

# NTHS 2008 – Report



## Denmark

30<sup>th</sup> of March – 4<sup>th</sup> of April

2008



Laivanraken-



Nul-kryds



Mannhullet



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# NTHS 2008 – Report

From the 30th of March to the 4th of April a great congress took place in Denmark. The NTHS congress was a week where the maritime industry was presented to 50 coming naval architects from Norway, Sweden, Denmark and Finland. Companies from Skagen to Copenhagen was visited. Both the students and the industry benefitted from these meetings.

The NTHS congress was hosted and arranged by Nul-Kryds, a society of students at DTU with interest in the maritime industry. This congress was only possible with the help from our sponsors and partners, so a GREAT thanks to them!

This report contains information about and stories from the congress.

Martin F. Rasmussen  
President of Nul-Kryds



The Danish delegation

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## Schedule of the week

### Sunday 30<sup>th</sup> of March

**18.00 – 19.00** Introduction at Danhostel Skagen  
**19.00** Dinner / Skagen by night

### Monday 31<sup>st</sup> of March

**8.00** Departure  
**8.30 – 13.00** Karstensens Shipyard  
**14.00 – 18.00** MAN Diesel – Propeller Gear and Aftship  
**20.00** Aalborg by night

### Tuesday 1<sup>st</sup> of April

**7.30 – 11.30** Transport to Esbjerg  
**11.30 – 16.30** Viking Life Saving Equipment  
**17.00** Dinner / Esbjerg by night

### Wednesday 2<sup>nd</sup> of April

**8.00 – 10.30** Transport to Odense  
**10.30 – 15.30** Odense Steel shipyard  
**15.30 – 18.00** Transport to Copenhagen  
**19.00** Dinner / Copenhagen by night

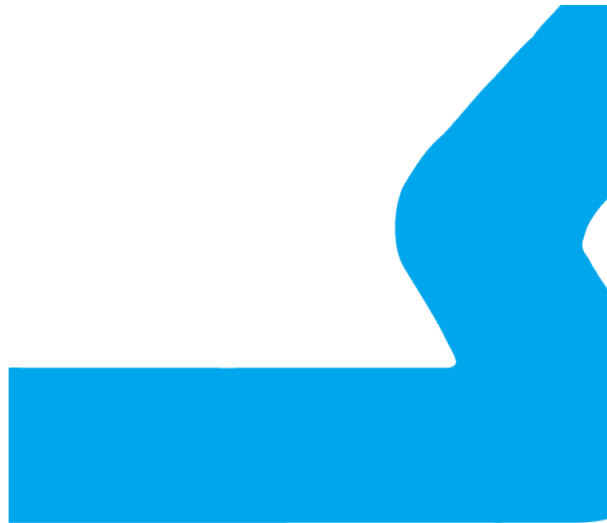
### Thursday 3<sup>rd</sup> of April

**10.00** Departure  
**10.30 – 13.30** MAN Diesel – Test centre  
**14.30 – 20.00** A. P. Møller Mærsk (Esplanaden)  
**20.00** Copenhagen by night  
**19.30 – 24.00** Board meeting at secret location

### Friday 4<sup>th</sup> of April

**10.30** Departure  
**11.00 – 13.45** Force Technology  
**14.00 – 15.00** DTU  
**18.00 – 4.00** Banquet

Thanks to our sponsors and partners



**Skihetekn**

 **MAERSK CONTRACTORS**

**DANISH  MARITIME**



Thanks to our sponsors and partners

# HEMPEL



## Participants

### DTU - Denmark

Name	Nationality
Lars Peter Løvendahl Raun	Danish
Martin Frederik Rasmussen	Danish
Jesper Rosenkrantz Andersen	Danish
Nikolaj Peter Lemb Larsen	Danish
Frank Østrup Rasmussen	Danish
Jacob Frøhlich	Danish
Ignazio Diaz Huerta	Spannish
Richard Le Failler	French
Janus Joensen	Danish

### NTNU - Norway

Name	Nationality
Andreas Eios Haugstad	Norwegian
Ole Jørgen Aarvik	Norwegian
Per Erlend Voie	Norwegian
Henriette Flathaug Ramberg	Norwegian
Kjersti Strand	Norwegian
Solveig Mari Walsøe Pettersen	Norwegian
Magnus Valen	Norwegian
Jørgen Laake	Norwegian
Christian Bjanger Skjelbred	Norwegian
Tobias Edward King	Norwegian

