

# WORLD EXPLORER

One of the most high-tech ships

## INTERVIEW

Pedro Duarte  
CEO Martifer Group

## IN FOCUS

P362 and P363, the first vessels of the  
Portuguese Republic built by West Sea

## OPINION

Geneva International Airport - East  
Wing, crafting a piece of art





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One of the most  
high-tech ships



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# PAST SUCCESSES DO NOT GUARANTEE FUTURE VICTORIES

Martifer's performance in 2018 was in line with our forecasts, which make us very pleased, in other words, it continued on its consolidation path, reaching the economic goals set, in any case continuing to stay focused, daily, on the improvement of the organization, increasing productivity and on the efficient control of operations.

Of the most relevant facts to be mentioned about the year 2018, which greatly contributed for it to have been a good year and that will surely leverage our future, I highlight in the Metallic Constructions segment the important and significant projects that were awarded in such competitive and demanding markets as is the English and the French one, as well as the excellent performance at the Geneva Airport, one of the most important projects ever of the company, which up to now has gone very well, with total satisfaction of our Client, the greatest Swiss construction group, opening the doors of this market to us.

In the Naval area, the delivery of the two NPOs to the Portuguese Navy, within the agreed schedule and within the contracted budget, is a major milestone in the future of shipbuilding in Viana do Castelo. Because, surely the Portuguese Navy will continue to count on us and it is expected that we will build more of these vessels and other types in the coming years.

It is also worth mentioning the success of the development of the World Explorer project, awarded by Mr. Mário Ferreira, a

dear friend and client since day 1 of the West Sea shipyard. This success made it possible to sign another contract for the construction of two more identical vessels, placing West Sea at the highest level in the construction of cruise ships.

In the Renewables segment, I highlight the fact that we ended last year surpassing 400 MW in O&M in projects under our responsibility.

As for Oil & Gas, an area that the Group is strongly committed to for the future, a reference should be made to the excellent performance of the whole team that is working on the Petrogal project, at the Sines refinery, complying with the client's requirements in the difficult mission of ensuring the best operation of this infrastructure.

As excellent and a reason of pride for all of us, we can state with joy and a sense of accomplishment such relevant achievements that we made in 2018. We have to continue with our feet on the ground and look towards 2019 with the same determination and ambition and with the willingness to do more and better each day.

Past successes do not guarantee future victories.

The difficulty and complexity of the projects of today, in which those who execute have all the "obligations" or almost all of them, oblige us to be even better, more rigorous and to effectively and timely plan our operations.



**Arnaldo Figueiredo**  
Martifer Group Board Member

**“**  
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**”**

Planning and rigour certainly are together with union and cohesion among all of us, the fundamental pillars for the Group's success.

Because I fully believe in the quality, in the competence and in the determination of all of the Group's employees, I am convinced that next year the assessment that we will make about 2019 will certainly be of a year with many successes.



## 2019 CAN BE A GREAT YEAR. IT IS JUST UP TO US!



“

The year 2018 will be marked by the commitment on professional executive management, independent of the shareholders. It was a decision which proved to be right, mainly because the team that was chosen, led by Pedro Duarte, was able to interpret and deal intelligently with the power that was entrusted to it.

”

A year ago when I was writing this article, I gave it the title: 2018 will be the year to prepare our future well. We implemented a new governance model and the new management took office at the General Assembly last May. On 28th June, during a staff meeting, the Executive Committee presented its strategic plan for the triennium 2018-2020, based on the strengthening of the Martifer culture, on the increase in operational efficiency and on the need for debt reduction. A strategic plan which foresees a sustainable increase in sales, the strengthening of the profile of an exporting company, that looks at oil & gas as an opportunity, without forgetting renewable energy as a business with future. Metallic structures, aluminium and the naval industry continue to be the main base of business. The second half of 2018, all of it based on the implementation of the strategic plan and budget approved for 2019, gives it continuity.

The year 2018 was very positive. It was the year when the market recognized that Martifer is stronger, the year when we felt that we are more competent and on the right track, the year when we felt that the teams are strong and aligned and that people are motivated to do more and better.

In 2018 we increased the order book which ensures that the years 2019 and 2020 can be seen as a guarantee for the future.

The year 2018 will be marked by the commitment on professional executive management, independent of the shareholders. It was a decision which proved to be right, mainly because the team that was chosen, led by Pedro Duarte, was able to interpret and deal intelligently with the power that was entrusted to it.

But, the year 2019 can be better than the year 2018. The company will grow again in sales. Productivity should be a constant concern, in order to ensure the expected operating results. We must, as we are doing, commit strongly to the training of our people and appreciate them, giving them opportunities to progress within the organisation.

We should be aware of the constant challenges that the market offers us. Today, Martifer is a world leader in the capacity to technically respond to the most demanding projects. We must keep this positioning as well as always be open to the evaluation and adaptation to new technical solutions that the market offers us daily.

We must pay constant attention to the relationship with our clients. Create relationships with them based on mutual trust.

We must pay attention to new opportunities that arise within the activities related to our core business.

“ The great challenge will be our ability to interact with change, to try to understand it and to be able to promptly respond to the needs that the new world imposes on us. It is a great challenge! ”

The World of tomorrow will be very different from the World of today and this requires that the Martifer of tomorrow be very different from the Martifer of today. The great challenge will be our ability to interact with change, to try to understand it and to be able to promptly respond to the needs that the new world imposes on us. It is a great challenge!

A year ago I announced that I would no longer be the Chief Executive Officer (the CEO); however, I would always be available for the company. That is what I have done and that is what I hope to continue doing.

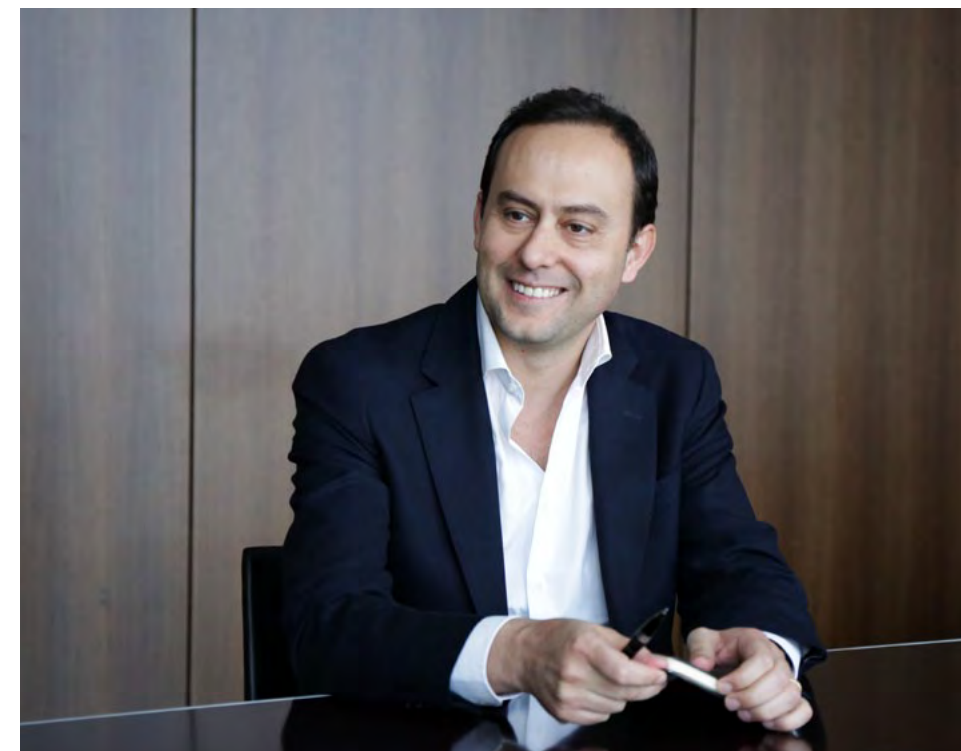
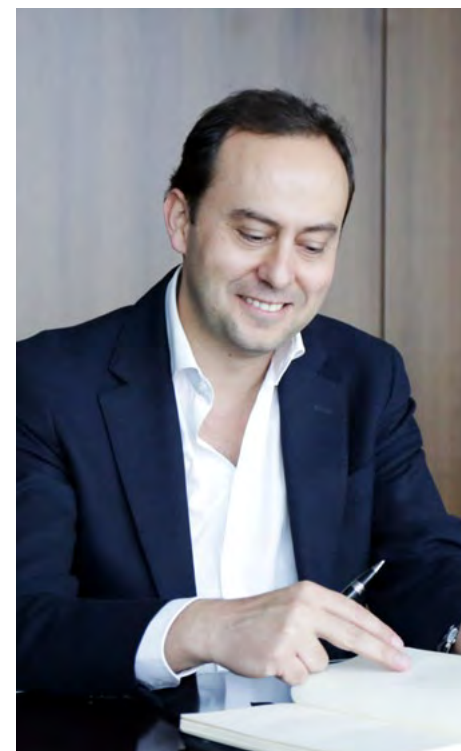
2019 can be a great year. It is just up to us!



# WITHOUT ANY PRESUMPTUOUSNESS, I FEEL THAT OUR BRAND IS VERY MUCH IDENTIFIED WITH THE CAPACITY TO DO THINGS FIRST AND TO DO THEM BETTER THAN THE OTHERS

INTERVIEW WITH PEDRO DUARTE, CHIEF EXECUTIVE OFFICER OF MARTIFER GROUP

Pedro Duarte has 19 years of experience in the industrial sector, 15 of which at Martifer. Over the years he has been responsible for countries in Eastern Europe and in Africa and Board Member of several subsidiaries of the Group. Today, he is Chief Executive Officer of the Group. In an interview, he shows us his vision and strategy of the Group to meet the demands of the world of today.



**MNEWS** | You have been working for 15 years at Martifer. How have you seen the evolution of the Group? What has changed and what has remained the same in Group's culture over the years?

**PEDRO DUARTE** | If we imagine how the world was 15 years ago, we realize the great changes that have occurred in society as a whole. This change also occurred naturally in companies that are still alive and active.

If you think that when I joined Martifer, the projects of Martifer Construções were 95% executed in the Iberian Peninsula and today the percentage reaches a maximum of 15%, we clearly realise the change and adaptation that we had to undergo.

I remember when I started to work in the former offices, everyone would receive an e-mail from the person celebrating their birthday on that day saying "cake at the canteen at 5 pm!".

Today our dimension is another one and we cannot make comparisons, nor look too much at the past to position ourselves in the future.

But, I feel that the company reactivated again in people the passion and pride to represent it, which had been a little lost in

the more intense years of crisis. Rare are the people who left the company and that I have been meeting somewhere else over the years, who do not remember Martifer with nostalgia, as a great school and showing an enormous pride to have belonged to this family. Thus, this says a lot of what represents the culture that you refer to.

**MN** | In this period, we went through a severe global crisis, which led to the shutdown of many companies. What are Martifer's characteristics that helped it to overcome this period and to remain active in the market?

**PD** | Martifer has several characteristics that come from its foundation and many of them persist and have grown roots. Resilience, boldness and fighting spirit. Without any presumptuousness, I feel that our brand is very much identified with the capacity to do things first and to do them better than others. This is something that those who entrust us with their projects feel.

What we have done in the shipyard of Viana do Castelo, more recently, came to prove exactly that. Only those who knew the past reality of one of the largest industrial spaces of this country and knows what is happening there today

“

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“What we have done in the shipyard of Viana do Castelo, more recently, came to prove exactly that. Only those who knew the past reality of one of the largest industrial spaces of this country and knows what is happening there today understand exactly what I say. And this should make us proud.”

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**MN |** We are a multinational company present in several countries with sharp cultural differences. Where have the challenges been more difficult? And, why?

**PD |** We had the humility to recognize that our internationalisation process had errors and was not always done in the best way. We need to avoid them in the future. Our difficulties were much more on how we strategically addressed our exposure to the different markets where we were or are, rather than the cultural aspects of each country. Even more so because the Portuguese are known for having an enormous capacity to adapt. After having abandoned our presence in some countries in the past few years, today we are more comfortable in the countries where we are, having, obviously, to look at each one differently, depending on the evolution of their economies and their political-strategic positioning.

**MN |** Today, we have three business areas, with the façades and the naval industry having greater weight. Are these areas part of the future strategy of the Group?

**PD |** Last year we achieved something that we had never achieved. A portfolio of orders almost equal in our 3 products of reference: metallic structures, façades, and naval area. This balance requires, obviously, a re-adaptation of our staff and of our industrial units, because there is tremendous growth in the last two. It is only natural that when we grow, we have to pay attention to the “growing pains” and to the associated risk. But the Group’s strategy includes, without a doubt, these three products. But also, because it is a reference in the oil & gas sector, where we have been taking solid steps, and in renewable energies, where we have been working on for 15 years and where we have a large portfolio and proven experience.

**MN |** There has been much talk on multigeneration within companies, with

the simultaneous presence of more senior professionals and the millennials, and the different perspectives and expectations that they have in relation to work and to companies. How do you see this issue? How is Martifer adapting to this new reality?

**PD |** This is a very important issue. Here lies much of the success of companies in the future. Companies, especially those of an industrial and an engineering nature as is ours, will only differentiate themselves if they innovate constantly, if they carry out research, if they put into practice new technologies in the execution of their products and in monitoring and measuring constantly what they are doing to check if they are on the right track in their productivity and also if they are agile in their daily action.

But to do this, it is necessary to have a solid staff network, which is constantly renewed, mixing experienced staff with the generation that is appearing very well prepared and that, in this mix, everyone sees themselves in the company.

Regarding this issue, leaders will have a fundamental role in HR policies and in Communication. There are aspects that do not change from generation to generation and that should be standard in the interconnection of multigeneration: existence of a clear policy of transmitting know-how and knowledge, knowing clearly what the company expects from them, feeling that they can be useful and participative, knowing that there is a merit policy, having systematic knowledge of the strategy in force, seeing themselves in the principles, values, and culture of the organisation and that these are very clear and put into practice.

All of these aspects seem basic, but many times companies and leaders forget them and this is the first step for employees



to lose expectations and confidence in the company and the emergence of great structural problems in their efficient operation. Everyone favours, more and more, happiness and well-being in their lives. If we spend most of our time at the company, we have to have our people feeling good and preferably doing what they like.

