

**DAMEN SHIPYARDS GORINCHEM**

# ENGINEERING

**8**

MAART 2014

- P. 1 **ENGINEERS IN GDANSK, POLAND**
- P. 2 **FOREWORD**
- P. 3 **PROJECT: ENGINEERING THE IMPOSSIBLE**
- P. 5 **MEGA TEAM AT MATURITY**
- P. 6 **HVAC TEAM: ENGINE ROOM VENTILATION**
- P. 7 **ENGINEERS ABROAD – POLAND**
- P. 8 **WELCOME ON BOARD**

**DAMEN**

# FOREWORD

## GOOOODMORNING VIETNAAAAM!!

...not the most appropriate line to greet global colleagues, but quite suitable when I go to work, being the Engineering Manager of Damen Song Cam in Vietnam. It is a true pleasure to work for such a fast moving company as Damen, but also to be part of such a remarkable culture together with my family.

In line with the Damen history, our engineering office almost exploded from 8 people in 2010 to the 37 it counts now. Many of us were forced to be an engineer and a trainer for newcomers at the same time. Nevertheless, together with support troops from Holland, an enthusiastic and reliable team of engineers is now in place, which will not stop growing until there are 50 of us.

Expanding that rapidly and being part of such a large organization makes communication essential. Therefore each new engineer that joins our team is obviously drilled in engineering, but more important also in communication and teambuilding. We hope that someday it feels like we are only one door away from our colleagues instead of 8,978 km (I checked in google) and six time zones. That is not an easy task, but the better we do this the more we integrate into the Global Engineering Network. Actually, being part of a shipyard, we even take it one step further and also try to deeply involve the local production. After all, it is not our business to sell drawings, but to sell vessels. In that sense you could say that we are working on being part of the "6000 Employees, one Damen" Family. It makes me have high expectations here, because if there is one thing important to Vietnamese, it's Family!

This Damen Song Cam branch of the family is on a journey and we call our first destination "Shiptype Management". Upon arrival we will carry out the major part of all engineering which is involved with the vessels at our shipyard. The road ahead is long, but we will have pit stops at Quality, Planning, IFS and a few more places. With Gorinchem as a navigation system and a backpack full of enthusiasm we will arrive shortly, and to increase our speed we continuously learn by taking on the challenges along the road. We are ready for it!

As part of the good communication, you find in front of you a new *Engineering Newsletter*. You are probably also on your own journey so I hope that it supports you during the trip. All I would like to say for now is "Enjoy the ride!"

SANDER VOGELAAR – MANAGER ENGINEERING SONG CAM





## ENGINEERING THE IMPOSSIBLE

To the delight of the Damen Bergum's (DSBe) sales team, the "Damen Offshore Carrier 7500", DOC 1 for short, was purchased by the Van Oord group in September 2013 with confirmed delivery in December 2014, approximately a 13 month lead time.

The vessel was designed and sold for unrestricted services as a heavy cargo carrier with its main service for deep sea cable laying and is scheduled for its first job in the North Sea, January 2015. At a Length over all 119m, Beam over all 27.5 m, Build height from base approx. 40m, Draft max. approx. 5.82m, a gross tonnage of approx. 8,637 GT and able to carry a crew of 90 people, it was seen in the beginning by most to be an impossible task because of the time allotted and the consensus was, can it be done?

The build was assigned to Damen Shipyards Galati (DSGa) in Romania which planned to start cutting plates for the construction in October 2013, only one month after signing of the contract. The yard made their building strategy to start with the aft sections first and work their way forward to the bow and in parallel they would build the superstructure for mounting later once the underside hull construction was in their dry dock. This meant that the engineering would have to deliver the first batch of detailed construction drawings within one month. And during the contract phase it was assured to DSGa that the complete engineering package would be delivered by the end of December 2013. The Bergum engineers started the preliminary engineering during the sales phase using their standard vessel design. During this period, it was realized that they would need to subcontract the Basic and Detailed engineering phases. It was then decided to give this job to Engineering O&T in Gorinchem. The main project management, purchasing and logistic would remain in Bergum.

