



Seminar
**Inspection, Maintenance, Selection and Application
of Marine Steel Wire Ropes**

**LEARN, UNLEARN & RELEARN
with Mr Bos's leading global expertise**

Main topics include:

The course will give insight in:

- **Inspection** of Marine Steel Wire Ropes
- **Maintenance** of Marine Steel Wire Ropes
- **Selection** of Marine Steel Wire Ropes
- **Application** of Marine Steel Wire Ropes



Seminar overview

Background

The course will give insight in the type of wire, the construction and different applications.

The dynamic behavior in lifting, towing and marine operations will be addressed. The effect of the dynamic behavior and loads imposed on wires, including the number of oscillations, will be elucidated. This will clarify the basis on which wires can be approved or disapproved.

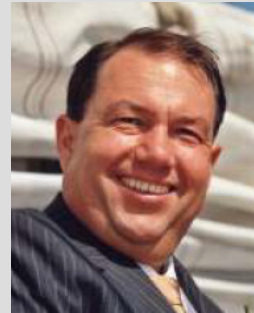
The grounds for approval and disapproval are still being researched, this research will be addressed. Present state of the art in approval and disapproval will be given.

Based on recent tow of FPSO's the tow wire behavior will be demonstrated.

You will be updated on the works performed by the DNV workgroup Heavy Transport & Lift on:

- Present research
- Development of new rules for approval

Principal Course Facilitator



Mr A.J. (Ton) Bos
MSc. MBA. Eur.Ing.

Director HMC BV,
Netherlands

- ◇ Master of Science in Naval Architecture and Marine Engineering
- ◇ Master in Business Administration
- ◇ Eur.Ing.
- ◇ More than 30 years of industrial experience
- ◇ Lecturer at Delft University of Technology
- ◇ Worldwide project experience

Registration and Information

For more information or registration, please contact one of our offices:

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Agenda day 1

- **Introduction**
- **Definitions**
- **Construction of the wires:**
 - ◊ Type of wires
 - ◊ Construction of wires
 - ◊ Application of wires
 - ◊ Definitions
- **Dynamic behavior of wires:**
 - ◊ Hydrodynamic behavior of wires when used in towing and when used for mooring
 - ◊ Dynamic behavior of wires in offshore and onshore operations, craneage and stationary lifting operations
 - ◊ Finite element model of a wire in water

Agenda day 2

- **Strength analyses** of wires in sheaves of:
 - ◊ Crane blocks
 - ◊ Fearleads
- **Reduction of breaking strength** due to bending
- **Fatigue in wires:**
 - ◊ Reduction of breaking strength due to fatigue
 - ◊ S-N curves of wires
 - ◊ Fatigue analyses of wires
 - ◊ Calculation of the number of oscillations in operation
 - ◊ Effect of fatigue on wires
 - ◊ Rain flow algorithm
- **Calculation of the number of oscillations in operation**

Agenda day 3

- **Rules and regulations:**
 - ◊ Certification
 - ◊ DNV
 - ◊ GL Noble Denton
 - ◊ ISO
 - ◊ Applied rules and regulations in marine operations
 - ◊ Results of tests
 - ◊ Basis for approving and condemning wires
- **Basis for approving and condemning wires**
- **Present research on wires**
- **Good practices**
- **Influence of good maintenance on the lifetime of wires**

Who should attend

Seminar primarily aimed at:

- Field managers & Superintendents
- Marine Operations managers
- Marine Superintendents & Supervisors
- Marine engineers
- Captains, Masters and Marine officers
- AHTS Deck leaders and Deck crew
- HSE Management and staff
- Emergency response team & medics

Attendees specific to the Oil & Gas industry would include:

- | | |
|--------------------------|----------------------------------|
| • AHTSV Projectmanager | • Naval Architects |
| • Oil rig Projectmanager | • Marine Representatives |
| • FPSO Projectmanager | • Offshore Installation managers |

Why you should attend

- To ensure that all objectives of the seminar matches yours, all HMC programs are developed after intensive and extensive research within the industry and the trainer's long time professional and practical experience in the field.
- Application and implementation of industry experience and knowledge are the drivers for our course design, not theoretical academic lectures.
- HMC training focuses on practical interactive learning and techniques including case studies, group discussions, scenarios, practical exercises during the course

Case studies & Practical sessions

- Pictures and video of example cases
- Spreadsheet with rules and calculations to determine loads, catenary and assess fatigue.