### Chalmers - Sweden

Name	Nationality
Sophia Riisberg Jensen	Swedish
Luis Felipe Sanchez Heres	Mexican
Niclas Moen Gustavsson	Swedish
Daniel Knutsson	Swedish
Marcus Larsson	Swedish
Andre Sauer	German
Sujit Kumer Saha	Bangladeshi
Johan Asplund	Swedish
Christian Hallberg	Swedish
Benoît Simbelie	French

### HUT -Finland

Name	Nationality
Juho Ala-Peijari	Finnish
Mika Heiskanen	Finnish
Martin Bergström	Finnish
Veikko Kalevi Kymäläinen	Finnish
Olli Puustinen	Finnish
Jukka Ignatius	Finnish
Jonne Saarelainen	Finnish
Joel Nils Leonard Knif	Finnish
Tuomas Eerikki Helin	Finnish
Risto Ajanko	Finnish

### KTH - Sweden

Name	Nationality
Patrik Almqvist	Swedish
Erik Jerilgård	Swedish
Erik Ovegård	Swedish
Björn Windén	Swedish
Mårten Silvanus	Swedish
Fredrik Bender	Swedish
Miriam Fürth	Swedish
Markus Norberg	Swedish
Christian Lindeén	Swedish
Joacim Westlund	Swedish

# Accounts

	<b>Costs</b>	<b>Income</b>
Participants fee		kr 84.380
Sponsors		kr 83.000
Oldtimers for the banquet		kr 10.970
Expences paid by DCMT		kr 119.743
Meals provided by companies		kr 35.000
Transportation	kr 37.195	
Accomodation	kr 81.947	
Food and beverages	kr 60.520	
Banquet	kr 136.411	
Board meeting	kr 13.526	
Various	kr 15.995	
Planning	kr 2.157	
Nul-kryds		kr 14.659
<b>Sum</b>	<b>kr 347.752</b>	<b>kr 347.752</b>
<b>Result</b>		<b>kr 0</b>

Due to a small deficit in this years NTHS, which has been covered by Nul-kryds, it is unfortunately not possible to transfer funds to next years NTHS in Gothenburg, Sweden.

## Report from the congress

### ***Monday 31<sup>st</sup> March – Karstensens Shipyard A/S & MAN Diesel Frederikshavn***

After arriving to Skagen late Sunday, our first visit at this NTHS-Congress, took place at Karstensens Shipyard Monday morning. We arrived by bus, and the size of the shipyard impressed all of us. It was clear, that it was not a “sleeping” company, but a dynamic company with a lot of activities.

The NTHS participants were gathered to a short and precise PowerPoint introduction in the shipyards canteen, with a well-served breakfast. The presentation gave us an insight in the company’s daily and historical activities.

Karstensens shipyard dates back as far as 1917, and is now owned by the third generation of the Karstensen family, Knud Degn Karstensen.

Until 1987, the shipyard was specialized in building and repairing traditional wooden vessels, mostly for fishing purpose. Later the shipyard converted their production from wooden vessels, to building large fishing vessels in steel, for which they now are well-known. New buildings are their main activity, but they also carry out repairs and refitting of ships in different categories.

It should be mentioned, that the shipyard not only builds ships, but also carries out many of the drawings and calculations for the ships.

After the presentation, the participants were divided in to two groups for a guided tour around the yard. The tour started at a new navy-vessel for the Danish marine. They showed us around at the ship, in nearly every corner, and it was very exciting to see an unfinished ship inside, with all the cables hanging around.



Just beside the navy-ship, two larger fishing-vessels lying side by side were being refitted.





In the yards new dry dock (2007), with dimensions of  $L=135\text{m}$ ,  $B=25\text{m}$  and  $D=8,2\text{m}$ , a very large fishing vessel, build by Karstensens Shipyard some years ago, was undergoing a smaller refit. We went aboard and quickly realized how modern fishing technology works. It is more a factory, rather than a romantic fisherman's job. But it is effective, which of course means more economic. The interior looked more like those you see at cruising-ships, and it must be a pleasure after a hard day's work, to relax in what could be your own living room.

This whole great event ended up again, in their canteen, with a great lunch buffet. All in all, an exciting and educational visit, at the top of Denmark.

### **MAN Diesel Frederikshavn**

After the visit at Karstensen's Shipyard in Skagen we went to MAN Diesel in Frederikshavn. The visit started at "Arena Nord" where we were introduced to the company.

First a representative from the financial department gave an overview over the products and services offered by MAN Diesel. He explained how MAN had developed a full service package and is able to provide the customers with products ranging from a single propeller to a set of engine, gear and propeller with a full propulsion system optimisation and engine controls.

