the Yacht Cruiser »Seabourn Spirit« by SSW in 1989, followed by the mega yachts »Lady Moura« in 1990 and »Eco« in 1991, both built at Blohm + Voss. In 2010, the traditional Hamburg based shipyard was honoured for building the prestigious yacht »Eclipse«. In 2013, the Lürssen Group delivered the »Ship of the year«: »Azzam«. ■

»Ship of the Year« 1982 - 2017

Year	Type of ship	Name	Building yard
1982	Polar research vessel	»Polarstern«	HDW/ WN
1983	Reefer vessel	»Helene Jacob«	Flender Werft
1984	Railway wagon ferry	»Railship I«	SSW
1985	Container vessel	»Norasia Susan«	HDW
1986	Cruise ship	»Homerich«	Meyer Werft
1987	Conversion cruise ship	»Queen Elizabeth I«	Lloyd Werft
1988	Container vessel	»President Truman«	HDW
1989	Yacht cruiser	»Seabourn Spirit«	SSW
1990	Mega yacht	»Lady Moura«	Blohm + Voss
1991	Mega yacht	»Eco«	Blohm + Voss
1992	Container vessel	»DSR Baltic«	Bremer Vulkan (BV)
1993	Baltic Sea ferry	»Silja Europa«	Meyer Werft
1994	Container vessel	»Norasia Fribourg«	HDW
1995	Cruise ship	»Century«	Meyer Werft
1996	Cruise ship	»Costa Victoria«	BV/ Lloyd Werft
1997	General cargo ship	»Cathrin Oldendorff«	FSG
1998	Cruise ship	»Superstar Leo«	Meyer Werft
1999	Reefer container ship	»Dole Chile«	HDW
2000	Fast cruise ship	»Olympic Voyager«	Blohm + Voss
2001	Cruise ship	»Radiance of the Seas«	Meyer Werft
2002	Frigate	»Sachsen«	Blohm + Voss
2003	Freight ferry	»Tor Magnolia«	FSG
2004	Navy research ship	»Planet«	Nordseewerke
2005	Cruise ship	»Pride of America«	Lloyd Werft
2006	ConRo ferry	»Pauline«	FSG
2007	Cruise ship	»Aida Diva«	Meyer Werft
2008	Cruise ship	»Celebrity Solstice«	Meyer Werft
2009	SWATH pilot vessel	»Elbe«	A & R
2010	Mega yacht	»Eclipse«	Blohm + Voss
2011	Freight ferry	»Seatruck Progress«	FSG
2012	LNG tanker	»Coral Energy«	Meyer Werft
2013	Mega yacht	»Azzam«	Lürssen
2014	Research vessel	»Sonne«	Meyer Werft
2015	Multipurpose rescue vessel	»Murman«	Nordic Yards
2016	RoRo vessel	»Searoad Mersey II«	FSG
2017	Mega yacht	»Aviva«	A & R



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Reasonably elegant

»Aviva« is the longest yacht ever built by German shipbuilder Abeking & Rasmussen. As a special, the recently delivered vessel features a hybrid drive. More yachts of this size are to follow

When the contract was signed almost three years ago, the traditional shipyard on the banks of the Weser did not even have a suitable site. Until then,

Abeking & Rasmussen had built yachts with a maximum of 85m. After the search for a suitable location had been unsuccessful, an existing hall F on the site in Lemwerder was extended without further ado. The family-run shipyard headed by Hans Schaedla invested 20 mill. € in its future.

At the inauguration two years ago, just in time for the 108 th anniversary of the company, the stern and bow sections of the future »Aviva« were already under construction in the hall and were immediately united after the ceremony. The steel hull was

Our Ship of the Year:
A&R's new Yacht »Aviva«



supplied by the Flensburger Schiffbaugesellschaft (FSG) while Stahlbau-Nord in Bremerhaven had prepared two aluminum deck sections, and the ship, hull number 6501, was then completed and launched with the help of the Norwegian heavy duty barge »Boabarge 36« in Lemwerder in January 2017. Finally, »Aviva« was delivered in May.

The sleek yacht of 5,000 GT is about twice as large as the private ships built by Abeking so far. The design of the newbuilding with a striking blue hull and beveled elements of the superstructure in silver metallic was created in collaboration with Toby Silverton and Raymond Langton Design.

Elegance and comfort were in the foreground when designing the »Aviva«. After extensive testing, the extremely slender bow, the underwater lines and the stern section were streamlined. As a result, the overall water resistance could be reduced by 20 %. The yacht will speed to the required 20 knots with reduced engine performance compared to similar ships. Two MTU engines with 2,800 kW each power two shafts for the direct drive. This holds the potential to save a lot of fuel, the shipyard officials say.

The yacht also has two gensets of 600 kW each enabling a purely electric drive also. This setting is sufficient for a speed level of up to 11 kn in »silent running« mode. According to their own statements, Abeking & Rasmussen has implemented a concept already tried and tested in the marine sector.

As a benefit for the owner of »Aviva«, the reduced engine power and the hybrid drive concept significantly reduce noise and vibration loads while at the same time increasing the comfort aboard the luxury yacht.