Seminar

Inspection, Maintenance, Selection and Application of Marine Steel Wire Ropes

TRAINER PROFILE — Mr A.J. (Ton) Bos

Mr Bos is a highly committed marine consultant, with over 30 years of experience.

He attained the titles Master of Science in Naval Architecture and Marine Engineering, Master of Business Administration and European Engineer. The title of European Engineer is an award for high level of knowledge and practical experience.

In 1978 Mr Bos started as an apprentice at the Wijsmuller Group of companies which is a company renown for salvage and towing. In 1982, he graduated as naval architect and marine engineer from the Delft University of Technology in the Netherlands.

Since 1978 Mr Bos is involved in towing, salvage and heavy transport operations. In 1986, Mr Bos established Hydrographic and Marine Consultants (HMC) as an independent engineering company in the field of offshore transport, towing, salvage and anchor handling. HMC's main services are geared towards improving the safety, quality and efficiency of maritime operations, improving economics of operations and supporting policy decisions.

He has a vast experience as warranty surveyor and has a proven track record as independent marine warranty surveyor:

- Engineering and warranty surveys for ocean towage of floating equipment and 'dry transport' of offshore and industrial plant equipment
- Pre- and post towage inspections
- Condition and suitable surveys
- On- and Off hire surveys
- Issuing of certificates of approval pertaining to the surveys and inspections

Dedicated to sharing his knowledge and experience, amongst others, Mr Bos lectures at the Delft University of Technology, teaches several maritime courses at a Nautical college.

Furthermore, Mr Bos is vice-president of the DNV working group Heavy transport and lift and president of the subcommittee Designers.

Besides Ocean transportation and design, Mr Bos' expertise lies in other marine projects and operations such as:

- Salvage
- Anchor handling
- Towage, positioning and installation of FPSO's and GBS's
- Semi-submersibles
- Jack-up rigs
- Modules
- Float over
- Inclination tests
- Ship recycling
- Model tests—tank tests TU Delft
- Spar
- Topsides jackets
- Launching—Chemical tankers
- Barges

Publications:

- The "Marine Quality Kit", a tool to monitor accelerations, velocities and motions in arbitrary locations on floating objects, A.J. Bos M.Sc. MBA Eur.Ing, Almere, Holland, 6 May 1996. Paper for the Offshore Technology Conference, OTC paper 8161.
- Cursus scheepsbouw voor niet scheepsbouwers, (Course naval architecture for non naval architects), Almere, Holland, October 2000.
- Marine Services Tool based on satellite observations, Project executed within the framework of the NIVR, Netherlands Agency for Aerospace Programmes, RP_A262, NIVR 52302AR, A267, A.J. Bos M.Sc. MBA Eur. Ing. e.a., 11 August 2004.
- "Strain Analyses and Fatigue Engineering in heavy lift transportation and towages (SafePlan)", A.J. Bos M.Sc. MBA Eur.Ing, Hydrographic and Marine Consultants BV (HMC), The Netherlands together with Capt. L.M. Leusink, Fairmount Marine BV, The Netherlands and F.J. Melger, M.Sc., Argoss, The Netherlands; the Netherlands, August 2005; Paper presented during RINA conference on Heavy Transportation, Londen, September 2005
- "Measurement campaign for validating the motion response calculations of heavy transport vessels and fatigue monitoring", A.J. Bos M.Sc. MBA Eur.Ing, Hydrographic and Marine Consultants BV (HMC), The Netherlands, January 2008; Paper presented during RINA conference on Heavy Transportation & Lift, Londen, 27- 28 February 2008
- "Detailed analyses of the tow line behaviour in single, double and triple towages in case of emergency stop and catenary", A.J. Bos M. Sc. MBA Eur. Ing. Director, Research, Development and Innovations, R. Heemskerk D Sc.Product Development HMC, Almere, the Netherlands, Proceedings of the 30th International Conference on Ocean, Offshore and Arctic Engineering OMAE30, OMAE2011 – 50327, June 19-24, 2011, Rotterdam, the Netherlands.
- Influence of ocean transport on the design of onshore and offshore constructions, modules, topsides, jackets and towage on FPSO design", A.J. Bos M. Sc. MBA Eur. Ing. And T.M. Ligterink M Sc. B.Eng., Proceedings of the 31th International Conference on Ocean, Offshore and Arctic Engineering OMAE31, OMAE2012 – 50327, July 1-6, 2012, Rio de Janeiro, Brasil.
- And many more.....