Afterwards engineers from different sections presented how they worked and the specific issues and challenges in their field they dealt with. At first an engineer told about how they proceed with an incoming enquiry and develop a solution for the customer. Then we were told about the different requirements to different ship types. He explained how they did research in optimisation of bollard pull for anchor handling vessels, vibration reduction for luxury yachts and the propeller efficiency in general. Afterwards an engineer gave a presentation about the dynamic aspects of the propulsion systems. He explained their means to model the individual parts to a full dynamic model of the engine with internal combustion. At last an engineer from the quality department told us about quality assurance and reliability of the systems.

After the presentation a guided tour at the production site was given. We were first shown the foundry where the propeller blades and the hubs were cast, then the production halls, where the different components for the engines, gears, shafts and propellers are processed. Finally we went through the assembly sites and the test halls, where the engines are tested.



The visit ended with a dinner provided by the company and a presentation of possible projects for master or bachelor theses. It was a very interesting and relevant visit.

After MAN Diesel we went to Aalborg, where we should stay for the night. After a short stay at the hostel, the party left for the famous Jomfru Ane Gade, where the evening was spend.

## **Tuesday 1<sup>st</sup> April – Viking Life-Saving Equipment**

After a three hours bus trip from Aalborg to Esbjerg, the NTHS participants arrived to **Viking Life-Saving Equipment**. They welcomed us at the main entrance to the company with delicious fruit, sodas and a nice short presentation about the company, we were about to visit.

After dividing us in several groups, each one with a guide, we visited the assembly line, following the production of a 25 person life raft assembly, from the startup process to the final testing before delivery. The cutting of the special fabric is done by computerized cutting machinery ensuring high accuracy and optimal utilization of the material. Then every patch of the inflated structure is glued together by hand one by one ensuring that all parts have proper adhesion. So far it hasn't been possible to automate the process whilst keeping a satisfactory quality. After the assembly the structure is tested for leaks. The assembly line goes on with the mounting of a strong orange canvas which allows the raft to be clearly seen from a far distance in the middle of the sea. At the end all the equipment such as external visual lights, manual pumps, food and drinking water is fitted, before the raft is deflated and fitted inside the container.

It was a well guided tour with many interesting details about the materials and production, and it is understandable, that the company is a market leader in maritime safety solutions.



Afterwards it was time for testing. We had the excellent opportunity to test some of their equipments in the harbour close to the company, including two different new chute systems, a life raft for 25 people and one for 150 people. Some of NTHS participants were a bit worried about the small diameter of the chute.

Before testing, lunch was served from a traditional Danish hotdog stand. We had a safety briefing before testing the evacuation systems our self, and could watch a demonstration of how fast an emergency system to evacuate 300 people can be deployed. It takes only a few minutes. The equipment mentioned above was installed on a tower, 14 meters high, made of twenty foot containers at the seaside, simulating the height of a shipside, where this kind of equipment would normally be installed.



We were shown an inflation of a 25 person hoistable life raft on shore, which was afterwards filled with NTHS-participants and lowered into the water by a mobile crane. The passengers in the raft were then required to row the raft ashore. It was a bit trickier than expected, and seriously put the motor co-ordination of the NTHS-participants to a test.



Lastly we tested the chute systems. It was quite exiting to stand 14 meters above the water and jump into a tube and hope that it would bring you safely to the life raft at the bottom. But after the first ride most participants ran to the top to get an extra ride. It was really fun to participate, and you just had to take a look at people's faces to see that it was a GREAT SUCCESS!!!



After the visit at Viking dinner was served at Danhostel Esbjerg. I was a nice buffet with wine and lemonade. After dinner it was time to explore Esbjerg by night. This is not a very mind-blowing experience on a Tuesday night, but after a short visit at “Paddy go Easy” we found a nice local bar with some native guests, where the atmosphere was more suitable to the NTHS-spirit.

## **Wednesday 2nd April - Visit at Odense Steel Shipyard**

Wednesday morning, after a long but interesting bus ride (due to the famous Danish movie S/S Martha), the delegation arrived at OSS.



The yard is a part of the large Danish A.P. Moller Maersk Group, and it's mainly building container carriers for Maersk Line. OSS consists of several yards; we were naturally visiting the one in Funen called Lindø. The other yards of OSS are placed in Eastern Europe.

The fact that they have produced the world's largest container carriers, and that we were promised to get onboard one of their new slightly smaller vessels, set OSS to be one of the highlights of NTHS 2008.

The visit started with an introduction by HR manager Michael Wittrock. Next on the agenda was Naval Architect Søren Schnack. Søren has been involved in the design of container carriers for many years. First in the structural department, and now in the general design department. It was interesting for us to hear something about, ship design in real life. How it was the Naval Architect's job to make sure that the ship was designed as the optimal solution. He could tell many stories about how the machinery department rather would have liked to design an "engine room" carrier, with some space left for containers. But of course the ship owner is not paid for sailing around with a nice engine room, but for the cargo.