I believe that we have been taking steps towards this and renewing the commitment with everyone.

On the other hand, and we need to make more accurate studies of the impact, we have other aspects that will be quite relevant in the future by new generations: labour flexibility, work hours adjusted to functions, functional mobility, etc. We can take ad hoc measures, but we must necessarily be very attentive to new trends.

**MN |** One verifies a strong tendency of most businesses to begin to incorporate themes such as Artificial Intelligence (AI), Internet of Things (IoT), Industry 4.0 (i4.0) and others in their processes and products. Is this also the natural path for Martifer? How is the Group adapting to this technological evolution?

**PD |** Of course it is. All paths that increase our productivity will always be something



that we will want to know about, to understand and to develop.

We are not interested in trends and clichés that sometimes appear linked to these themes, or even the cutting-edge attribute that is given, sometimes seeming what they are not, but only because it is nice and modern to talk about it.

What we must understand is how our activity may benefit from the technological leap that is happening every minute and to be at the forefront of that perception.

For example, we are to participating in a working group on 3D printing, which will revolutionise the future of our industry.

In the façade and metallic structures segment, we are developing, today, calculation solutions supported by internally strengthened software.

We are actively working on the BIM concept (Building Information Modelling), which (through these templates) will allow the possibility to improve and execute more efficiently the whole process of graphical and non-graphic information of a project, from sizing to the construction.

Our factories are developing visual management tools - Andon systems, and other programs - which will help



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us to have even greater control of our productivity by the minute and they will detail the parts that we produce. It is this way that we look and want to look, attentively, to the evolution of technology.

**MN | How do you feel in the CEO position succeeding Carlos Martins, the charismatic founder and manager of the Group? What are the main challenges that you faced in this first year as the CEO?**

**PD |** I am fully committed, motivated and happy in this role.

Perhaps because this succession was very planned and discussed with the shareholders, because when I was invited I felt prepared for this role and because, fortunately, Carlos Martins continues with good health and strongly committed to the role of Chairman of the company, I

do not feel the weight that your question might hold.

Our activity is very hard and. Therefore, as I have said before - and because in what concerns management I neither believe in providential leaders who decide alone as if they have a rare aura of predestination rare nor in rigid hierarchical structures - that the team that accompanies me is very capable and competent, and I very honestly feel that the company, in general, is aligned with the strategy that we adopted for our 3-year term of office.

These positions have to be seen with great pragmatism by those who exercise them: a sense of mission and service, having the maximum rigour and diligence in action, foreseeing the continuous development and sustainability of the company in the future, always supported by the strategic plan which we approved. This was the commitment I made. It was based on this that I developed my action

in this first year and this is certainly what I will do in the next 2 years.

**MN | Finally, what do you foresee for Martifer's next 15 years and what message would you like to leave for our team?**

**PD |** Companies have to be attractive to all of their stakeholders. Martifer is no different. We were more in the first half of our existence, and we have to go back to being so in a consistent manner. To do that, we must have the constant ability to reinvent ourselves. In other words, I foresee 15 years of constant struggle to reinvent the company and its businesses, trying to adapt it in a solid and safe way to the constant mutations and adversities of this world more and more unpredictable.

For our team, I want to thank them for the commitment kept with Martifer Group. It is undeniable that a large majority of our people truly feel the company and live umbilically attached to it. It will be mainly with those people that we will build the next few years.

Those who demonstrate quality, willingness, humility, patience to wait for opportunities and those who truly feel the company will be the ones we will enhance and bet on and not those who use the company as a springboard to update their personal LinkedIn profile.

I am sure that we will reach 30 even stronger!



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# PROFILE

**PEDRO DUARTE**  
41 YEARS OLD  
CEO OF MARTIFER GROUP



Pedro Duarte has been the President of the Executive Committee since May 2018 and a Member of the Board of Directors. He started at Martifer Group in 2004, where he held several positions in countries of Eastern Europe and Africa. Since 2011, he has been a Board Member of several subsidiaries of the Group.

In 2000, he began his professional activity, with experience in Visabeira Group and PSA Group. He holds a degree in Mechanical Engineering from FCTUC (Faculdade de Ciências e Tecnologia da Universidade de Coimbra).

When outside the professional environment, it is with his family that he spends his time, especially with his 4-year-old son. Cinema and reading are hobbies that he enjoys, being "Scent of a Woman" a reference movie, essentially due to Al Pacino's masterful interpretation. He is currently reading "The Magic Mountain" by Thomas Mann.

## WE LOOK AT THE FUTURE WITH OPTIMISM AND CONFIDENCE



Paulo César Ferreira  
Corporate Planning and Control Manager

“

We are convinced that we are moving in the right direction. We know that there are still many and difficult challenges and that we cannot fail to give the maximum of ourselves every single day.

”

After a very delicate period that we lived between 2010 and 2014, as a result of the economic crisis, which brought down many large companies, and of some decisions that did not achieve the expected results, a new cycle started in 2015 that included the definition of a Strategic Plan which had as main objectives to stabilise the Group and to ensure its sustainability and to regain the trust of our stakeholders. That Strategic Plan had as its main priorities:

- Focus on the core business of metallic constructions and the naval industry and on the resizing of the renewables segment by asset rotation
- Strengthening of the international presence
- Debt reduction through the disposal of non-core assets
- Adjustment of the structure to the business reality
- Improvement of processes and operational efficiency

In essence, the Strategic Plan of 2015 was successfully achieved and the goals were accomplished; therefore, we believed that it was time to move on to a new cycle and that is what we did in 2018, with the implementation of a new governance model and the definition of a new Strategic Plan.

In the new governance model, the main shareholders do not have executive functions but they continue to be represented in the Board of Directors as non-executive directors and they continue to be available and willing to

support the Group whenever needed.

The Strategic Plan defined in 2018 rests on three pillars:

- Reinforcement of the organizational culture and consolidation of the governance model
- Enhancement of operational efficiency, planning and productivity
- Consolidation of the financial readaptation trajectory

And has as its priorities and objectives:

- Strengthening the Group's export profile, boosting the industrial capacity in Portugal
- Strengthening the activity in the most profitable segments, in particular in the naval industry and in the façades
- Exploration of new opportunities in the oil & gas segment
- Maintain the commitment in the renewables segment, either through asset rotation or in taking advantage of opportunities in wind and solar projects
- Consolidate the investment in training, in knowledge and in innovation

We are convinced that we are moving in the right direction. We know that there are still many and difficult challenges and that we cannot fail to give the maximum of ourselves every single day. But we believe in the people who are part of Martifer Group and, therefore, we look at the future with optimism and confidence.

### GENEVA INTERNATIONAL AIRPORT - EAST WING

## CRAFTING A PIECE OF ART

Every morning as I cycle the ten kilometres from my house to the site at Geneva Airport, I pass along a road that dips around the end of the runway. There is a curious array of shiny metal cubes each about 300 mm across, installed on a series of masts, gantries and overhead cables which I find rather interesting. Their precise placement in plan and altitude juxtaposed against the landscape is forced, uncomfortable. The cubes themselves are rather beautiful in their regularity while the structures which support them, utilitarian posts of steel and concrete leave much to be desired.

They look different each day depending on the weather and the time of day, but this morning they were particularly spectacular glinting in the early morning sunlight against the backdrop of the snow-covered Alps. They are designed, yet not designed, considered purely from a technical and pragmatic point of

view. Built out of necessity, in fact, they are radar reflectors put there to guide aircrafts coming in to land. In another context, it could be an art installation, but with no audience, invited to look and question, they just are. Seen but not noticed, hovering incongruously over the landscape.

I get to work and look out across at the structure of the Aile Est that is now just beyond the halfway point. It is also built out of necessity to fulfil the pragmatic requirements of passengers departing and arriving, of fire safety and energy code, but it is different from the installation at the end of the runway. It is different both because of the intention behind it and the craft by which it is made. And it is this intention combined with great craftsmanship which fuse to lift it from being just a building to a piece of architecture. A piece of art.



Misha Smith  
Associate at Rogers Stirk Harbour + Partners  
Geneva Airport

What I enjoy about Martifer, and what I have come to appreciate over the past eighteen months of working together on this project is the craftsmanship that is going into it. The care with which it is fabricated and the pride in quality. It is, in my experience rare to find a team who are able to work at such relentless pace and maintain quality all with such good spirit. It can be seen in the end result and the impact on the success of the project should not be underestimated.

I hope that the audience, the users, the people who will work in this building and the passengers who will pass through it will be lifted by it, will look and question how it was made. I hope that both the enjoyment and work that have gone into realising this project, by the designers and by the people who made it will be evident.



VESSELS OF THE PORTUGUESE REPUBLIC

P362 AND P363, THE FIRST VESSELS OF THE PORTUGUESE REPUBLIC BUILT BY WESTSEA



Characteristics of the vessels

MAIN CHARACTERISTICS	
Length overall	81.00 m
Length Waterline	75.00 m
Breath Waterline	12.00 m
Draft	3.69 m
Depth Flight Deck	9.60 m
Deep Displacement	1.700 t
Speed (85% MCR)	20 knots
Propulsion Power	7.800 kW
Endurance at 15 knots	> 5,000 NM
Crew	35
Accomodation Margin	32
Fishery Pretection	SS5
SAR	SS7
Flight Deck (helicopter weight)	> 5,300 kg

P362 and P363. These are the class serial numbers given to the vessels NRP Sines and NRP Setúbal. These vessels were added to the Navy's fleet in July and in December 2018, respectively. The class serial number, of great significance, represents the vessel's identification marks, exposed on the hull in embossed welding and painted in black. The art of building vessels and navigation comprise a rich set of words and expressions whose extension is only understood by the Portuguese achievements and by the Portuguese passion for the sea over the centuries, as if the 10 Cantos of the Lusíadas weren't enough.

The keel, the backbone of the vessel that goes from the stern to the bow and which confers resistance to the hull, gave its name to one of the most severe punishments during the 16<sup>th</sup> and 17<sup>th</sup> centuries, the "keelhauling", where the sailors were dragged from one side to the other underneath the vessel, and where an extension of this word is used today in our daily lives to refer to someone who is going through a difficult situation. And vocabulary belonging to the military field, the insignia of the Navy inscribed in bronze plate, the bow toward the horizon, and bearing the patriotic motto "A

“ The purpose of the military vessels NRP Sines and NRP Setúbal is simple, as for any military vessel, it is to defend the interests of Portugal. ”



Main missions

- Maritime authority
- Patrol and supervision of the waters in National Jurisdiction
- Search and Rescue
- Assistance to civilian population in situations of disaster, calamity or accidents (Frontex)



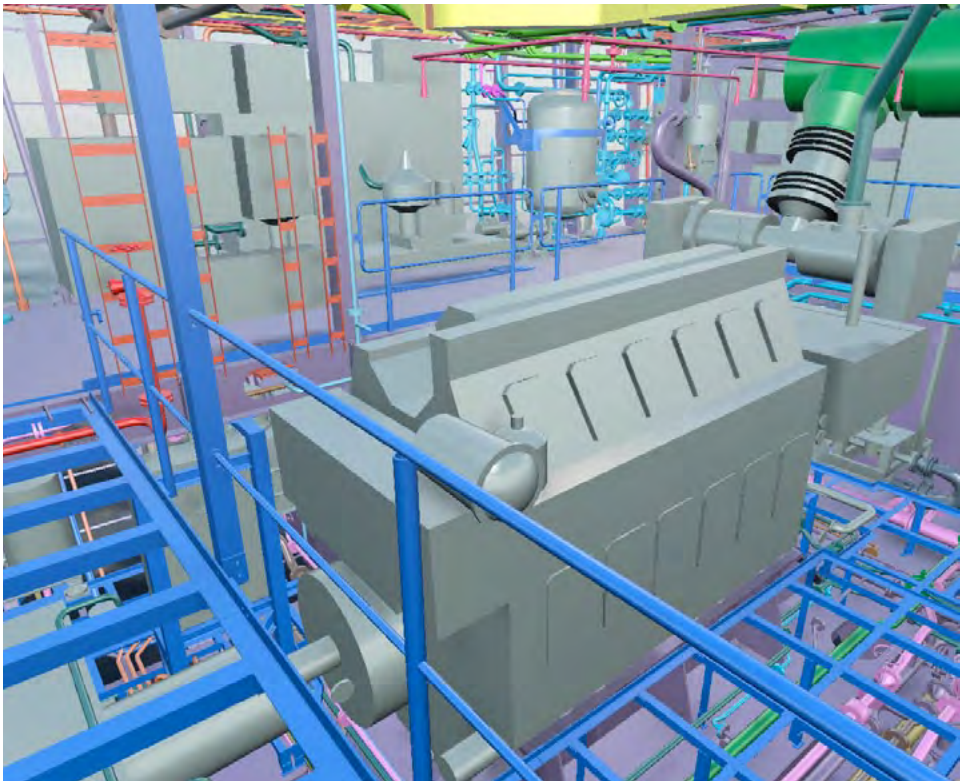
PATRIA HONRAI QUE A PATRIA VOS CONTEMPLA”.

