

HUISMAN EQUIPMENT BV

Admiraal Trompstraat 2
3115 HH Schiedam
P.O. Box 150
3100 AD Schiedam
Harbour no. 561
The Netherlands

Phone: +31 (0)88 070 22 22
Fax: +31 (0)88 070 22 20
E-mail: info@huisman-nl.com
www.huismanequipment.com

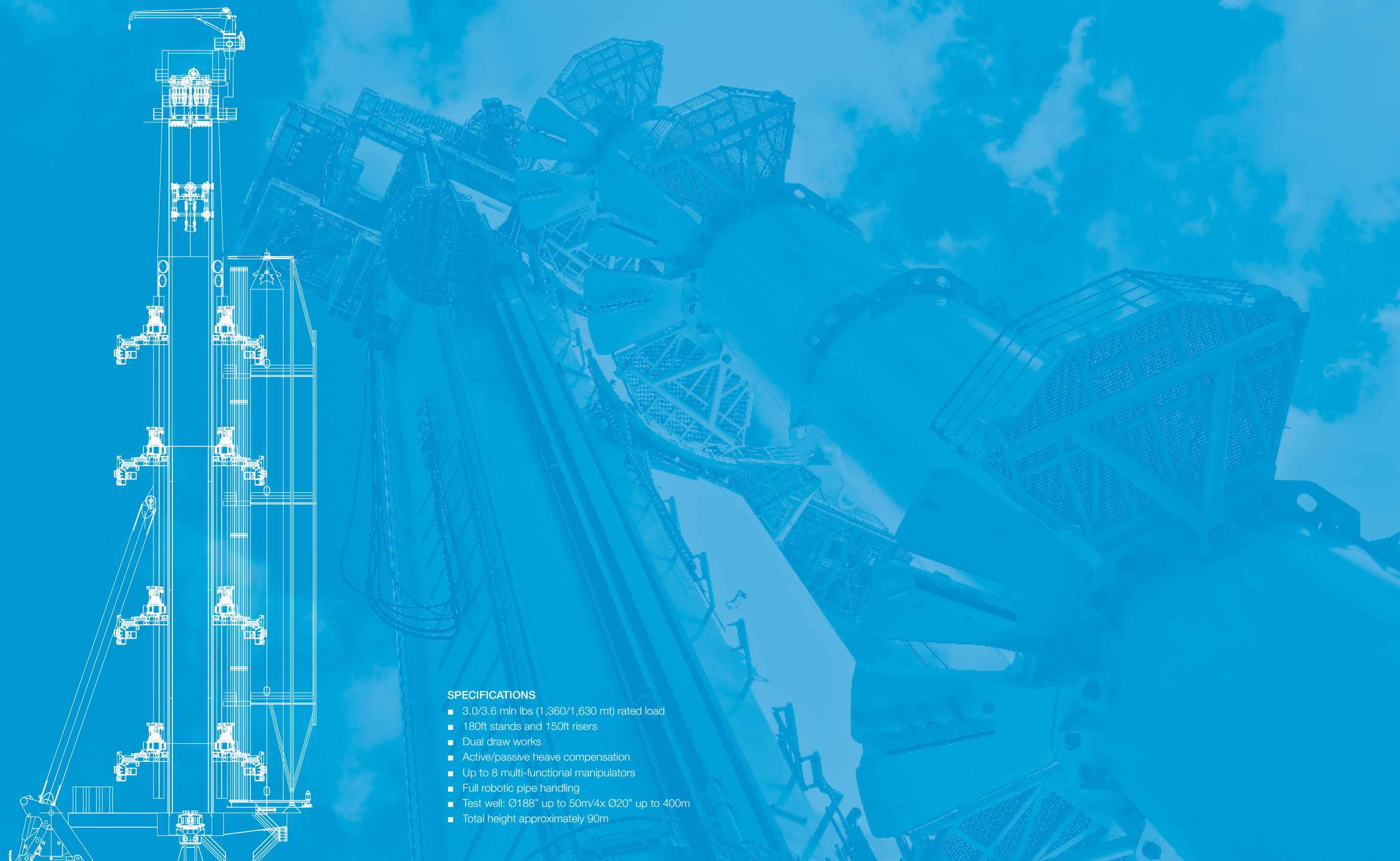


HUISMAN PRODUCT PRESENTATION BOOK 2016

THIS IS HUISMAN

PRODUCT PRESENTATION BOOK

2016



SPECIFICATIONS

- 3.0/3.6 mln lbs (1,360/1,630 mt) rated load
- 180ft stands and 150ft risers
- Dual draw works
- Active/passive heave compensation
- Up to 8 multi-functional manipulators
- Full robotic pipe handling
- Test well: Ø188" up to 50m/4x Ø20" up to 400m
- Total height approximately 90m