After a lunch break it was time for the trip around the shipyard, and most important onboard the ship. We followed the natural way around e.g. the same way as the steel goes. Starting at the steel storage field. They explained that it's getting more and more complicated to get the desired steel, due to increasing demand. This had resulted in a change in the strategy, were they earlier only had a minimum storage, they are now forced to buy loads of steel whenever the opportunity is there. Then we went through the sandblasting, cutting, welding and assembly area of the large blocks, which are transported to the dry-dock. At Lindø they are mainly producing square blocks. The more time consuming curved blocks, such as the bulbous bows are produced at the yards in Eastern Europe, and then sailed to Lindø on a barge.



Two days before our visit, new building 212 was docked out. L212 is a further development of the Maersk G-Class container carriers, with a new engine room layout, new deckhouse and some other changes. It's a 7000 teu post panamax ship, and it's a little smaller than Emma Maersk, but for sure just as impressive, when you stand next to it! There were still some weeks of work to do, before it was ready for sea trials. But newer the less it was floating!

We had the big tour around the ship. On the journey we passed along the container holds, container hatches, engineer's passways, steering gear, main engine, shaft tunnel, casing, bridge and ended at "monkey island".



From there we had a great view over the shipyard, and it was a good place to end the visit. All, what was left, was hundreds of stairs down again...

### **Thursday 3rd April – MAN Diesel and Maersk**

We left Danhostel Copenhagen Amager in the morning to visit **Man Diesel's – Test Centre**, where we were going to see their large two-stroke test engine. The plant in Copenhagen designs large two-stroke engines. We arrived there at 10.30a.m. We were divided in two groups guided by two monitors. First, we saw the test engine inside the test centre. Unfortunately, they did not test it. You could see the strain gauges placed on the components of the engine. After seeing the engine, we walked through the different buildings of the production where we could see some of the different parts of the engines. Most of the production has been outsourced to Asia, but they still have the production of some of the most critical parts like valves, pistons and fuel injection nozzles here in Denmark. MAN has one of the worlds most advanced storage systems in the world, where everything is run by computers. You just enter the data for the part you need and the system locates and gets it for you within minutes. After the tour, we had a nice lunch in the canteen of the company.



We left Man B&W earlier than expected, so the Danish delegation organized a sightseeing tour of Copenhagen. Tivoli, Rådhuspladsen, Kongens Nytorv and after a short visit to the little mermaid we arrived at A.P. Moller Maersk – Esplanaden.

The presentation of the company took place in an auditorium downstairs. First, a short movie was shown introducing in a general way the different business activities included in the A.P. Moller-Maersk Group today. It is clearly remarkable that Maersk offers worldwide services like transportation and energy. Afterwards, we were introduced to Maersk Line, which is today the largest container ship operator in the world.



Several technical presentations followed describing the different departments of Maersk.

For example, Maersk Supply Service, who deals with anchor handling and supply vessels, presented some of their new buildings, and Technical Organisation presented a project concerning the development of a new type of propeller tip, which increases the efficiency of the propeller.

The energy business also is a large part of the company. An engineer from Maersk Contractors presented this department describing the different offshore platforms used for the oilfield drilling industry. He talked about



different kind of projects carried out by Maersk Contractors like the development of jack-ups in Norway and ambitious plans like the modification of a jack-up, Maersk Guardian, which had to be transported by ship to the field.

We were informed by a former student from DTU about MITAS, the 2-year program to integrate newly graduated engineers, geologists or geophysicists into the company. Depending on their interests and background new employees can try out different departments of the company to acquire more experience and decide where their main interests lie. The program consists of an alternation between different jobs and some weeks of different theoretical modules.

It was a very long series of PowerPoint presentations, but due to the relevance of the different projects presented, it stayed interesting to the end, and left us with an impression of Maersk as an interesting potential place of employment for us future naval architects.

Finally, a very nice dinner was served together with the different employees, who had presented the company during the afternoon. This left the NTHS participants the possibility of asking questions and speaking with the employees of Maersk under more informal circumstances.

## Board meeting

The board meeting is an old tradition at the NTHS congress. The NTHS board consists of 2 or 3 persons from each delegation, this year making it a total of 11. Because of the extra work that the board puts into arranging the congress, the tradition is to make the board meeting a good and unique experience, and this year was no exception.

The board was picked up at “Langelinie kajen” by a very well powered RIB. The board was sailed at a high speed to “Middelgrundsfortet”, where the board meeting was held.