The purpose of the military vessels NRP Sines and NRP Setúbal is simple, as for any military vessel, it is to defend the interests of Portugal. In this context, the Oceanic Patrol Vessels have as main missions to patrol the Portuguese Exclusive Economic Zone, actions of control of fisheries, search and rescue, as well as the control of illegal immigration and assistance to populations in disaster situations. Despite not being, in essence, war vessels they have the ability to cooperate in smaller military actions. A piece of 30 mm artillery and small arms are foreseen, as well as various radars and semi-

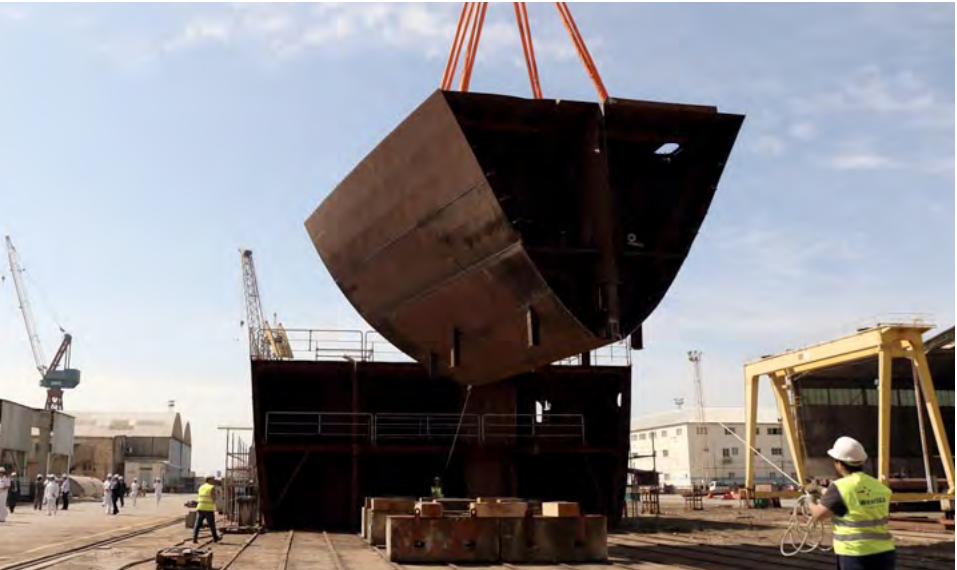
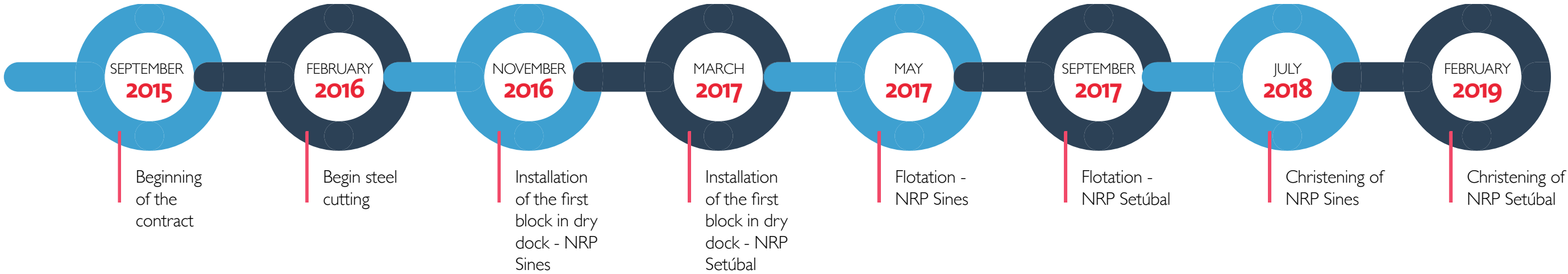
rigid motorboats of quick approach. They also have capacity to release mines and to fight fires with 3 water cannons of high range.

Conditioned by operational requirements, the requirements and criteria of a technical nature which led to the construction of a 83.10 metre long and 12.95 metre breadth vessel, with a fuel autonomy for 14 days travelling at 15 knots and supplies for 30 days, have been defined. Limited autonomy, were it not for their ability to Replenishment at Sea (RAS) and equipment that allow the transfer of persons and light cargo through the method of “Manila Highline”, or even the VERTREP (“Vertical Replenishment”).

Of the 42 people that ensure the operability of the vessel, 6 are enough to steer it. This would not have been possible without the high degree of automation that ships have. There are approximately 7,000 actual signals, to which were added over 6,000 other virtual signals, derived from interactions and underlying calculations. It is the Management System of the Platform that manages all this information as part of the Integrated Information System. Therefore, the Integrated Information System includes the platform for command and control of the vessel, which integrates also the Communication System, the Navigation System and the Logistics Support System.



“Of the 42 people that ensure the operability of the vessel, 6 are enough to steer it. This would not have been possible without the high degree of automation that ships have.”



Besides the various secondary and restricted systems, although essential, these vessels are formed by 32 main intricate systems in a complex 3D coordination, from the basic water distribution, sewage and ballast systems, to the most demanding in terms of equipment and its control, such as the cooling system of the main engines, the exhaust gas extraction system and the generation of fresh water by reverse osmosis. Of all the equipment that uses the resources made available by the systems, the propulsion installation

is particularly interesting. It is characterized for having two distinct shaft lines, whose driving force of the vessel are two controllable pitch propellers with 2.55 m in diameter and with a torque provided by two main engines of 3,900 kW each, to a maximum speed of 21 knots, or two electric engines of 300 kW each, normally used up to 9 knots, thus allowing significant fuel saving. Another fundamental characteristic of these vessels is the existent redundancy in the various equipment

and systems. The philosophy used ensures that all main systems of the vessel, in the event of breakdown or suffered damage, have an effective availability of alternative resources. Of the four 315 kW generators, placed 2 by 2 in separate watertight compartments, it only takes one of them to meet the basic needs of the vessel in terms of energy, being that two ensure its full operability. Energy management can be done by either one of the 2 main electrical panels of the ship, one situated more at the front and the other one more at



the rear: The 5 secondary electrical panels have redundant power and the 5 UPS power the vital systems of the vessel for at least 60 minutes. In terms of command of the ship, even if the navigating bridge is destroyed, it is possible to control and manoeuvre the ship by using three other consoles placed in strategic locations.

The rigorous testing to which vessels are subject is divided into 3 categories:

- (i) Inspection Protocols within the continuous monitoring during construction
- (ii) Harbour Acceptance Tests (HATs) where the operation of all equipment is checked with the ship still moored
- (iii) Sea Acceptance Tests (SATs).

These latter tests constitute the final stage of construction whose successful completion is the guarantor of compliance with all the requirements that the vessel must comply with. Among them are the various tests of manoeuvrability, speed, resistance and consumption, in addition to other tests and specific readings of various equipment such as propulsion rudder, the bow thruster and stabilizers,



“With the proposal of the New Law on Military Programming for 2019/2030, which contemplates the construction of 6 other vessels like these ones, we want the State and the Nation to consider West Sea not only as a winning bet on the construction of vessels but also as a driving force of the entire naval activity and of the industry in the Municipality of Viana do Castelo. We will be here.

”



without neglecting the alarm systems and the fire detection systems, as well as the ventilation, air conditioning, and the performance of all the electrical installation and the electromagnetic compatibility.

The contracted period for the delivery of the first vessel was 33 months, with a gap of 6 months for the delivery of the second. Both deadlines were fully met by the West Sea shipyard. Together with the respect for the

contracted technical specifications and absence of deviations of financial nature, these 3 factors were the guarantor of Client satisfaction. Therefore, we are confident that the huge effort and commitment with which all at West Sea and its partners faced this project are the foundations that allow this and other Clients to trust West Sea and Martifer Group once again. With the proposal of the New Law on Military Programming for 2019/2030, which contemplates

the construction of 6 other vessels like these ones, we want the State and the Nation to consider West Sea not only as a winning bet on the construction of vessels but also as a driving force of the entire naval activity and of the industry in the Municipality of Viana do Castelo. We will be here.



# WORLD EXPLORER, ONE OF THE MOST HIGH-TECH SHIPS

**WORLD EXPLORER, WORLD VOYAGER AND WORLD NAVIGATOR,  
THE THREE POLAR EXPEDITION VESSELS CURRENTLY UNDER  
CONSTRUCTION AT THE WEST SEA SHIPYARD**

“

The West Sea shipyard was a natural choice, given the quality of the work they do and the guarantees they present.

Mário Ferreira  
CEO of Mystic Cruises”

To visit West Sea's shipyard in Viana do Castelo is, today, a source of pride for anyone who has followed the changes of a shipyard that was reborn.

More than 1,200 workers work on a daily basis in several locations of the shipyard, from the workshop where the steel plates are transformed into blocks, which are outfitted prior to being installed in the graving dock where the vessels take their final shape. The constant noise that is heard throughout the shipyard is a sign of a shipyard that is alive, full of projects and with the desire to make more and better, every day.

Much of this growth is owed to the World Explorer, the first of three polar expedition vessels to be built in Portugal, by West Sea. The World Explorer will be ready to sail with passengers in April 2019 and is the first cruise ship with these characteristics to be entirely made in Portugal. This ship can accommodate 200 passengers and 112 crew members. The polar expedition vessels World Voyager and World Navigator have also started being built, with delivery foreseen for April 2020 and April 2021, respectively.

The World Explorer is equipped with a sophisticated hybrid propulsion system, developed in partnership with Rolls-Royce and will be one of the most high-tech vessels of its class worldwide. These ships can navigate in up to a metre thick icy waters. These vessels will allow luxury cruises and expeditions to the four corners of the world and in far-flung destinations such as Antarctica and the Arctic. Given their manoeuvre ability, they may also visit other areas and ports where big cruise liners cannot enter, which results in an advantage and extra convenience for passengers.

## ABOUT THE POLAR VESSELS



Polar Expedition vessels, Ice Class of the EXPLORER series, are prepared to navigate in icy waters with up to a metre thick ice and will make luxury cruises and expeditions to the four corners of the world and distant destinations such as Antarctica and the Arctic. With capacity for 200 passengers and 112 crew members, these vessels were designed to visit smaller ports and ports closer to the historic centres of cities, unlike what happens with the big cruise liners, offering new experiences and ports in places such as the Mediterranean, the Baltic, Greenland and the Norwegian Fjords.

“They are vessels that were created and designed in detail to offer a truly luxurious and adventure experience to their passengers. Not only in extreme comfort and with a gourmet service on board, but also with the possibility of visiting the most exclusive ports and navigating to the centre of points of interest and no to have to dock dozens of kilometres away from them,” states Mário Ferreira, CEO of Mystic Cruises.

Also designed to be eco-friendly, the Mystic Cruises' vessels of the Explorer series were developed to present a smaller ecological footprint. With the possibility of cruises in some of the purest and most beautiful regions in the world, it is essential to minimise the environmental impact. Together with Rolls-Royce, it was possible to integrate

an ultra-sophisticated hybrid propulsion system that dramatically reduces fuel consumption and emissions, also incorporating a dynamic positioning system where there is no need for the use of anchors, thus protecting the bottom of the sea.

The World Explorer is classified by the Classification Society Bureau-Veritas, and presents the following Class Characteristics:

1 ✱ HULL, ✱ MACH, Passenger Ship, Polar Cat C, ✱ AUT ✱ UMS, COMF NOISE 2/COMFVIB 2, CLEANSHIP, INWATERSURVEY. ICE CLASS IB, Unrestricted navigation.

The Polar C Category is a category that includes any vessel that operates in polar waters, and authorises vessels to navigate in open waters not covered by ice, or with thin layers of ice, and do not necessarily need to be strengthened for ice.

The Certificate of Polar Vessel (Polar Ship Certificate) is the confirmation that the ship meets all regulations required by the Polar Code, and is attributed by the Flag Authority and the Classification Society after an inspection in which all requirements were verified.



THE INNOVATIVE HYBRID PROPULSION SYSTEM



**Hybrid Shaft Generators** – the two HSGs are the vessel's primary sources of energy. The HSGs allow energy flow to the ship in all modes of operation, even when the propeller isn't on. The HSGs can work both as engines and as generators.

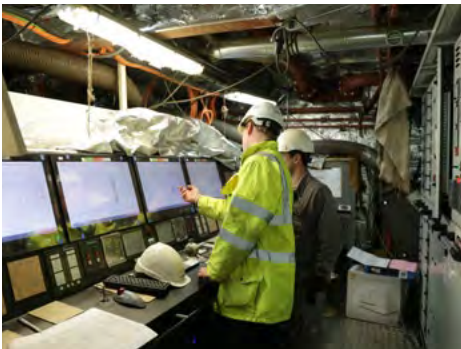
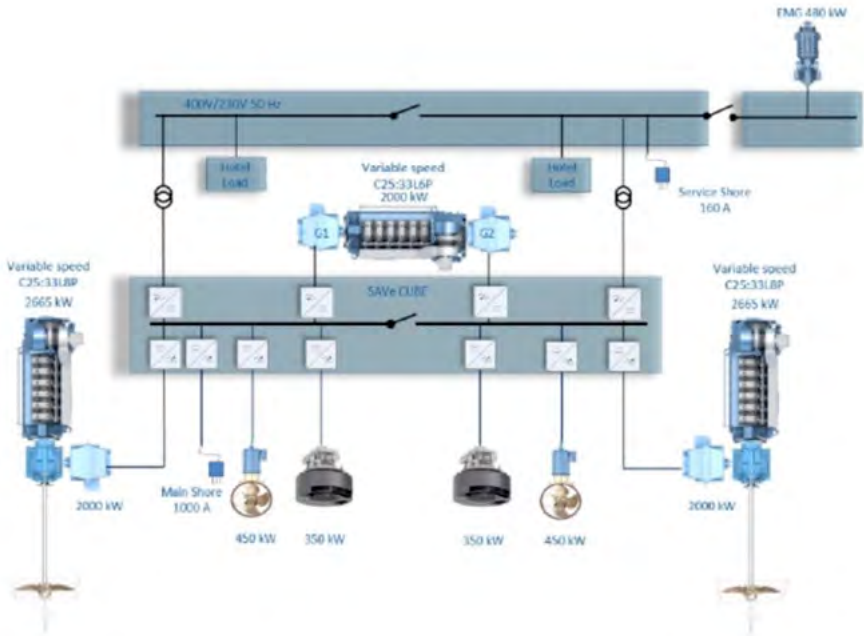
**Dual Generator System** – The auxiliary power system is a 'Dual Generator System' (DGS). The DGS consists in a diesel engine of 2000 kW MCR coupled to two 950 kW generators. The converters connect the generators to each of the SAVe Cube parts.

**Main Propulsion System** – the main propulsion system consists of two controllable pitch propellers (CPP) each one of them connected to a gearbox, which in turn is powered

by each of the main engines (Bergen C25:33L8P 2665kW). The power supplied by the engines, in addition to the supply of the propeller, also supplies power to the generators (Hybrid Shaft Generators).

**Tunnel Thrusters** – at the front are two bow thrusters (fixed pitch), 419 kW each. The bow thrusters are electronically controlled through converters connected to the SAVe Cube.

**Pump Jets** – at the rear are two 350 kW Pump Jets. Like the bow thrusters, these are electronically controlled through converters connected to the SAVe Cube.



NEW RIVER VESSELS, MORE EFFICIENT AND LESS POLLUTING

To transform the existing project of river cruise vessels with traditional diesel propulsion systems into hybrid vessels, West Sea carried out a study to identify the technical advantages in the operation of this type of vessels and the necessary changes for the implementation of these modifications.