At the beginning of September the handover of the engineering was finalized and a kick-off meeting was held to plan the execution of this time challenging project. The first estimate of man hours required was calculated at 64,000 total and should be completed within a four month period, again the word impossible was heard by many. At this point it was obvious there was an urgent need to meet with the yard and renegotiate for later delivery dates

in order to realistically complete a proper engineering package. After several visits to DSGa to discuss their manufacturing processes and build strategies, Casey Anderson and Frenk van Leersum were able to come to a compromise with the yard and a new planning with split deliveries per section blocks, enabling on time production starts was agreed and accepted. The engineering methodology would have to be, engineer per block in conjunction with the production manufacturing schedules. Complete engineering was now scheduled to be done by April 2014.

In order to make the delivery dates, it was determined that the manpower necessary to accomplish this task would require a team capacity of approximately 35 engineers and designers internally, and that the external team should be as large, if not larger. Since the two Fugro project teams, 556060 and the 556064 detail engineering phase was coming to a close, the call was made to join them together as one team and make a

## PROJECT

subdivision split for the different disciplines, Basic and Detailed engineering. The Basic engineering team was to be led by PME's Giulio Taccheo for Construction (S) and Paul Mulder for the Mechanical (M) side. The Detail engineering team was created with PME's Frenk van Leersum (S) and Roelof Moorlag (M). To head this project for engineering, Willem Kroon (DSBe) was assigned, assisted by Casey Anderson and Frank Swart. For the external teams, Marine Design Engineering Mykolayiv (MDEM) based in the Ukraine was contracted to engineer the aft ship, Marine Engineering Galati (MEGA) with their office located at the yard facilities, would engineer the Engine and Bow thruster rooms and Ship Design Galati (SDG) was contracted for the Superstructure. During the highest work load periods, approximately 80 engineers and designers were contributing their knowledge and expertise to making the delivery milestones a reality.

to be continued on page 4

# PROJECT

Due to the stringent delivery constraints, and newly adapted work methods, it was early understood that this project would not be able to run as a normal project. And that the different disciplines, Design check, Basic and Detail engineering would have to work in parallel instead of with an overlapping transition, finish/start approach, between them. Unfortunately this way of engineering could play a big factor in not being able to keep to our high quality and standards. Another major factor that could be detrimental for proper and on time engineering is the supplier's drawings/information delivery flow. If this is not obtained and controlled properly, or in time in relation to the engineering plan, many revisions will occur which would mean unwarranted modification required during the build, and that could be quite costly.

To be able to combat the overwhelming information flow and to properly communicate/coordinate between DSGo and its subcontractors, four engineers from the DSGo team were assigned to oversee the detailed engineering. David Kirton (M) and Razvan Boijn (S) were assigned to MDEM and on location in Galati stationed at the MEGA office; Marius Bariz (M) and Siebe Ekels (S) have been supervising MEGA and SDG. Bariz and Siebe will also be part of the site team at the yard for the production support phase.

At present, the engineering has delivered all production drawings, approximately 95%, on time as per the planning and is scheduled to finalize by the end of April 2014. Because of the situation of

David Kirton, Marius Bariz and Casey Anderson give the entire team Thumbs-up.

**We Can Do The Impossible!!!**



Team Motto that hangs on the wall at the Engineering department

having to detail at the same time still working on the basic engineering, this has resulted in a large (more than the norm) amount of revisions to the original design. But we are currently tackling them one at a time and trying to implement them to the drawings just in time for production to implement without having to scrap already produced materials.

To conclude, when this project was handed over to Engineering O&T, the word was, "impossible it can't be done in that time frame" but due to the perseverance, contribution and over all team work, it's being done. When we started this project, our own Frenk van Leesum came up with our team motto, "We can do the impossible" for which I can tell you at that time was a lot of skepticism, but now there is only optimism. To all the people (you) who have worked on all engineering phases, I can only say, well done and that you can be proud to able to say, I worked on the DOC 1 project!