Track record

Customers:

- Chevron/Rockwater (USA)
- DNV (Netherlands/Norway)
- Dockwise (Netherlands/Worldwide)
- Elf Petroland / Matthews-Daniel (Netherlands/Belgium)
- Escher Holland BV (Netherlands)
- Fairmount Marine (Netherlands)
- Fairstar Heavy Transport (Netherlands)
- Matthews-Daniel Company Clough Stena Ltd. (France)
- MODEC (Singapore)
- Nausch Hogan & Murray Europe (Netherlands)
- Rockwater (USA)

(Above list is only a subset of the complete list of customers)



Projects:

- Chevron / Rockwater (USA): Provision of marine co-ordinator and tow master for the Chevron Alba oil field development, comprising a CDTM pipeline bundle launch, tow and installation and towage of the Alba FSU from N-Spain to the Alba field plus subsequent FSU hook-up.
- DNV: Member of hearing committee for new rules and regulations in the field of heavy transport and lift. / Member of the working group of heavy transport and lift.
- Dockwise Netherlands/Worldwide): Transport engineering and warranty surveys of various tows of different floating objects a.o. floating dry- docks and floating cranes.
- Elf Petroland / Matthews-Daniel (Netherlands/Belgium): Witnessing of and acting as warranty surveyor during land transportation and subsequent load out aboard seagoing vessel of seven modules constructed for and offshore production platform
- Escher Holland BV: Inspection services related to the handling and transport of four Peroxidation Reactors from Escher's site to Shell Moerdijk followed by the lifting operations on final locations. / Inspection services during loading operations from inland barge onto m.v. Ibn Asakir. Loading operations were performed with vessel's heavy derrick. Inspections were completed with survey report of findings.
- Fairmount Marine, feasibility study for long haul towage of SPAR buoy of 200 [m]. / Bollard pull calculations for almost all Fairmount tows / After the accident with the Bourbon Dolphin the Norwegian Inspectorate imposed new legislation upon operation with Ancher Handling Tugs (AHT). The rules were worked out for the Sherpa class of AHT
- Fairstar Heavy Transport: Transport engineering Dry-tow from Kakinada to Sharjah for Perro Negro 3. / Transport engineering including fatigue analyses of the transportation of the Halfdan B jacket, piles and pipe crossing bridge. Conducting the load out. / Transport engineering for the transport of the Perro Negro 8 from Visakhapatnam to Sharjah, including conducting the loading operation. / Installation of the MQK and FAMON for fatigue analyses during the transport of Halfdan B Jacket from Shenzhen, China to Halfdan, offshore Denmark. / Transport of Jacket and Topside modules for the Halfdan B field Works included ballast plan for 2 skidding operations onto Fjord and Fjell respectively. Transport engineering, finite element calculations, and fatigue analyses. Whole physical operation was conducted by HMC. / Dredge equipment from Jeddah to Sharjah. Whole physical operation was conducted by HMC. / Transport engineering for the transport of the Perro Negro 3 from Visakhapatnam to Jeddah Whole physical operation was conducted by HMC. / Launching of Chemical Tanker by rolling onto the semi submersible heavy transport vessel Fjell and float off. Works included the engineering for the repositioning of buoyancy casings and obtaining approval thereof from DNV. Whole physical operation was conducted by HMC. / and several other projects.....
- Matthews-Daniel Company Clough Stena Ltd. (France/Netherlands): Warranty survey during loading of anchoring equipment (wire reels, pennants, shackles) into inland barges and container respectively for shipment into seagoing vessel for Australia / Condition survey of 2 AHST's. Determine fitness for rigmoves of and supply to jack up rig(s) in Trinidad. Survey was attended on behalf of prospect buyers
- MODEC (Singapore): Speed assessment for PSVM FPSO and tow wire catenary and risk assessment
- Nausch Hogan & Murray Europe (Netherlands): Warranty survey services for the loading and stowage of a Tensioner Tower for the Stolt Comex "Seaway Eagle" project.
- Rockwater (USA): Engineering assistance for platform abandonment. Engineering comprising compilation of procedures for: tow route surveys; positioning & monitoring; catenary calculations; contingency procedures; operational procedures.

(Above list is only a subset of the complete list of projects)