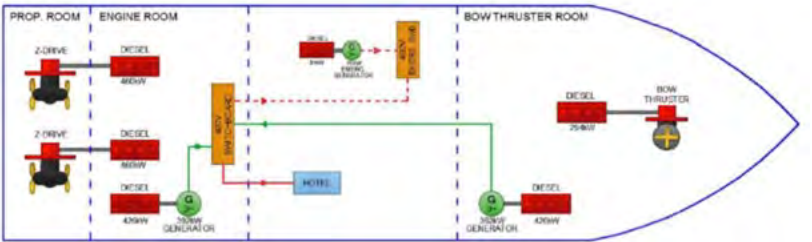
This study has already been applied into the Amadouro and in the A-Rosa Alva vessels, which have an energy storage system, thus significantly reducing the

operating costs and the emission of gaseous pollutants.

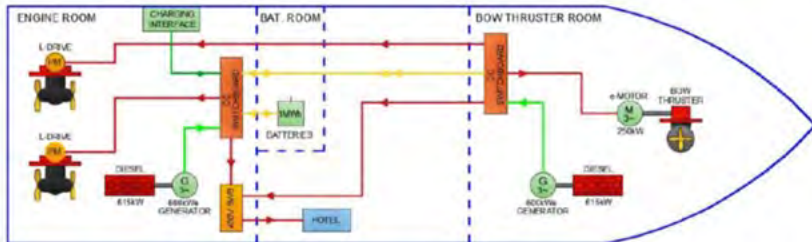
The main improvements are the reduction in the consumption of propulsion equipment and increased energy efficiency.

At the same time, with the changes that are necessary to carry out the evolution to hybrid vessels, a second study was also carried out for subsequent development to fully electrical vessels.

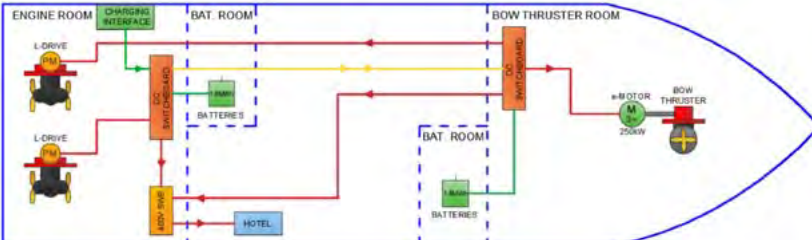
The main improvements are the reduction in the consumption of propulsion equipment and increased energy efficiency.



The architecture of the electrical and propulsive installation of previous Vessels

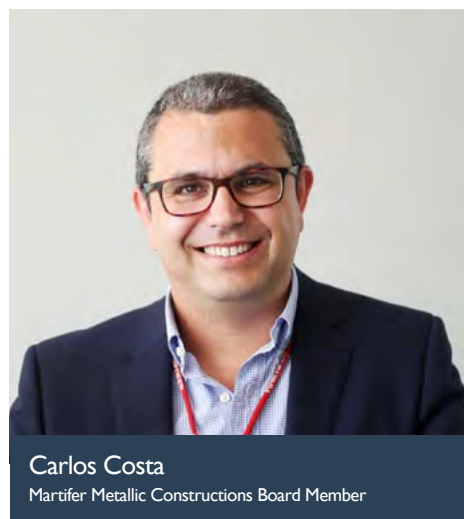


The architecture of the electrical and propulsive installation of a Hybrid Vessel



The architecture of the electrical and propulsive installation of a Full-Electric Vessel





Carlos Costa  
Martifer Metallic Constructions Board Member

“ It is with great satisfaction that I see the civil construction market with growth perspectives in the near future, though moderate. Several projects were started in 2018, that will be concluded this year and in the next. Among these, there is a strong tendency for the construction of residential and commercial buildings in the centre of Europe. After such challenging years for the sector as were the early years of this decade, today we have to be cautious, to reduce the risk and to safeguard the continuity of our activity, regardless of market demand.

”

GENEVA, SWITZERLAND

## DELIVERY OF THE HANDOVER OF GATE 16, ANOTHER MILESTONE IN THE GENEVA AIRPORT PROJECT



Geneva Airport is one of the most important ongoing projects of Martifer Metallic Constructions. Not only because of its size and complexity but also because it is the first project in Switzerland.

This project, which began in 2017, is a long-term project and will be completed in 2020. The fact that it is a project consisting of 7 almost identical modules (7 gates) allowed a greater optimisation of detail engineering, manufacturing and assembling; thus, increasing productivity.

Last February, Martifer Metallic Constructions reached another milestone in this great project, the handover of Gate 16.

All this is only possible with the enormous commitment and spirit of sacrifice of all the teams involved in the different stages of the process, from modelling to manufacture, and also expedition and assembly, in Portugal and Switzerland.

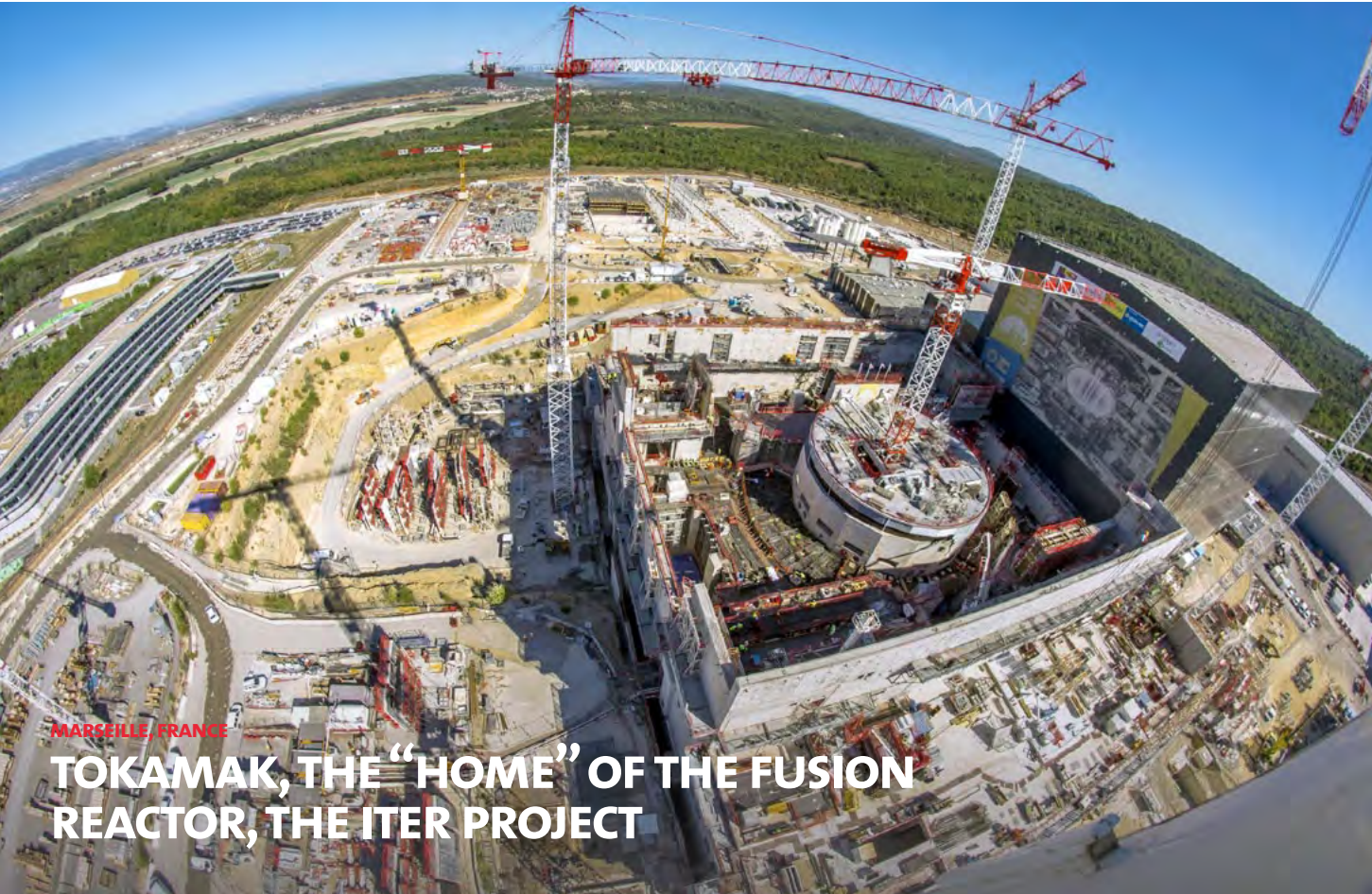
This is what differentiates us and positions us among the best! Even with the adverse weather conditions at this time of the year in Switzerland, we have capable employees, who know how to coordinate the available resources the best possible way, namely Carlos Matos (Construction Manager) and Miguel Pereira (General Foreman), without ever forgetting the teams that they lead. They are the ones who, on a daily basis, are in direct contact with our client (Samuel Cooper). This close relationship allows us to overcome the various obstacles that we have to face, ensuring the satisfaction demonstrated by our client, affirms Claudio Rocha, Production Director.

Currently, we are focused on the assembly of Gate 17, and we are continuing the assembly of Noyaux and Tours d'Escaliers of Gates 17, 18 and 19. Next month we will assemble a new type of structure on site, the Pré-Passerelles. Focused and determined, we will get there!



Vasco Sousa  
Production Manager | Factory  
Alberto Coelho  
Coordination Manager - Big Projects





The ITER project (International Thermonuclear Experimental Reactor) is already familiar to Martifer Metallic Constructions since Martifer has already been responsible for the production and assembly of Buildings 13, 17 and 61. The client's satisfaction of these works led him to, once more, trust Martifer to achieve another challenge of high complexity: the completion of the main building of this project, Building 11.

Martifer is responsible for the dimension works of the metal structure links, for the preparation of all the necessary documentation for the approval and execution of the works, as well as for the production and assembly on-site of all the metal structure of Building 11.

During this last year, Martifer started the production of the metal structure of Building 11, which will be the 'home' of the experimental nuclear fusion reactor, commonly known as Tokamak. This building, in addition to the execution class EXC4, also has to

follow strict nuclear safety, under the supervision of the ASN (Autorité de Sûreté Nucléaire). Due to these two aspects, before the production process began, a set of documentation (approval of manufacturers of material, calculation of links, detailed procedures for carrying out the work, and inspection reports of final products) was prepared and handed to the client for final approval.

Since this is the main building of the ITER project, it has the particularity of having to follow nuclear safety standards. The practical goal of this measure is to have all the documentation available at all times, to evidence that all the quality and safety standards were met during the process.

The building has 20 pillars, weighing

approximately 42.5 tonnes each and each is 24 metres high. These will be protected from the wind by a system of metallic trusses, which subsequently will also connect the track girders for the overhead cranes of 1,500 tonnes and 100 tonnes. Each of these beams (in total they are 20 units of each type - 750 t and 50 t) with a weight of 18 and 5 tonnes respectively have a unique form of connection to the metal structure through a system of bearings and links which guarantee the positioning and necessary adjustment for the correct operation of the overhead cranes (1,500 t and 100 t). After the completion of this building, these beams will work in continuity with the ones already installed and in operation in Building 13, to allow the transport of elements of the nuclear fusion reactor between the two buildings. The roof of the building is a lattice structure and has a beam of 50 metres and a length of 80 metres. Its assembly on-site will be carried out through pre-assembled modules on the ground. Due to the topography of the interior of the building, where the nuclear fusion reactor is, it is not possible to perform the pre-assembly on the ground and elevate it in a single go as was done in Building 13.

Currently, the ITER project is at full speed in what concerns production. We are in a phase where the design issues approach a closing, as well as the

approval of all the documentation. The main focus is on the production of the final components that will be assembled on-site to give shape the 'home' of this new experimental fusion reactor. By the end of April, all of the main metal structure will be produced, and the works on-site will begin uninterruptedly afterwards. These works have to be very well planned with all persons on-site to avoid overlapping of work in the same area, given that multiple tasks are being carried out close to each other. Excellent planning and organisation are necessary.





NANTERRE, FRANCE

## VINCI - NEW HEADQUARTERS, BUILDING A



Vinci awarded Martifer Metallic Constructions the execution of a total of 7,680 sqm of façades and cladding of Building A, the future headquarters of Vinci, in Nanterre.

Architecture by Jean Paul Viguier and Marc Mimram, the complex will consist of 4 new buildings along Boulevard de la Défense, designated Building A, B1,



B2 and C. Martifer is responsible for Building A. The north of the complex has views over the railway tracks of the SNCF. Building A integrates the EOLE station and it also has commercial areas on the ground floor.

Martifer's intervention consists of 1,580 sqm of frames, 2,300 sqm of curtain façade, 2,000 sqm of aluminium

plate coating, 1,800 sqm of coating in extruded profile and 170 linear metres of safety rails in glass and lacquered steel. The frames to integrate into the southern elevation include 100% autonomous spans in concealment "Fenêtre Horizon". Here, the frame is composed of electrochromic glass and a spandrel in a photovoltaic panel to power the electrochromic glass, which can subsequently be managed in opacity/ concealment by remote control.

This construction will be doubly certified: HQE and BREEAM - excellent level.

Currently, all the technical studies and the assembly of the prototype on-site are being carried out. After the production phase, the work on-site is foreseen to start at the end of the year 2019.

PARIS, FRANCE

## THE STORIES BUILDING

Martifer Metallic Constructions will be responsible for the aluminium and glass façades and the cladding of the building Stories, in Paris, France, totalling over 39,000 sqm. The Client is Bateg-Vinci Construction and architecture is by Chartier Dalix. The project involves the construction of a commercial building of 7 floors (64,500 sqm), which will include areas for restaurants, terraces, a business centre and parking.

The main technical challenges of the project include the adaptation of a Schuco modular system to the structural and architectural requirements and the finishings in anodised bright bronze aluminium. The logistics and planning of the project are also significant challenges that we have to deal with.

The planning of the project requires the presentation of two prototypes, so there is little time for the



definition of the systems and their preparation. These are fundamental for the beginning of manufacture and, consequently, for the assembly, which should occur between October 2019 and June 2020.