As usual, only few details are known about the construction of such ships. British businessman Joe Lewis is reported to be the owner of the »Aviva«. Lewis, who owns, among others, the Premier League club Tottenham Hotspurs, is said to have assets of 4 bill. £

(4.5 bill. €). Being an enthusiastic tennis player, he had his own paddle tennis court being installed on the ship.

At 20 m in length, 10 m width and 6.50 m height this sports facility extends over two decks.

Even beyond, »Aviva« hardly lacks any features. The specials on board include three-dimensional interior surfaces, fold-out balconies and bulwarks as well as a covered foredeck. Behind the usual outer flaps there is enough space for hiding a variety of vehicles for shore leave and recreational activities.

So, what comes next? The Abeking & Rasmussen order book currently lists three more yachts, two of which at a length of 75 m and one of 80 m, so the yard is used to capacity for the time being. »Of course, we are constantly working on other interesting projects,« says Sales Director Uwe Kloschinski.

A & R has been looking back on almost 6,500 construction numbers since October 1, 1907. Those were the days when Henry Rasmussen founded a small boatbuilding business with his partner Georg Abeking. Initially, small boats and ships were built, and fast sailing ships gained the shipyard a reputation.

Today, Abeking & Rasmussen is one of the top addresses in German shipbuilding. For the first time in Europe, fully welded aluminum ships were built here. Later the yard launched newbuildings made of demagnetized stainless steel to be followed by Swath designs, double-hulled semi-submersibles mainly for pilots and coast guards. In addition to naval and government vessels, yachts are now the second and main pillar of the shipyard. ■

AVIVA

Hull NB:	..... 6501
Naval Architect:	..... Abeking & Rasmussen
Design:	..... Raymond Langton Design
Hull configuration:	.. Monohull / Displacement
Length:	..... 98 m
Beam:	..... 17.20 m
Draft:	..... 3.8 m
Gross Tonnage:	..... 5,000 gt
Class:	..... Lloyds Register
Engines / Power:	..... 2x MTU / 5,600 kW
Max. Speed:	..... 20 kn
On electric power:	..... 11 kn
Hull Material:	..... Steel
Superstructure:	..... Aluminium
Deck Material:	..... Teak
Decks NB:	..... 4
Accommodations:	..... 16 guests

Photo: Abeking & Rasmussen



River cruisers important for MV Werften, too

Shipbuilding group MV Werften is still a newbie but has caused quite a stir, especially with orders for large cruise vessels. In the initial phase after the takeover by Genting the river cruiser segment was substantial and continues to be so

A total of seven units marks the group's order book, which has locations in Wismar, Warnemünde and Stralsund. Additionally, three yachts of the Endeavor-class and two oceanic cruise liners of the Global-class are listed, and there are also two river cruisers of the Rhine-class. »Crystal Debussy« and »Crystal Ravel« will be commissioned in spring. Both are sisters of »Crystal Bach« and »Crystal Mahler« which were delivered in 2017. The newbuilds measure 135 m in length at 11 m with and a gauge of 1.65 m and accommodate up to 110 passengers in 55 cabins. The vessels are being built in

Wismar for the client Crystal River Cruises, which also belongs to the Genting Group. Currently, there is no indication that there will be direct follow-up orders in this segment. »Further orders for river cruisers are currently not in the order book. All capacities and processes are aimed at the two other mega-projects ›Crystal Endeavor« and ›Global«,« the group confirms to HANSA.

Irrespective of this and even if the share of the overall portfolio is rather small, the segment was »very important« for the shipyard and continues to be so. »Implementing one or four construction projects in the start-



up phase posed a real challenge, which started even before the founding of MV Werften, while at the same time we were promoting a comprehensive investment program and the preparations for Endeavor and Global were going on. But also an ideal opportunity to prove the shipbuilding abilities and the project management,« an MV Werften statement says.

The newbuilds are specially designed for Europe and, according to the shipyard, meet the highest safety and navigation standards, including a 24/7 operational bridge and rudder propellers. The design of the 6-star ships is based on private yachts. The majority of the public areas have glass walls and ceilings for enjoying the views during tours along the Rhine, Danube and Main rivers.

The company Brombach & Gess is responsible for the »Infinity« concept with a loggia window system. »In a conventional balcony cabin, the outdoor area can only be used in good weather conditions and at comfortable temperatures. The balcony is only available for the exterior area and protects privacy to the sides. The idea for

a new concept starts right here,« Brombach & Gess explains. The balcony area becomes a permanent part of the cabins and can be used in its entirety, while maintaining privacy. The concept combines the benefits of an open area with those of a large cabin.

According to the company, the upper movable pane can be lowered in front of the fixed lower pane and, together with the movable handrail, it forms a glazed balustrade. The result is a »loggia«.

The window system is available with a maximum width of 3,000 mm and in the height of a cabin as required.

All window systems can be operated centrally from the ship's bridge in case of an emergency situation. The frame for the window system is made from seawater resistant aluminum and all moveable parts and fittings are made of stainless steel. The window is screwed in the window area so that the ship movements will not cause interference with the window frame. An elastic gasket seal provides the necessary tightness of the window. *ED*



Photo: MV Werften



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- More privacy for passengers
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- Low construction costs
- No extra balconies - no extra drainage
- Reduction of the ship's resistance and wind noise owing to the cohesive exterior facade of the ship

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