HUISMAN

PRODUCT PRESENTATION BOOK 2016

 **Huisman**
Worldwide Lifting, Drilling and Subsea Solutions

CONTENT

INTRODUCTION

01

Company Profile	8
Huisman History	10

GLOBAL OPERATIONS

02

Huisman The Netherlands	14
Huisman Czech Republic	22
Huisman China	28
Huisman Brazil	36
Huisman Academy	40
Huisman Global Services	41
Local Sales, Engineering and Service Offices	42

CRANES

03

Introduction Cranes	45
Pedestal Mounted Cranes	48
Heavy Lift Mast Cranes	54
Offshore Mast Cranes	58
Tub Cranes	64
Subsea Cranes	66
Offshore Wind Cranes	70
Floating Cranes	72
Land Cranes	74
Various Cranes	76

PIPELAY

04

Introduction Pipelay	79
Flex-lay	82
Reel-lay	90
S-lay	92
J-lay	94
Multi-lay	98
Storage Systems	106

DRILLING

05

Introduction Drilling	109
Modular Drilling Rigs	112
Multi Purpose Tower	118
Drill Ships	120
Next Step	122
Huisman Innovation Tower (HIT)	126
Well Intervention	128

WINCH SYSTEMS

06

Introduction Winch Systems	133
Subsea Installation	134
Deepwater Mooring Systems	136
Anchor Handling and Towing	138

HEAVE COMPENSATION

07

Introduction Heave Compensation	141
Active Heave Compensation	142
Passive and Active Heave Compensation	148
Passive Heave Compensation	150

SPECIAL PROJECTS

08

Introduction Special Projects	153
Civil Works	154
Salvage Equipment	156
Rock Dumping	158
Tidal Energy	160
Blue Piling	162

VESSEL CONCEPTS/DESIGNS

09

Introduction Vessel Concepts/Designs	165
Naval Department	166
Vessel Concepts/Designs	168



INTRODUCTION

Company Profile
Huisman History

8
10



COMPANY PROFILE

Huisman, founded in 1929, is a worldwide operating company with extensive experience in the design and manufacturing of heavy construction equipment for world's leading on- and offshore companies. Our product range can be divided into six main categories: Cranes, Pipelay Equipment, Drilling Equipment, Winches, Vessel Designs and Specials varying from stand-alone components to highly engineered integrated systems, from concept to installation and life time support.



GLOBAL OPERATIONS

A global market requires global and local solutions. Therefore, Huisman has expanded its engineering and production capacity from Schiedam, The Netherlands, to Sviadnov, Czech Republic, in 1997 and in 2007 to Fujian, China. The newest production facility in Santa Catarina, Brazil, is operational since 2015. Generating over 115,000m² of total production surface. All facilities play an important role in the Huisman production force ever since.

For additional local sales, engineering and service support Huisman holds offices in Rio de Janeiro (Brazil), Houston (USA), Perth (Australia), Bergen (Norway) and Singapore.

QUALITY

The equipment delivered by Huisman is often the critical main equipment onboard and its reliability is of utmost importance to our clients. Delivering high quality products has therefore been a key company value since its establishment. As a result, our equipment is internationally known for its high quality and reliability during operations. It meets the most stringent performance criteria and is certified by recognised authorities such as Lloyd's, DNV, ABS, TÜV etc.

SERVICE

A dedicated worldwide operating service team of skilled professionals is on stand-by to provide advice, training and service support before, during and after installation and delivery. Our service network is managed from Huisman in The Netherlands and our local service offices in Rio de Janeiro (Brazil), Houston (USA), Perth (Australia) and Singapore are on stand-by to provide service support on location as well as by remote access.

TRAINING

Huisman founded the Huisman Academy in 2011. This Schiedam-based training facility is used to support Huisman clients in operating and maintaining their equipment in the most effective and safe way.

SAFETY, HEALTH AND ENVIRONMENT

We have high values on being a responsible company. Therefore, the safety, environmental and health impact of our operations is a priority within all stages of our projects.

RELIABLE PARTNER

Due to our strong belief in long lasting partnerships with our clients, our commitment to finding new technical solutions and our dedication to delivering turnkey projects, we are internationally valued as a solid, reliable partner. Our extensive track record and the large number of long-lasting client relationships prove that we deliver state-of-the-art equipment, fully tested, within schedule and ready for commercial operation.

TURNKEY DELIVERY

Our in-house design and engineering expertise in combination with our production, testing, commissioning and installation facilities, enable us to deliver custom-designed equipment on a turnkey basis.

INNOVATIVE SOLUTIONS

We are constantly working on new solutions and systems, which we believe add value to the market's existing technologies. These innovations have been implemented into many of our products. As we have extensive operational experience with a wide variety of heavy construction equipment, we are able to use the best solutions for new products and projects. Our internal disciplines include Mechanical, Structural, Naval, Hydraulical, Electrical and Software Engineering.