Regarding logistics, in addition to the manufacture/ treatment management that we will carry out with different

suppliers, we hope to be able to deliver an average of 150 modules per week on-site, equivalent to 10 trucks (excluding other types of façades). We are at the stage of definition of different systems and preparation of visual prototypes and the final prototype (with the main types of façade) to submit by the end of the first half of 2019.

PARIS, FRANCE

## PARIS EXPO PORTES DE VERSAILLES

TWO PROJECTS IN ONE COMPLEX THAT BRING TO PARIS 6 MILLION VISITORS PER YEAR

The modernisation of the Viparis complex, Paris Expo Portes de Versailles, is a large-scale project that will go on for 10 years and is divided into 3 main construction phases. The first stage began in 2015 and ended in 2017, the year in which Martifer Metallic Constructions joined the project. In September, Léon Grosse awarded Martifer the metal structure for pavilion 6 and later, in 2018, Martifer also became responsible for the façade work of the two new hotels in the complex.

We are currently assembling and installing the metal structure and the collaborative plate. Regarding the intervention in the hotels, Martifer has already installed more than half of the 594 interior frames.

In February, the development work of the exterior façade began. It includes frames, double skin façade, simple skin façade, coating in VEC silk façade, aluminium composite coating, and guardrails in glass and in lacquered steel.

The Portes de Versailles convention centre is the largest exhibition centre in France and the 7<sup>th</sup> largest in Europe. Annually, it attracts more than 200 exhibitions, conventions and business events and more than 6 million visitors from around the world.





PARIS, FRANCE

MARCEL RIVIÈRE INSTITUTE AND HOSPITAL DENIS FORESTIER,  
RENOVATION OF THE OLDEST COMPLEX OF MGEN GROUP



The MGEN (Marcel Rivière Institute and Denis Forestier Hospital) was throughout 2018 one of the prominent works in France.

Martifer Metallic Constructions has been on-site since 2017 and has done work in the four buildings of the complex. The building SME - Santé Mentale (Mental

Health) was handed over to the client, and some finishings will be completed.

To follow is the assembly of the façades of the restaurant, the gym and the entry to the SSR (Soins de Suite et de Réadaptation), a building of post-treatment care and rehabilitation. This will also include the assembly of glass and the application

of EPDM screen on the building where the restaurant is, the assembling of parts of moorings in the building where the gym is and the assembly of the perforated plates in the roof of the EMS 2 - Santé mentale (Mental Health).

Later, we will start assembling the epines in the restaurant, in the gym and in the entrance of SSR, as well as the assembly of all the perforated plate of the building EHPAD - Établissement d'Hébergement pour Personnes Âgées Dépendantes (Accommodation for dependent elderly) and of the SSR - Soins de Suite et de Réadaptation (post-treatment care and rehabilitation).

The renovation of this complex, the oldest of MGEN Group (which has 33 health facilities in France) will allow the treatment of mental illnesses, as well as the assistance of older adults.

MADRID, SPAIN

CASTELLANA 163, ANOTHER RENOVATION IN THE CITY OF MADRID

Despite a difficult start because of the complex logistics of the project, Martifer Metallic Constructions advances in the renovation of the façade of the building Castellana 163 in Madrid, owned by Colonial Real Estate. With an already demonstrated experience in recent years, Martifer continues to renovate emblematic buildings in Madrid. Acting as the general contractor, facing the difficulty of many restrictions regarding logistics and assembly, this beautiful design by the architectural studio Galán Lubascher advised by ENAR as a façade consultant and all of the project managed by JLL as Project Manager begins to take shape. The new façade is becoming more attractive. The best materials are being used, bringing more brightness, acoustic comfort and



well-being for its users. Finally, it is also important to highlight that this project also includes a night lighting system, which will make the building stand out,



even more, when it is finished. This system was projected by the specialist Ignacio Valero.

MADRID, SPAIN

HELIOS, AN ARCHITECTURAL ICON



Martifer Metallic Constructions, together with Proinller, is completing the office complex Helios at Vía de los Poblados I (Madrid). Managed by Therus Invest, designed by architects Fenwick Iribarren and with façade consulting by ARUP, these two new independent buildings, but at the same time united in their lower floor, create an ideal place to work for its users.

The façade has a wall in stick curtain, corridors that can be used for maintenance/ cleaning. The main structure of these is in steel and in aluminium which is afterwards coated by composite panel, creating a beautiful contrast between the white of one building and the dark grey of the other.

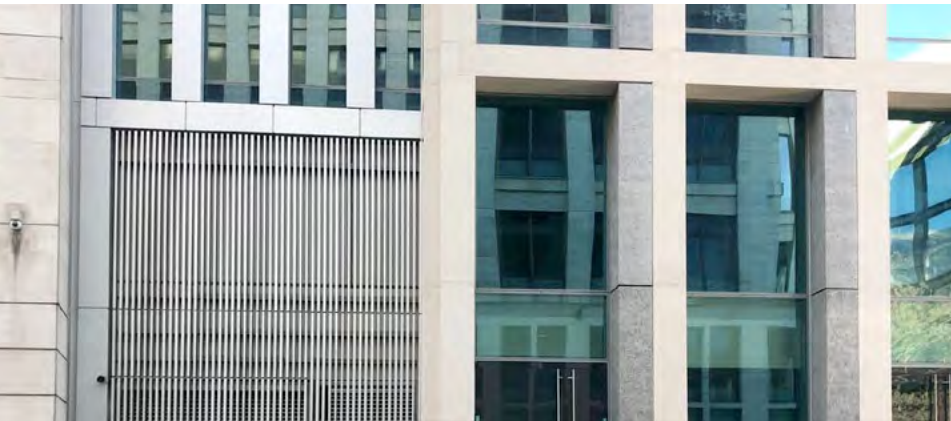
Once more, Martifer is proud to collaborate with this great team in the development of architectural icons in the city of Madrid.





LONDON, UNITED KINGDOM

# 55 GRESHAM STREET, THE RENOVATION OF A BUILDING WITH A HISTORIC INSPIRATION



It is a major office refurbishment of an existing eight-storey office block in the heart of the City of London.

The new scheme features a new level entrance and reception, with remodelled cores and new building services. The building now features new façades facing the South, the West and the North, with an additional 9-storey pavilion.

Located approximately 100 metres from the Guildhall of England, the site is equidistant between Cheapside and London Wall. It occupies a prominent corner on the North-east junction.

The unitized façade design consists of a three-dimensional composite stone masonry grid, forming the backdrop for a series of metal and glass infill elements. The grid is more deeply inset where it

marks the reception, on the ground and on the first level on Gresham Street and adapted a unitized curtain wall. Also, 55 Gresham St is located near the grounds of the largest group of Romano-British roundhouses excavated in London.

Evidence of glass bead-making and rare glass display vessels reveal that artisans once occupied the area at the margins of the then newly-established town.

History of elements incorporated on build up unitized façade:

- Glass Reinforced Concrete - The masonry grid consists of composite stone panels, tying the building to its immediate built context;
- Textural Glass – The discovery of artisan, Roman glass inspired the choice

of textured glass infill elements on the main façade. The glass highlights the south-west corner, marking the main to the building;

- Cast Aluminium – The history of metal craftsmanship in the area has inspired the casting of aluminium infill panels. Crafted in a British foundry using traditional techniques, they create a contemporary aesthetic steeped in tradition;
- A handful of cast grasshoppers have been cast into the aluminium infills on the façade of 55 Gresham Street. They embed the building's identity within the local context, both on a material and symbolic level.

Martifer designed (and tested) these bespoke elements to be incorporated in a certified façade according to British Building Regulations and Relevant Standards. All of the construction and build up were done adjacent in the busiest streets in London and all daily works were carried out to rule out potential risk to the public.



LONDON, UNITED KINGDOM

# WEST END GATE, A PROJECT WITH GREAT CHALLENGES

“ West End Gate is one of the examples where building safely and with quality is what we are most proud of. ”

Daniel Machado  
Production Manager | Façades



West End Gate is a mixed-use development by Berkeley on Edgware Road in London where Martifer's intervention consists of the execution of the entire exterior envelope of the tower with 30 floors, a total of 130 m from the Ground floor to the roof.

With a total area of 24,300 sqm, the works include the production and assembly of: 12,550 sqm of unitised façade of which 7,800 sqm with GRC (Glass Fiber Reinforced Concrete) cladding, 2,160 sqm of window frames and 6,200 sqm of lacquered aluminium coatings aluminium panels for the balconies

(walls and ceilings), 4,350 sqm of SFS (Secondary Frame System), 1,850 sqm of waterproofing/ pavements on the balconies. For the roof, the works consist of 1,295 sqm of waterproofing/floorings and the production and assembly of 223 sqm of Z-shaped aluminium grids.

Martifer is currently completing up to level 6 unitized façade which includes internal works.

This project is planned to be completed by the end of 2020.





LONDON, UNITED KINGDOM

LONDON DOCK, ONE OF THE HARDEST FAÇADES TO DATE



London Dock-building B1 is a high profile residential building with 26 stories high (approximately 100 m high) is situated in a very privileged area of London, just minutes away from the Tower Bridge, St. Katharine Docks and the City of London.

Martifer scope entails the design, fabrication, supply, and installation of 7.600 sqm of bespoke unitised façade with the integration

of windows and GRC, 2.500 sqm of curtain walling, 270 sqm of canopies, 270 m of glass balustrades, 620 sqm of stone and installation of bolt-on balconies.

A particularity of this project and an engineering challenge to Martifer will be the 735 sqm of Glass Fins which are a key architectural feature of the building. Probably the most difficult Façade built that Martifer

has designed and installed up to date.

Martifer is currently working to get the Design principle approval with all the consultants involved – Warranty Provider; St. Georges and Building Control.

This project is planned to be completed early 2021.

LONDON, UNITED KINGDOM

KENSINGTON ROW 2, LUXURY RESIDENCES IN A NOBLE AREA OF LONDON

Martifer Metallic Constructions won the contract for the execution of the complete envelope (8,350 sqm) on the façade of Blocks E and H of Phase 2 of the Kensington Row project. This award confirms the confidence of St. Edwards and Berkeley Group in Martifer. In 2016, Martifer had successfully completed the envelope of the project 375 Kensington High Street for this same client, located in the same area.

The project includes two luxury residential buildings with 10 floors each, located in the much sought after area of Kensington, close to the renowned Olympia exhibition centre and the London Design Museum.

Martifer's works include the design,



procurement, manufacturing, supply and assembly of the full envelope, including 800 sqm of frames, 2,250 sqm of curtain

façade, 200 sqm of blades, 5,100 sqm of stone, glass guardrails, exterior ceilings, exterior downspouts, among others.

LONDON, UNITED KINGDOM

ROYAL WHARF - PHASE 2, A FAÇADE THAT CANNOT BE IGNORED

Martifer Metallic Constructions is responsible for the execution of the works on the façades of two buildings in the residential complex of Royal Wharf in East London. After the completion of the work in Phase 1, which included Plots 8 and 10, Martifer began working on Phase 2, firstly in Plot 15 and later in Plot 12. It is estimated that the works be completed at the end of 2019, leaving only minor works to be made, given the delicate sequence of tasks that needs extreme coordination between the companies involved.

Plot 15 is located on the bank of the Thames River, and it is easy to identify it given its peculiar architecture. The balconies of triangular shape stand out in the façade, lined by elements of terracotta that cannot be ignored by anyone who crosses the Thames.

The balconies of the building are coated in 3 mm thick aluminium plate and lacquered. These elements have proved to be a great challenge for all areas of Martifer involved in the project. The responsible preparation/ technical

department found in the balconies the greatest challenge of the entire project, having to modulate tridimensionally and individually 50 balconies of the building, constituting a total area of 3,000 sqm of plate and more than 5,000 elements with different references.

The façade is a “rain screen” system with terracotta finishes in 3 different colours. Martifer is responsible for the installation of the waterproof system, support and isolation of the façade, as well as the supply and installation of the terracotta.

The coordination of work among those involved is crucial in this project. The interconnection between elements is so high that the progress of work is always dependent on others. The works have to always follow the same sequence, and it cannot be changed.

On-site, in addition to coordination, logistics is also proving to be a major challenge given the immense amount of plate elements to install and the fragility of the terracotta, limiting mobility and

manoeuvrability.

Plot 12 is still in the initial phase. Martifer Metallic Constructions has already started the waterproof works on the exterior walls of the building.

Martifer is also responsible for the “rain screen” system of the façade of this building that includes elements in “cassette plate”, 3 mm thick and lacquered.

The challenges expected for this building are nothing like those faced in Plot 15. This building has a more linear and transverse architecture in its 13 floors. The greatest obstacle to the installation of our system is the necessary coordination of the work sequence of the various companies involved.





LISBON, PORTUGAL

HOSPITAL DA LUZ AT THE FINAL STAGE OF ASSEMBLY



Having as client the consortium Mota Engil - HCI, Martifer is responsible for supplying and assembling more than 12,500 sqm of curtain façade, frames, shades and fire prevention spans and



2,776 linear metres of aluminium for the pillars.

The assembly works last since March 2018, and they are expected to be

completed by the end of March 2019.

Currently, Martifer is working on several fronts, including the assembly of interior and exterior frames, skylights, shades, ventilation grilles, pillars covered in composite (728 units), glass guardrails, coatings and glass assembly, which is almost complete.

Hospital da Luz in Lisbon is next to the Luz Stadium and the Colombo Shopping Centre. This expansion will allow an 80% increase in its capacity.

PORTO, PORTUGAL

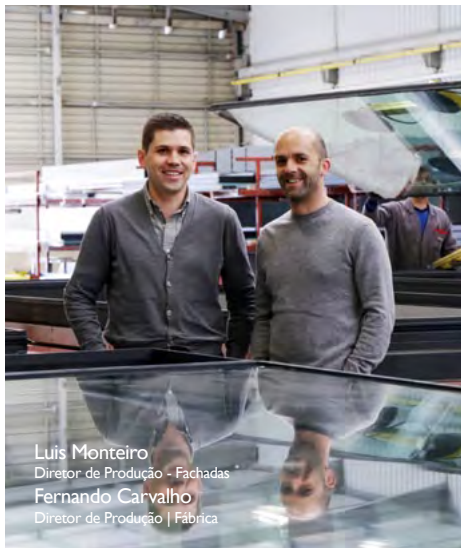
POP - PORTO OFFICE PARK, START OF THE ASSEMBLY OF THE MODULAR FAÇADE

Porto Office Park (POP) is a joint venture promoted by Violas Ferreira group and it includes two office buildings, each with nine floors above ground, corresponding to an area of more than 30,000 sqm, and also a building with a restaurant and a gym. It is expected to be completed in October 2019.

high (each module is 6.7 m high). Having as client Mota Engil, Martifer is responsible for the design and execution of the project (design and development of the technical and construction solution, manufacture and assembly).