CASEY ANDERSON – PROJECT MANAGER ENGINEERING O&T





## MEGA TEAM AT MATURITY

During almost ten (10) years of engineering activities Marine Engineering Company (MEGA) increased every year - with small but firm steps – on most of the aspects:

- Personnel increased from 6 employees to abt. 100 employees;
- Offices spaces from abt. 300 m<sup>2</sup> to abt. 1,500 m<sup>2</sup>;
- Internal General & Project Management procedures;
- Type of the vessels engineered – Tugs, AHTS, PSVs and RSV, OPVs and Navy Ships, special vessels like NCV 1600, STV;
- Quality of the documentation provided to the internal Clients and Building Yards.

The employees of MEGA were growing up together year by year, step by step and improved their interaction and cooperation within the project teams. Very young engineers that came directly from the University are combined together with experienced engineers (in engineering and/or in the building yards). The Management of the Company succeeded (especially in the last years) to improve the main processes and procedures inside the Company, but also the cooperation with our Engineering Partners and Main Clients within the Damen Group.

All the employees of MEGA – shipbuilding engineers, mechanical engineers, Team Leaders and Project Coordinators guided by the Top Management of the Company – succeeded by dedication, hard working and joint efforts (especially during the last 5-6 years) to “built” a motivated, competitive and powerful Engineering Team, i.e. **the MEGA Team!**

The year 2013 was a very busy and quit difficult year for the MEGA Team. We performed a series of special and challenging projects, which became at the end successful ones, such as:

- Sail Training Vessel for Oman Navy, build at DSGalati and completed at DSNS;
- AMELS Yacht 8300; under building at DSGalati, to be completed at AMELS;
- Emergency Gear Ship for Australian Navy, under building at 189 Shipyard in Vietnam;
- PKR – Corvette for Indonesia, under building at DSNS and Surabaya Shipyard;
- RSV 8318 – under building at Wilson Sons in Brazil;
- PVS 4500 – built at Wilson Sons in Brazil;
- ASD Tug 2810 & ASD Tug 3212 – KOC projects; built at DSGalati;
- DOC 7500 Fore Area (incl. Engine Room) – under building at DSGalati;

## MEGA

Should be mentioned that the engineering documentation of all these special projects was delivered in due time – according to the planning – at a (very) good quality level and to the satisfaction of our Engineering Partners (DSNS and DSGo) and of the Building Yards.

Nowadays – due to/based on the last years performances – MEGA has a good reputation inside the Damen Group, but also between the Romanian shipbuilding engineering companies.

“I would like to underline that the performances of the MEGA Team in the last years are the real prove that our Team reached the maturity level and we should be proud with our achievements! However we should continue on this way of acting and should look forward to improve our quality and performances and go to the next level of the engineering activities!”

FLOREAN RASCANU- MANAGING DIRECTOR OF MEGA



# ENGINE ROOM VENTILATION

## Introduction

The engine room ventilation serves two main purposes. The first purpose is to provide the engines with combustion air (oxygen); the second purpose is to remove the hot transmission air from the engine room. Depending on the ventilation system, the amount of air needed is roughly the sum of the combustion air and the heat produced by transmission which has to be removed (by utilizing an overpressure system).

Problems arise when insufficient ventilation restricts the airflow to the engine room. In an extreme example, the ambient pressure in the engine room will drop. As a result engines will have an air shortage. Engines that have an air shortage do not create enough power to reach full-throttle RPM. Besides, air shortage can result in engine malfunction and even to overload.

When the ambient pressure in the engine room is low enough which results in not generating the rated RPM, the turbo temperature will rise. Be aware that a risen turbo temperature will drastically reduce turbo life.

Conditions that prevent the engines from reaching their maximum rated RPM require immediate action. On many vessels there is enough air for the engines to burn their fuel but not enough to cool the engine room. Since warm air doesn't hold much oxygen, the engines produce less power and are therefore less efficient in such a case.