At the board meeting the congress of this year was discussed, but also the past and the future of the congress. The first thing on the agenda was the congress so far. Everybody agreed that the congress so far has been a great success. All participants thought that the program contained a good balance between active company visits and presentations. The budget was approved. We decided to send any left over money to the coordinators of the next NTHS congress.

As a follow up to the discussions last year at the board meeting, we decided that the Danish delegation should make an addition to the official regulations that English will be the preferred language during the company visits, while Swedish will be kept as the official language. Further a translation of the official rules into English shall be conducted. In case of any dispute of interpretation of the English version of the rules, the original Swedish version will be superior.

When the meeting was over, we had a very delicious dinner. Suddenly during the dinner all light went out. After a short while the power came back and a sweet well-known scent of diesel appeared.



After an enquiry at the staff, we found out that their emergency auxiliary engines had kicked in. On request we got a guided tour at the generator room, where we inspected the old and very nice B&W engines.



The board meeting ended with a nice trip on the ferry back to “Langelinie”, where after the members of the board joined the rest of the congress at Heidi’s Beer Bar.

## **Friday 4<sup>th</sup> April – Force Technology**

The Friday started with a visit at **Force Technology**. We had a nice welcome by Christian Schack, a former NTHS president and participant. He gave a presentation of the company and the work that the employed naval architects do. Job applications were handed out and eagerly received by the many students. Thomas Eefsen, also a former NTHS participant, held a presentation about the importance of the maritime industry, the need of innovation and the new **Danish centre of maritime technology, DCMT**.

After the presentation the congress was showed around the company. Force technology has an impressive towing tank. The tank is 240 m long and has a breadth of 12 meter. Force also has a series of wind tunnels testing everything from ships to buildings. One of the most impressive things shown at the tour was their large ship simulator. The ship simulator contains a full sized bridge and almost 360 degree view. The simulator is used to train crew, test harbours and several other things.

After the guided tour around force we where all served a very nice buffet.

A part of every NTHS congress is a visit at the host's university and after Force Technology the congress visited the **Technical University of Denmark, DTU**. Our teacher at the university Poul Andersen held a presenting. He talked about our ship-department's downfall from an institute to a section of a section under an institute. He also talked about all the interesting research that is being conducted in the field of naval architecture at DTU. The structure of our education was explained and how it was possible to take an international master degree in naval architecture at DTU.

## **The Banquet**

As usual, the yearly NTHS ends up with pomp and circumstance. Each year, the participants expect something extraordinary of the week's end. In other words, we end the NHTS week with a banquet. The banquet lived fully up to people expectations, and was celebrated in beautiful maritime surroundings at "SøOfficers-Foreningen".

Before we arrived by bus, a small appreciable maritime event took place. Just before crossing the famous bridge "Knippels Bro", connecting Copenhagen to Amager, the bridge opened and a small coaster sailed through. This small funny, and absolutely unplanned event, made us arrive 15minutes late, but it was worth it!

At "SøOfficers-Foreningen", we were welcomed with sparkling wine and live music, performed in maritime spirit, and in a very original way with an accordion and a homemade bass.



When everyone had arrived, we went to our respective tables. Our Toastmaster Rune Zilcken welcomed us, and explained the program for the evening. Shortly after, the dinner was served, mixed with speeches, gifts from the guest institutes, the “Drukkenbolt” and a lot of songs from the delegations.



The “Drukkenbolt” is a prestigious prize, assigned to the one, who can drink the largest quantum, and still be able to keep his/her good manner and appearance during the week. It is a tradition, where the “Drukkenbolt” of last year selects and presents the “Drukkenbolt” for this year. The honour this year was awarded to the president of last years NTHS Ole Jørgen Arvik.



In accordance with the tradition the visiting countries presented their maritime-related gifts to the hosts. The Norwegians presented an oilrig with a glass top containing a bottle of Champaign, with the sign “break the glass in case of success” on it. The glass was broken to celebrate a successful NTHS and a toast was made by the President. The delegation from Chalmers presented a bollard tied to a bottle of allegedly old Swedish vodka. The delegation from Stockholm presented a rescue post containing provisions for a smaller NTHS-delegation and cleverly equipped with a floating key ring. The gift from the Finish-delegation was a Viking ship with a soccer field on it. They immediately challenged the President for a match, but unfortunately for the Finish guys, their match was quickly “finished”, as they scored a self goal.

After the dinner, it was time for coffee cognac, served in the library. Meanwhile, the band was preparing them selves for some great entertainment. The rest of the night, the party was kept in a nice and calm spirit. People danced, drank, talked and just had a great time together.