Martifer is responsible for the supply and assembly of 14,300 sqm of

modular façade, 1,200 sqm of curtain façade, 1,000 sqm of concealment blades and the assembly of 3,200 linear metres of fire fringes to seal floors. Assembly works have just started. The first module was assembled in March. The production of the modules began in February 2019 at the Oliveira de Frades plant.



Luis Monteiro  
Diretor de Produção - Fachadas  
Fernando Carvalho  
Diretor de Produção | Fábrica



POP is located at Avenida Sidónio Pais, near the Boavista roundabout and the Casa da Música, and will strengthen the provision of offices in the city. POP will offer future occupants a space that responds to the current market needs and which can be customised to the specific needs of each company.

It is a pioneer project for Martifer Metallic Constructions because it is the first time that we are making Modular Façade with double height - each module 8.4 m high, covering two floors, with the exception of the ground floor where the modules are only one floor

SINES, PORTUGAL

SINES REFINERY, THE LARGEST INDUSTRIAL MAINTENANCE CONTRACT IN PORTUGAL

Sines Refinery has been in operation since 1978, and is one of the largest in Europe, with a distillation capacity of 10.9 million tonnes per year, or 220 thousand barrels per day.

This strategic industrial unit, very important for the country's economic activity, is strategically located in Sines, 150 kilometres south of Lisbon, in the most bustling world route of oil tankers: the port of Sines. It occupies an area of 320 hectares, with a storage capacity of 3 billion cubic meters, of which 1.5 million of crude and the rest of intermediate and final products, like gas, gasoline, diesel, etc.. The refinery has 34 processing units.

The global maintenance contract for the refinery was awarded to Martifer Metallic Constructions in February 2018, for a period of 3 years. During 2018 Martifer was responsible for 3 scheduled stops: Vacuum visbreaker - Factory II, cogeneration (Turbine II) and fluid catalytic cracking (FCC) - Factory II.



HIGHLIGHTS:

- We had 392,839 hH
- We carried out 15,534 programmed work orders + stop orders
- We reached an average monthly execution rate of 97%
- We reached an execution rate of systematic preventive orders of 99%
- The emergencies and urgencies of the refinery remained below 5% of the annual average
- We had an average of 260 collaborators present on a daily basis at the refinery
- We had zero accidents



The first year of this project and our client's (GALP) confidence in our work should be noted. It is an example of our capacity to overcome great challenges. Even being a new area within the business segment of metallic constructions, in a short period of time we formed a capable management team and we mobilised the necessary resources to run a large demanding contract in one of the largest refineries in Europe.

This project will strengthen our selective approach to growth opportunities and we have the ambition to gain dimension within the activity of the Oil & Gas and to be awarded new projects in the future.



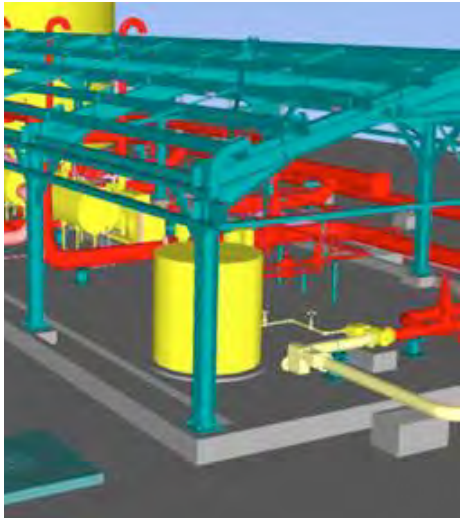
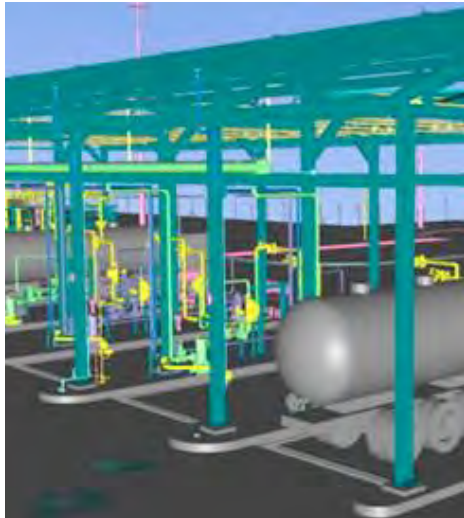
BEIRA, MOZAMBIQUE

GALP’S TERMINAL FOR THE STORAGE OF BULK LIQUID

At the end of 2018, Martifer-Visabeira S.A. was awarded the “Piping & Mechanical Works for the Beira Oil Storage Terminal project” in Mozambique, whose owner is IPG-Galp Beira Terminal Lda.. Martifer Group, through its subsidiary in Mozambique, takes another important step in the Oil & Gas industry.

Thus, Martifer group, once again with Galp, undertakes the commitment to create a sustainable relationship to promote and foster other projects of mutual interest between both parties. Martifer also wants to demonstrate its mobilisation, technologic, and innovation capacities and social responsibility that has distinguished us from competitors, making our clients recommend our products and services.

Since November 2018, much back-office work was done such as the elaboration of all the working and preparation procedures. A new management team was mobilised, mainly dedicated to this project. A temporary plant was installed in Beira, Mozambique, for the execution of the pre-manufacture of piping, leaving



our factory in Nacala to produce the project's complementary metallic constructions. For this, the old factory of electrical cables of Celmoque was used. We dismantled and adapted it to be able to start the pre-manufacture of piping in these facilities which are 13 minutes distance from the building site and, therefore, with obvious advantages in what concerns logistics.

The piping and equipment work to be carried out includes the entire piping process installation and fire

fighting system, a total of about 40,000 inches, including the installation and commissioning of all process equipment, such as pumps for filling the terminal, the bays to load trucks, etc..

The work has an overall progress of about 15%, where the pre-manufacture of piping is already more than 30% of the work done and the metallic structures and supports are approximately 5% (pre-manufacture).

LUANDA, ANGOLA

EMBALVIDRO - GLASS PRODUCTION PLANT IN LUANDA

Martifer Construções was responsible for the delivery of 805 t of structures and 25,886 sqm of metal coating and frames for this glass production plant in Angola.

The work proved to be a challenge due to the complexity of the connections of the metal pillars of the warehouse (phase 1). Tubular pillars with plate connections and the pillars had to be done in stages. PRS pillars with variable sections were executed in the same way. The project relied on rigorous planning and quality assurance.

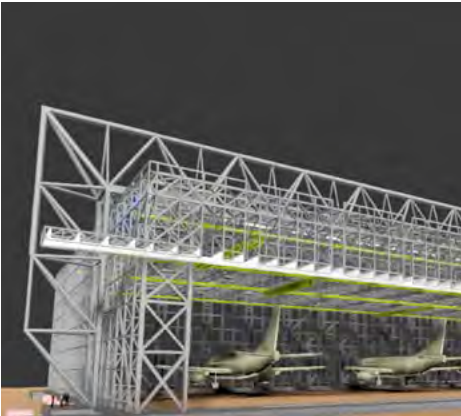


BOUFARIK, ALGERIA

THE MAIN GANTRY OF THE MILITARY AIRCRAFT MAINTENANCE HANGAR IN BOUFARIK

This project includes the supply, production and assembly of the main gantry that will hold the roof of a large hangar for military aircraft maintenance to be built in the province of Boufarik - Algeria. The owner of the project is the Algerian Ministry of National Defense, and Batimetal is our client. Batimetal is simultaneously the Algerian public company with the greatest shareholder capital in Martimetal.

The structural design of the metal gantry is based on a large truss with three cords at a height exceeding 10 m. The gantry reaches 45 metres in height, and the span is greater than 180 m. It will support the roof and the front gate of the hangar, which will be built later under the gantry. The specifications of the project include compliance with the requirements of EN1090 for the



execution class EXC4, including additional requirements. The metal structure of the gantry totals approximately 1,800 tonnes, and in a future phase, it shall bear the weight of approximately 4,000 tonnes of the roof of the hangar. The recommended

assembly methodology includes a heavy lifting operation of the approximately 1,000 tonnes of the main beam of the gantry.

The project is currently under production.

CONSTANTINE, ALGERIA

CONSTANTINE’S UNDERGROUND VIADUCTS



This project includes the supply, manufacture and assembly of two railway viaducts included in the Tramway project of the city of Constantine in Algeria. The project owner is the public company responsible for the management of underground infrastructures in the country, Metro d'Alger. Our client is COSIDER Ouvrages d'Art, also a public construction company.

The viaduct “Sortie Zouaghi” has a total length of 120 metres, spans of 60 metres and features a curved longitudinal profile with a section width totalling 14 metres. The technical specifications include compliance with the requirements of EN1090 in all phases of the project.

The project is finished and is ready for operation and service.

The viaduct “Auto-Route Est-Oest” goes over the Est-Oest highway, which crosses the whole country from east to west in the city of Constantine. The structural design is based on a metallic arc solution that supports the joint area on which the carriages will travel. It has a total length of 100 metres with a span of 75 metres and is 14 metres wide. The technical specifications include compliance with the requirements of EN1090 in all phases of the project. During the assembly phase, the project demanded the closing of part of the highway. The objective was to keep an uninterrupted flow of traffic both ways.

The works by Martimetal are concluded and the project is now ready to receive the installation of the ballast and rails.



RIYADH, SAUDI ARABIA

AL FAISALIAH SHOPPING CENTRE, A FAÇADE WITH CONTEMPORARY DESIGN AND GEOMETRIC ARCHITECTURE

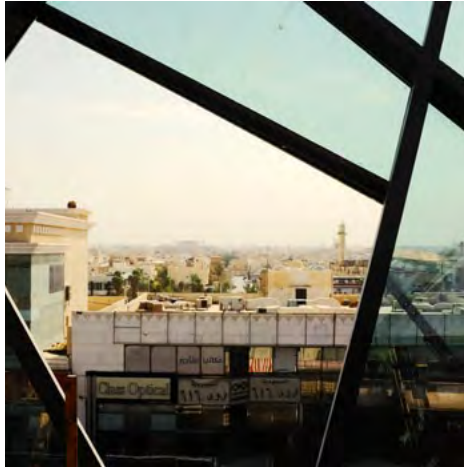


Al Khozama is the client and the general contractor. Martifer Metallic Constructions is approaching completion of the renovation of the façade of the Al Faisaliah Shopping Centre.

This project, which is distinguished by its contemporary design and geometric architecture, is part of the Al Faisaliah Tower, the most emblematic tower of the city of Riyadh, the capital of Saudi Arabia.

The façade overlooking Olaya, one of the busiest avenues of the city, has a system developed specifically for this project by Martifer together with Technal that includes around 290 tonnes of steel with 2,300 sqm of glass and aluminium.

Martifer's intervention also included the assembly of 2,000 sqm of collaborative plate, 4,000 sqm of aluminium composite panel and 150 sqm of natural stone.



BOUAKÉ, IVORY COAST

LA PAIX STADIUM IN BOUAKÉ

Integrated in CAN 2021, La Paix Stadium in Bouaké (the second largest city of the Ivory Coast) will increase its capacity from 25,000 to 40,000 seats.

Martifer Metallic Constructions was contracted for the elaboration of the project and construction of the roof of the stadium (metallic structure and coating). The solution developed by Martifer includes a set of 52 trusses in console with approximately 40 metres, connected by the exterior to the new reinforced concrete pillars through beams with approximately 10 metres and linkages with approximately 22 metres. The total area of the roof is 25,000 sqm.

Together with Quadrante, we are at the stage of development of the execution project to



be delivered in the first half of 2019.

The production will be done in the middle of this year and the assembly shall take place next year, with the completion of all works by December 2020. The reconstruction works began in January this year.



GAROUA, REPUBLIC OF CAMEROON

RENOVATION AND EXPANSION OF THE ROUMDÉ-ADJIA STADIUM AND OUTBUILDINGS

The renovation of the Roumdé-Adjia Stadium is near completion. Martifer Metallic Constructions manufactured and supplied 374 t and 6,800 sqm of structure and finishing material for the construction of the roofs of the main stadium and the Training Field of the Garoua Sports Complex. Architecture by Risco and the other specialities by Tal Projecto.

The structural solution of the main stadium has truss girders made in tubes, directly supported in the stands of the stadium or in V-shaped metal pillars that give shape to the geometry in fan shape of the roof of the console of up to 35 metres. For the construction of the roof, 3,400 unique pieces of metal structure were manufactured and sent to Garoua, in addition to all the necessary material to finish the roof. The roof also features a pathway which allows access to technical areas.

The Training Field has a roof made with beams built from metal plates and the

coating is in sandwich panel.


36 maritime containers were needed to send most of the material to the site, transported by vessels between the Leixões port and the Douala port.

The assembly works started in December 2018 under the technical supervision of Martifer and are expected to be concluded in March 2019.






**BAD A CHEO**  
**UNITED KINGDOM**  
no. of towers: 13  
Each wind tower has 3 sections, 2 cylindrical sections with a 4.00 m diameter and 1 conical section, which ends with a 2.95 m diameter. Each tower is 64 m high and the 13 towers weigh a total of 1,287 tonnes.




**MAUNÇA II**  
**PORTUGAL**  
no. of towers: 2  
Each wind tower has 4 sections, 2 cylindrical sections with a 4.30 m diameter and 1 cylindrical section with a 2.95 m diameter. Each tower is 100 m high and the 2 towers weigh a total of 354 tonnes.




**DIELSEN EMAX**  
**BELGIUM**  
no. of towers: 1  
The wind tower has 4 sections, 3 cylindrical sections with a 4.30 m diameter and 1 conical section, which ends with a 2.95 m diameter. The tower is 100 m high and weighs 174 tonnes.