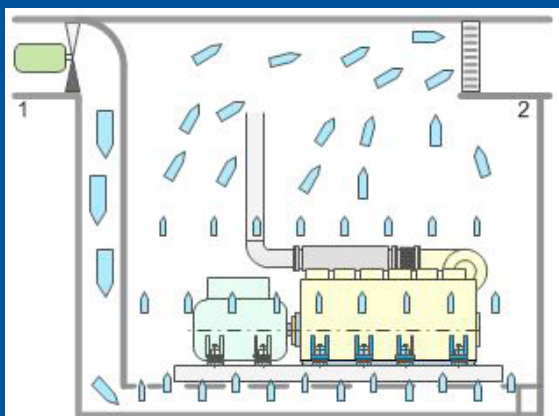
The air gets heat soaked before it reaches the engines, which results in performance loss from air temperature long before losing it as a consequence of low ambient pressure.

Engine room heat doesn't just affect the engines; it also damages generators, cooling-, and electrical systems. Electrical systems might fail or jump into error once the temperatures rise above certain temperatures.

## Theoretical background

The ideal situation for proper ventilation would be if the main inlets are located at the front of the engine room while the outlets are installed at the back of the engine room (or vice versa).

Such a setup blows the air to the bottom of the engine room; subsequently, the air flows up alongside the engines taking up hot air which leaves the engine room through the OVP channel. See 2 in picture 1.1.



Since we don't live in the ideal world, we have to try to get close.

(For more options, check HVAC hand book)

(Check also our other hand books on the hand book webpage)

For more information, refer to ISO 7547 norms for generic load calculations and to ISO 8861 norms for engine room ventilation design.

## Do's and don'ts

Never blow cooling air directly upon a heat source or on heat transmitting objects like the main engines or exhaust pipes. Instead of cooling the objects, it heats the environment in which the objects are located. See picture 1.2.



In order to ventilate the engine room and to remove the hot air, the hot air must be blown indirectly to the hotspots present. This can be achieved by using ducting, the usage of closing plates, booster fans, guiding vanes or other hot air removing and engine room ventilation solutions. Make sure that all dead spots in the engine room are reached and covered.

Always try to optimize the location of fans and ducting. The engine room calculation provides all the information required for ventilating the engine room. However, the mentioned measures are insufficient in case executed incorrectly.

Pay extra attention to the ambient temperature in case control panels and instrumentation units are installed in the engine room since both can have specific ambient temperature requirements. Make sure a mist eliminator and/or a filter is used in the air inlet. The advised air speed over the grills, mist eliminators and through ducting can be found in the HVAC hand book.

## HVAC TEAM



Next HVAC TIP May 2014:  
'Ventilating Technical Spaces'

Questions about this subject? Please let us know and we will answer these in the next issue.

You can reach us at: [hvac-dsgo@damen.nl](mailto:hvac-dsgo@damen.nl)

THE HVAC TEAM

# POLAND

## DAMEN ENGINEERING GDANSK

**In less than two hours the Polish airline company EuroLOT will bring us from Schiphol to Gdansk. A city with a rich history in shipbuilding and historical connections to the Netherlands.**

Like many cities in the Netherlands, Gdansk was a member of the Hanseatic League, an alliance of merchants and ports in northern Europe in the late middle ages. Already in the fifteenth and sixteenth centuries, there was a lively trade between the Dutch cities and Gdansk. In the seventeenth century the trade peaked and every year two thousand Dutch ships arrived at Gdansk.

In this city, where the Polish vodka is based on a typical Dutch drink, our Jenever, the Damen Shipyards Group opened an Engineering office, starting on the first of August 2013. Besides the fact Damen is already represented in Gdansk by DMS, the choice for Gdansk sounds logical; a large history in shipbuilding, well educated people and a good labor market. In the Garnizon area you can find the office of Damen Engineering Gdansk (DEGd). Not only has their Managing Director (Bert Nieuwenhuizen) brought the Dutch atmosphere to the office. Also the wall decorations show you where the roots of the company lies; in the Netherlands. In this comfortable atmosphere 23 engineers are working on several projects. To make sure communication and sharing information between DEGd and DSGo will go as smooth as possible; all engineers are trained in and are working with IFS. For that reason the office was visited by us.