**MYNYDD Y GWAIR**  
**UNITED KINGDOM**  
no. of towers: 16  
Each wind tower has 4 sections, 3 cylindrical sections with a 4.30 m diameter and 1 conical section, which ends with a 2.95 m diameter. Each tower is 80 m high and the 2 towers weigh a total of 2,165 tonnes.



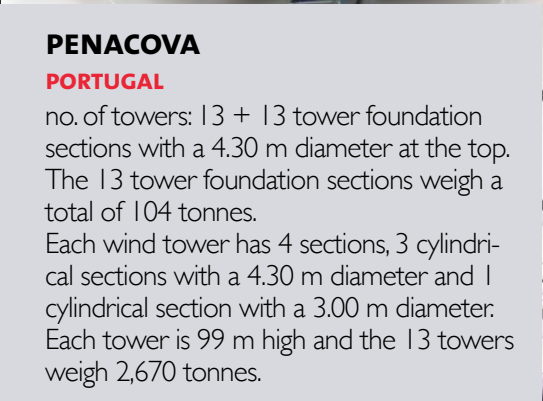
**ACHLACHAN**  
**UNITED KINGDOM**  
no. of towers: 5  
Each wind tower has 3 sections, 2 cylindrical sections with a 4.00 m diameter and 1 conical section, which ends with a 2.95 m diameter. Each tower is 68 m high and the 5 towers weigh a total of 538 tonnes.



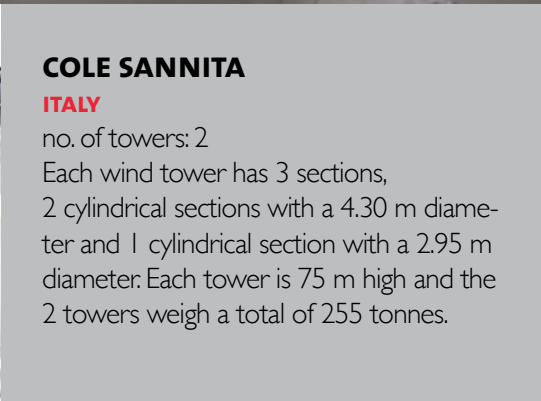
**WEBBEKOM**  
**BELGIUM**  
no. of towers: 1  
Each wind tower has 1 + 5 sections 1 4 m high adapter with a 4.30 m diameter and 5 conical sections, which end with a 3.00 m diameter. The tower is 100 m high and weighs 320 tonnes.




**PENACOVA**  
**PORTUGAL**  
no. of towers: 13 + 13 tower foundation sections with a 4.30 m diameter at the top. The 13 tower foundation sections weigh a total of 104 tonnes. Each wind tower has 4 sections, 3 cylindrical sections with a 4.30 m diameter and 1 cylindrical section with a 3.00 m diameter. Each tower is 99 m high and the 13 towers weigh 2,670 tonnes.



**COLE SANNITA**  
**ITALY**  
no. of towers: 2  
Each wind tower has 3 sections, 2 cylindrical sections with a 4.30 m diameter and 1 cylindrical section with a 2.95 m diameter. Each tower is 75 m high and the 2 towers weigh a total of 255 tonnes.



**EL ARREBOL**  
**CHILE**  
no. of towers: 3  
Each wind tower has 1 + 5 sections 1 adapter 4.00 m high and with a 4.30 m diameter and 5 conical sections, which end with a 3.00 m diameter. Each tower is 110 m high and the 3 towers weigh a total of 900 tonnes.




**VIGIA**  
**PORTUGAL**  
no. of towers: 8 tower foundation sections with a 4.30 m diameter at the top. The 8 tower foundation sections weigh a total of 64 tonnes.



**CHAMP CHARDON**  
**FRANCE**  
no. of towers: 5  
Each wind tower has 4 sections, 3 cylindrical sections with a 4.30 m diameter and 1 cylindrical section with a 2.95 m diameter. Each tower is 100 m high and the 5 towers weigh a total of 870 tonnes.



**GUEHENNO**  
**FRANCE**  
no. of towers: 2  
The wind tower has 4 sections, 3 cylindrical sections with a 4.30 m diameter and 1 conical section, which ends with a 2.95 m diameter. Each tower is 100 m high and the 2 towers weigh 348 tonnes.





IN 2018

# PORTFOLIO OF WIND TOWERS WITH THE PRODUCTION OF THE TALLEST TOWER, 110 METRES

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## THE WEST SEA SHIPYARD IS ONCE AGAIN A REFERENCE WORLDWIDE

Since 2015, West Sea has already built 9 vessels (Viking Osfrid, Scenic Azure, Douro Elegance, Douro Serenity, Scenic Emerald, Douro Splendour, NRP Sines, José Duarte dredger and NRP Setúbal) and repaired and/or retrofitted 175 vessels. Currently, 6 new vessels are being built at West Sea: the polar expedition vessel World Explorer, three hotel-ships to navigate in the Douro River (the Viking Helgrim, the Amadouro and the Arosa) and the polar expedition vessels World Voyager and World Navigator.

West Sea has 350 employees, of which 155 are from the former company ENVC - Estaleiros Navais de Viana do Castelo. Besides West Sea's employees, an average of 850 indirect employees is also at the shipyard daily. They work for subcontractors assigned to the construction, maintenance and repair activities of the shipyard. All together they contribute to making Viana do Castelo one of the most important industrial units of the sector in the Iberian Peninsula.



More than **1,200** workers are at the shipyard daily  
**9** vessels built and 6 under construction  
More than **175** vessels repaired and/or retrofitted since 2014



Vitor Figueiredo  
West Sea Board Member



West Sea is for me a project of which I am very proud. I witnessed its beginning and I have accompanied it until today. One of the major success factors of this project are the people that materialize it daily. People of Viana... People who are working on something exciting and which they like a lot. The daily work fills up a large part of the life of our collaborators and they believe, as much as I do, that they are doing an excellent job..



### ISO 9001:2015 AND OSHAS 18001:2007, THE RESULT OF AN INTEGRATED MANAGEMENT SYSTEM

In March 2015, West Sea initiated the implementation of the IMS - Integrated Management System that aggregates the standards ISO 9001:2015, OHSAS 18001:2007 and ISO 14001:2015.

It is a dynamic system that organises the company's activities, processes, and resources needed to create value and to achieve the goals previously defined by top management together. It is a continuous process. It evolves and develops over time through actions of continuous improvement, implemented in accordance with the PDCA cycle (Plan, Do, Check, Action), which is periodically monitored and assessed, through appropriate Key Performance Indicators (KPIs).



In April 2018 and after a journey of preparation and appropriateness of the Integrated Management System, West Sea obtained certification in ISO 9001:2015 and OHSAS 18001:2007, in the context of shipbuilding, ship repair and ship retrofit, certified by Bureau Veritas Certification. Currently, everything is being done to

achieve the certification ISO 14001:2015. On 6th February, the system was considered ready to be submitted to the certification audit, which will take place between 15th and 18th April 2019, also to be certified by Bureau Veritas Certification.





## SHIPBUILDING

## NRP SINES AND NRP SETÚBAL COMPLETED AND DELIVERED TO THE PORTUGUESE NAVY

The christening ceremony of the Ocean Patrol Vessel NRP Sines (Portuguese Navy) occurred in July 2018 at the West Sea shipyard in Viana do Castelo. Captain Lieutenant Mónica Martins will command the vessel, and its godmother is Fernanda Gonçalves Tadeu. The NRP Sines was the first of two Ocean Patrol Vessels that were built in the shipyard for the Portuguese Navy, as part of the consortium established between West Sea and Edisoft. All the contractual deadlines were all met by the parties.

The ceremony, organized by the Portuguese Navy, included the presence of the Prime Minister António Costa, the Minister of National Defence José Azeredo Lopes, the Chief of Staff of the Navy Admiral António Mendes Calado,

the President of the City Council of Viana do Castelo José Maria Costa and the President of the City Council of Sines Nuno Mascarenhas.

In February 2019, the Christening ceremony of NRP Setúbal was held, and it was presided by the Minister of National Defence João Gomes Cravinho. The godmother of this patrol vessel is Jessica Rachel Hallett, who is married to the Minister of National Defence and researcher at the NOVA University of Lisbon.

NRP Sines and NRP Setúbal are 83 metres long, can travel at speed over 20 miles, have autonomy for over 5,000 miles and a fuel deposit that will last for 14 days at an average speed of 15 knots.

They include supplies for 44 people, and their mission is the supervision of the Portuguese Exclusive Economic Zone.

The Ocean Patrol Vessels are used primarily in non-fighting actions. Their main missions are the safety and authority of the State, and missions of public interest. They are vessels with great ability to operate on high seas and can endure adverse sea conditions and have considerable autonomy, which allows them to stay at sea in mission during long periods without any need for logistical support.



“

We want to continue to create value for everyone who works here, for the region and the country. This shipyard is once again a world reference in this industry.

”

CARLOS MARTINS,  
CHAIRMAN OF  
MARTIFER GROUP



“

We were competent due to the quality of the project and the construction and for having met all the deadlines, the contracted budget and all the requirements and specifications of the Navy. The shipbuilding represented here in this shipyard is alive, strong and capable. Therefore, we are working to be awarded more contracts like this one.

”

CARLOS MARTINS,  
CHAIRMAN OF  
MARTIFER GROUP





SHIPBUILDING

## WORLD EXPLORER, THE FIRST OF THREE POLAR VESSELS IS NEAR COMPLETION

The World Explorer, the first polar expedition vessel to be built in Portugal, is a luxury cruise ship that will navigate in Antarctica. The ship will be 126 metres long and 19 metres breadth.

Its construction took place during the year of 2018. At the end of October, 17 months after the start of the project, it floated for the first time and carried out the first stability tests.

The 2,900 tons of steel floated in a complex operation that took about 20 hours and involved more than 50 people. The Stability Test, as it is known, allowed the determination of the exact position of the centre of gravity of the ship, as well as its light weight. With this data, it was concluded that the vessel will have the expected draughts and will comply with the stability criteria for its safe navigation in the adverse sea conditions for which it was designed. After overcoming this first challenge,

the finishes, interior design and decoration, and all tests are progressing at a good pace to finish the ship and to deliver it to the owner within the stipulated deadline. Therefore, West Sea completes a unique project, which already marks the history of the shipyard and the shipbuilding industry in Portugal.

This new expedition cruise vessel that belongs to Mystic Cruises will have a Portuguese flag and shall be registered in Madeira (International Shipping Register of Madeira). Designed by the Italian naval architect Giuseppe Tringali, it is already almost fully booked for 2019.

### THE WORLD VOYAGER AND THE WORLD NAVIGATOR JOIN THE WORLD EXPLORER

In November 2018, a contract for the construction of two more polar expedition vessels was signed at the West Sea shipyard, having as host Mário

Ferreira, President of Mystic Cruises and Douro Azul.

The two new polar expedition vessels, World Voyager and World Navigator (also Ice Class of the EXPLORER series), are prepared to navigate in arctic waters with up to a metre thick ice, and will make luxury cruises and expeditions to the four corners of the world and to distant destinations such as Antarctica and the Arctic. With a capacity for 200 passengers and 110 crew members, these vessels were designed to visit smaller ports that are closer to the historic city centres, unlike what happens with the large cruise liners, thus offering new experiences and ports in places such as the Mediterranean, the Baltic, Greenland and the Norwegian Fjords.

These new vessels will be delivered in April 2020 and April 2021, respectively.





SHIPBUILDING

THE FIRST DREDGER BUILT AT WEST SEA WAS DELIVERED



In July 2018, the first dredge built by West Sea and the first of its kind built in Portugal was delivered to a Portuguese ship-owner:

This dredger, named José Duarte, is a Trailing Suction Split Hopper Dredge (TSSHD), 73 metres long and 11.4 metres

breadth. This type of vessel has the hull divided longitudinally in a symmetrical manner; in two single-hulls. This feature allows the cargo hold to be opened and closed by a hydraulic system (550 t) and to be unloaded in one go. This suction dredge was a particularly

challenging project for West Sea. Because it is of “Unrestricted Navigation”, a characteristic that allows the vessel to operate throughout the world, this vessel has as a prerequisite the operating zone with very restrictive limitations of the draught, breadth, length and height to be able to operate and go through the locks of the Douro River. In addition to this requirement, it was necessary to comply with a load capacity of more than 1,001 sqm and with a dredging capacity for up to 40 metres deep.

Thanks to West Sea’s engineering capacity, this project was completed, fulfilling all the requirements proposed, having even surpassed the load capacity (1,045/sqm) and navigability capacity. This dredger is the first vessel with this type of technology to be built in Portugal and to have a Portuguese flag.



SHIPBUILDING

HOTEL VESSELS CURRENTLY UNDER CONSTRUCTION

VIKING HELGRIM

79.85 metres long  
11.40 metres breadth  
7.20 metres draught  
The ship will have 53 passenger cabins and 15 cabins for the crew. With engineering design by CMT Engineering LTD, it will be very similar to the project already completed, Viking Osfrid. This new ship will be part of the Viking Cruises fleet, being operated by International Mystic Sales in the Douro River.

AMADOURO

79.85 metres long  
11.40 metres breadth  
The ship will have 63 passenger cabins and 14 cabins for the crew. With engineering design by CMT Engineering LTD, it will be very similar to the project already completed, Douro Splendour. This new vessel will be part of Douro Azul’s fleet.

AROSA

79.85 metres long  
11.40 metres breadth  
The ship will have 63 passenger cabins and 14 cabins for the crew. With engineering design by CMT Engineering LTD, it will be very similar to the project already completed, Douro Splendour. This new vessel will be part of Douro Azul’s fleet.

SHIP REPAIR

PROJECT HIGHLIGHT

Ship repair continues to have a strong presence in the shipyards of the Group. With more than 175 vessels repaired since 2015, the ones repaired in 2018 of note are:

LPG “PHILINE SCHULTE”  
TANKER

Length: 119 m  
Breadth: 17 m  
Client: Bernhard Schulte Shipmanagement Ltd. UK  
- Treatment and painting of the hull  
- General repair of the main engine and the rudder stock  
- Replacement of steel  
- Repair of the LPG storage tank  
- Replacement of several pipes



LPG “STELLA KOSAN”  
TANKER

Length: 120 m  
Breadth: 19.8 m  
Client: J. Lauritzen AS  
- Treatment and painting of the hull  
- Improvement of the main engine  
- Improvement of cargo pumps  
- Replacement of the shaft line seals  
- Replacement of steel (repairs)



MV “AS FATIMA”  
LNG TANKER

Length: 166 m  
Breadth: 25 m  
Client: Ahrenkiel Steamship BV  
- Total blasting and painting of the hull  
- Repair and replacement of the hatch seals of the cargo holds  
- Replacement of steel  
- Repair of several valves  
- Repair of piping in the ballast system







António Castro  
Martifer Renewables Board Member

“ We want to continue to contribute to the consolidation and financial sustainability of the Group. ”



## MARTIFER RENEWABLES

# 440 MW IN O&M ACHIEVED IN 2018

2018 was a year of a strong commitment to the asset rotation policy to make the Group's financial indicators more robust. With this in mind, it was decided to sell some of Martifer Renewables's projects already in operation. For example, the sale of two wind projects held in partnership (SPEE2 and SPEE3), whose sale occurred this year.

In contrast, the Fonte Cova wind project, with 12.6 MW, is in the development phase and the completion of the licensing is scheduled for the last quarter of 2019. The Suzlon turbines that are stored in Oliveira de Frades are expected to be used in this project.

Additionally, the clause of non-competition with Voltaia regarding the sale of Martifer Solar has expired. So, our objective is to resume the development of solar parks in Portugal. It is important to mention that we set off with a significant delay in this business area, so we will strengthen the structure with the recruitment of two new people to be involved in this new challenge.

In Poland, a tender was won in 2018 for a 1 MW solar plant, which is already under construction and it is scheduled to enter the operation phase in May this year. Other tenders are expected to occur in Poland in 2019. Martifer Renewables has two wind projects

of 20 MW and 26 MW and four solar projects ready to participate in the forthcoming tenders. Also in this country, we have reached the milestone of 440 MW in wind asset management for third parties. We intend to study other opportunities in this field in other countries.

South America has also presented some future prospects: in Argentina, it was decided to proceed with the development of a solar project given the strong possibility of contracts being signed for the sale of electricity in the long term and with attractive commercial conditions; and, in Colombia the renewables market continues to be very promising,

although local authorities have not yet clearly defined the policy that they intend to implement for this sector. We maintain in this last market a partnership with MPC Renewables, a German company that participated in the Âncora Project with us.

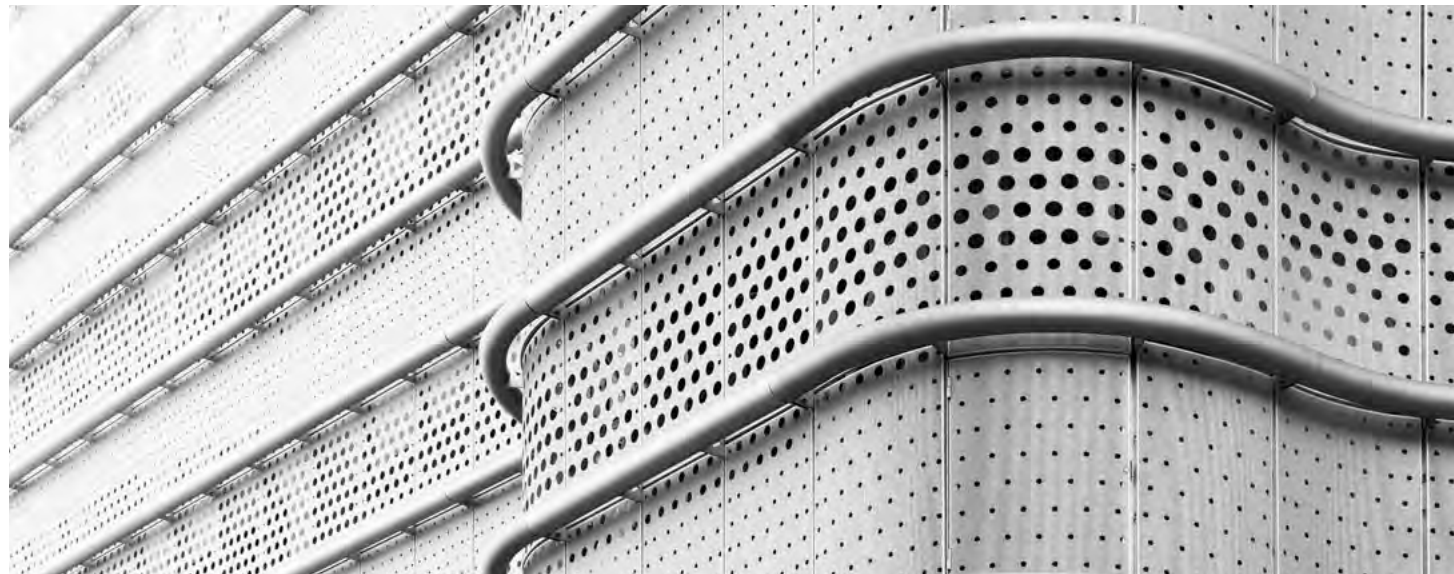
However, in the Middle East and given the credibility of the Martifer Renewables team, one of the major players in the energy sector has requested our support, in partnership, to compete in wind projects in new markets.





## 3RD BAUMIT LIFE CHALLENGE ARCHITECTURE CHALLENGE

# TORRE 30 WINS AWARD



Torre 30 in Madrid won the award for Best Thermal Renovation Project in the 3rd Baunit Life Architecture Challenge.

This building, rehabilitated with a double skin suspended façade, due to its first skin in a SATE system, with a 12-colour nanotechnology coating, has the special feature of during the day showing its

second skin of aluminium perforated sheets and during the night the lighting highlights its colourful pixelized interior.

The uniqueness and complexity of the project demanded the development of new skills in structural welding in aluminium, which was a great challenge for Martifer's team.

The availability and commitment of all intervenients were decisive: from employees who volunteered to learn the aluminium welding technique to the constant support from the welding coordination department.

## MARTIFER CONSTRUÇÕES

# PARTICIPATES IN PROJEKTA

Martifer took part in the third edition of the Angolan Industry Fair - Expo Industry/ Projekta - Public Works and Civil Construction Fair, an event that brought together more than 200 exhibitors from several sectors.

Under the motto "Grow and make Grow", the initiative intends to contribute to the promotion and increase of national production, to encourage business relations, to allow greater interaction, and to respond to the needs of the country in the Industry and Civil Construction sectors.



## SAPA PORTUGAL AWARDS 2018

# MARTIFER DISTINGUISHED WITH INTERNATIONAL AWARD

On 11th May, the Serralves Foundation in Porto was the venue of the 2018 edition of the Sapa Portugal Awards, presented by Cristina Ferreira.

The Sapa Building System 2018 awards presented projects that stood out in the year 2017 in categories as diverse as Shopping Centres, Engineering, Healthcare, School Rehabilitation, Spaces of Public Interest, School Centres, National Hotels, International Hotels, and Residential Spaces.

Martifer was awarded the International Prize, for the work in the Battersea Power Station project.

Sapa Building System develops aluminium solutions for architecture and has been a long-term partner:



## COST ACTION TU1403 - ADAPTIVE FAÇADES NETWORK

# WITH THE PARTICIPATION OF MARTIFER



The Cost Action TU1403 - Adaptive Façades Network was held on 15th and 16th March at the Faculty of Sciences and Technology of the NOVA University Lisbon. The conference aimed to promote the sharing of technical knowledge in the area of adaptive facades, in a European context, creating a stronger connection between research centres and industry.

The Cost Action TU1403 included the participation of 7 speakers of different areas, namely education and research, engineering in industry, and architecture. Martifer's Technical Department

presented the case study of the Auditorium of the Headquarters of Banco Popular in Madrid, under the theme "Structural design of glass façades - highlights from projects".

The Auditorium of Banco Popular has been presented at several conferences due to its demand and its architectural feature - a breathtaking 9.5-metre high glass box.



WITH MARTIFER'S SPONSORSHIP

## VIII INTERNATIONAL CONGRESS ON ARCHITECTURAL ENVELOPES – ICAE



Martifer Group sponsored the 6th International Congress on Architectural Envelopes (ICAE), which took place from 20th to 22nd June in San Sebastian, Spain. The sponsorship of this event was a great opportunity to contact new

Clients and to show the best of what has been done by Martifer Metallic Constructions in recent years.

Martifer's Technical Department presented the challenging project of

the auditorium of the headquarters of Banco Popular in Madrid. This project's special features include its transparency, sustainability, and innovation in the glass façade.

MARTIFER METALLIC CONSTRUCTIONS PARTICIPATES

## IN ZAK WORLD OF FAÇADES, IN LONDON



Martifer Metallic Constructions sponsored the Zak World of Façades 2018 and participated in the discussion panel 'Façade Landscape Evolution'.

The Zak World of Façades is an event that brings together several international conferences on the theme of façade design and engineering.

MARTIFER AT 8TH EDITION OF JECUA - CIVIL ENGINEERING DAYS

## CIVIL ENGINEERING DAYS OF THE UNIVERSITY OF AVEIRO



The Students of Civil Engineering of the Student Association of the University of Aveiro (NEBEC-AUAv) promoted the 8th edition of the Civil Engineering Days – JECUA, from 29th to 31st October.

Martifer is, for the third consecutive year, Gold Sponsor of the event. The event included a series of talks on various topics.

MARTIFER PARTICIPATES IN PORTUGAL STEEL

## “PORTUGAL STEEL BRIDGES” PRIZE FOR THE ABI BAKR BRIDGE PROJECT

On 28th November, Portugal Steel promoted the Steel Talk “Steel Bridges” at the University of Porto. Martifer made a brief presentation on the Abi Bakr Bridge, in Saudi Arabia.

The event, jointly organised by CMM and by the Faculty of Engineering of the

University of Porto, culminated with the award to Martifer of the “National Prize Portugal Bridges Awards 2018” for the participation in the Abi Bakr Bridge project.

This project aims to give visibility and to encourage the creative use of steel

in the construction of bridges. The competition is intended for projects or constructions made by companies that are members of CMM and bridge projects are eligible. The awards are open to metallic structure projects, designed or built by Portuguese companies.





BUREAU VERITAS COMMITTEE 2018

## WEST SEA TAKES PART



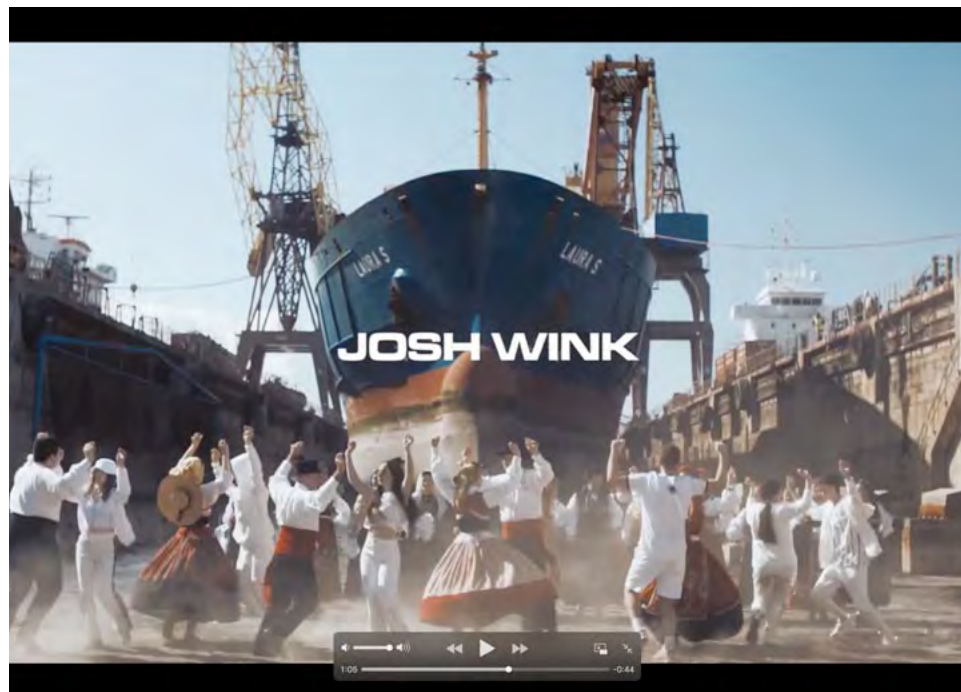
On 10<sup>th</sup> April, West Sea participated in the Bureau Veritas Committee 2018, in Madrid. The company's presentation focused on the theme of "Inland Navigation in the Douro River - Actual Ships and the Future".

Focusing on hybrid and electrical systems, applied to inland vessels, environmental awareness was promoted through current projects under construction and through the company's vision of the future.

West Sea's participation was praised by Bureau Veritas and by all the participants.

NEOPOP - A CITY WITHIN A SHIPYARD

## WEST SEA IS THE BACKDROP FOR PROMOTIONAL ACTIVITY



Neopop is an electronic music festival that takes place in Viana do Castelo, near the Forte de Santiago da Barra, having as backdrop the cranes and the industrial environment of the West Sea shipyard. It has taken place since 2005 and it is currently the largest electronic music festival of the country.

This year, Neopop's marketing campaign visited the shipyard, bringing along the tradition of Viana's folklore and electronic music, in a synergy that is already very familiar to the shipyard: a decade-old history and a renewed energy by the new generations.

The one-day filming resulted in one of Neopop's best promotional videos.

SEATRADE CRUISE MED 2018

## WEST SEA PRESENT IN ONE OF THE MOST IMPORTANT CRUISE FAIRS



West Sea participated in the Seatrade Cruise Med 2018 which was held at FIL - Lisbon Exhibition and Congress Centre on 19<sup>th</sup> and 20<sup>th</sup> September. The company showed its products and services to the most relevant companies in the cruise tourism sector worldwide.

Seatrade Cruise Med is one of the most important cruise fairs in the Mediterranean region and this was the first time that the event took place in the Portuguese capital, within the Portugal Shipping Week activities. FIL was the venue chosen for the event, where many conferences were held under the theme "Sustainable Growth". More than 60 countries and more than 2,500 professionals of the naval industry took part.

The inauguration was attended by the Minister of the Sea Ana Paula Vitorino, the Mayor of the City Council of Lisbon Fernando Medina, and the Secretary of State for Tourism Ana Mendes Godinho.