For the engineers at DSGo it's easy; if they have a question they can consult their IFS Key-User or the IFS Group Key-User. Some of them know their way to the IFS Engineering Solution Team and if the system shows failures, IFS Support can be consulted. The engineers here know where to "drop" their IFS issues, they have short lines and most issues can be solved quickly. For the engineers outside DSGo this is a totally different thing. No short lines and if you don't know who to consult in DSGo the small issues can become big issues. Conclusion; support is needed. Support in the usage of IFS and technical support for the projects they are working on.

This support started last year December and continued in January and February. Three visits from Wednesday up until Friday scheduling: general support, latest developments update and (refreshment) training. Of course this support wasn't exclusively meant for the engineers, but also for the office manager and the administrative assistant.

As mentioned, the engineers at DEGd were trained in DSGo and during the period between their training and our first visit a lot of questions came up in Gdansk. Based on their questions and our (new) information and feedback the days were filled, resulting in the conclusion after our last visit that a positive difference in progression can be seen.

It's good to see how the engineers are using IFS; more confident

## ENGINEERS ABROAD

It's too easy to say that because most engineers have been in Gorinchem several weeks to get acquainted with Damen, the Damen way of working, to assist on projects and to be trained in IFS, they should be able to work alone. We all know training is one thing, but working with IFS and in a Damen way is another.

and quicker than before. Still there are 'Why' and 'How' questions, but less and with a different reason. Nowadays most of these questions have been asked to get confirmation, to learn what is happening on the background and to be sure they are on the right track.

# ENGINEERS ABROAD

It's also good to see that the reason to use IFS for global engineering becomes more and more clear. By simply creating and sending a transmittal to a project leader in DSGo, without sending unnecessary megabytes (read: drawings) sharing information can now be done in a more efficient way. Funny thing in this case is that the project leader response with his approval within the hour from an airport in China. Global engineering to the max!

The achieved progress at DEGD cannot fully be attributed to

the employees at Gdansk and the "support team". Part of it is also Engineering Support, IFS Support and the ServiceDesk. Without their quick and sufficient response we couldn't realize what has been realized.

What we see in Gdansk is that support, in combination with an enthusiastic and studious team of engineers that can make the difference. And we are proud to be part of that.

JOHN HOVING, KOEN CHEUNG AND KEES BARNHOORN

## WELCOME ON BOARD!

# JOHN

At this moment only eighty percent of Engineering DSGo is Dutch. Romanians, Belgians, Poles, Turks, Slovaks, Surinamese, Portuguese etc. make it fun and interesting to work at Engineering DSGo.

In this edition of the newsletter we would like to introduce a new colleague, John Bechtold.



- My name is John Bechtold
- I am from The Netherlands
- I work for department Tugs
- My function is Junior Engineer
- I know the company Damen via From the Offshore minor on Avans Hogeschool
- I am significant for Damen in this way Team player and I want to learn
- Former study/employer(s)/work experience Mechanical engineering at the Avans Hogeschool
- You can call me for Anything
- My leisure interests are Sports, I like to play football with friends. And I train/coach a youth football team
- My favorite dish/dinner Tagliatelle
  - ... movie *Fast and Furious*
  - ... music Slam FM
  - ... tv program *Wie is de Mol*
  - ... sport Football
- Nice to know about me is I am a fanatical person who likes to go on an adventure.
- I'd like to say this Enjoy every day.

## PS

We hope you enjoyed our newsletter and stay informed about the news of the Engineering department. We kindly invite you to contribute. Do you have information that is interesting for our other colleagues? Please send your input by e-mail.

Do you know other persons who would like to receive this Newsletter? Please contact us.

The next edition will be launched in May 2014

Kind regards, The Editors

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Enjoy Spring!