HUISMAN HISTORY

10



Huisman was established in 1929 by mr. M.M. Huisman as a steel construction company. In 1980 Joop Roodenburg started engineering company ITREC that specialised in the development of transport and lifting systems.

One year later in 1981, les Roodenburg, Joop Roodenburg's father, became 100% owner of Huisman after gradually buying all shares. The first joint Huisman and ITREC project turned into a huge success: the design and production of the 'Taklift 4' sheerleg for Smit Tak.

In 1983 ITREC developed the mast crane concept, a compact and innovative design for heavy lift cranes which proved to be a real step change in the heavy lift industry. The first two 550mt cranes were delivered in 1984 for Mammoet's 'Happy Buccaneer'. Since then numerous cranes of this type have been manufactured.

In 1984 Huisman and ITREC introduced Active Heave Compensation. The cranes onboard the 'Amethyst' and Smit Semi's were the first ones to be equipped with a secondary controlled hydraulic AHC system. Nowadays the system is also available in an electric driven version with frequency controlled motors.

The first passive heave compensated 300mt offshore mast crane was completed for Allseas' pipelay vessel 'Lorelay'. This concept proved to be successful as well, resulting in many offshore mast crane projects with ever increasing lifting capacities. In 2012 a 5,000mt crane was completed for Subsea 7's 'Seven Borealis'. In 2014 we were awarded the contract to build world's largest cranes, two 10,000mt tub mounted cranes for Heerema, to be delivered in 2018.

In 1987, Huisman and ITREC officially merged into Huisman-ITREC, offering tailor-made solutions from concept to lifetime support.

In the beginning of 1990 a number of skid and lifting systems for bridge construction projects were designed and built. Another special project in those years was the delivery of the grippers for the salvage of the Russian submarine Kursk in 2001.

Huisman entered the market for pipelay systems in 1996 with a rigid-lay system for Stolt Offshore's 'Falcon'. This was the start of an impressive number of flex-lay, s-lay, j-lay and reel-lay systems, of which the Saipem 7000 j-lay tower was the highest and Heerema's Aegir multi-lay tower the most complicated, combining an 800mt reel-lay, including 3,000mt portable reels, and a 2,000mt j-lay system.

In 1998 Huisman entered the very conservative offshore drilling market, with the delivery of equipment for four Pride semis. The next step was the design of the Multi Purpose Tower (MPT), a revolutionary new concept compared

to the traditional drilling derrick and a real step change in the drilling mast principle. The first MPT was delivered in 2001 for the Q4000, followed by two more DMPT's for Noble/Shell in 2010/2011.

In 2012 the Huisman MPT received the Maritime Innovations Award. The compact box type drilling tower (MPT) allows for a significantly smaller sized vessel compared to other deepwater drill ships of similar capacity. One vessel in accordance with this design, Noble's 'Noble Globetrotter I', was delivered in 2012, the 'Noble Globetrotter II' was delivered in 2013. The 'Noble Bully I', with onboard a Huisman designed MPT, was awarded by Shell with the 2013 'Global Floating Rig of the year' award. Recognising her as the best performing rig for Shell worldwide. In 2014 the award was won by her sister vessel 'Noble Bully II'.

The LOC 250, an compact and fast movable land and containerised drill unit, was another innovative rig concept and was produced in 2005 for the first time. The upgraded version LOC 400 finished her first project in June



2009. Currently we are working on a new highly mobile automated land drilling unit, the Innorig.

Since the turn of the century Huisman has grown into a major provider of lifting, pipelay and drilling equipment with production facilities in The Netherlands, the Czech Republic, China and a new one in Brazil, operational since 2015.

Additional Huisman opened an office in Bergen, Norway in 2013 to serve the Norwegian offshore market. Also in 2013, a service/sales office was opened in Perth, Australia.

In 2015, Joop Roodenburg was awarded a Royal distinction. He was appointed 'Officier in the orde van Oranje Nassau' among others for his vision and perseverance, his technical contribution to the Dutch maritime industry and his valuable contributen to the Dutch economy.



01

11

Huisman
USHuisman
BrazilHuisman
The NetherlandsHuisman
NorwayHuisman
Czech RepublicHuisman
Far EastHuisman
ChinaHuisman
Australia

GLOBAL OPERATIONS

Huisman The Netherlands	14
Huisman Czech Republic	22
Huisman China	28
Huisman Brazil	36
Huisman Academy	40
Huisman Global Services	41
Local Sales, Engineering and Service Offices	42



14



HUISMAN THE NETHERLANDS

02

15



THE NETHERLANDS

IN GENERAL

Our head office and Dutch production facility is located in Schiedam (Rotterdam region). It opened for production in 1998 after our previous premises in Rotterdam had become too small. The General Management, Engineering, Sales, Concepts and other corporate disciplines are based here.

Huisman Schiedam is certified according to ISO 9001, ISO 3824-2, OHSAS 18001, API Q1 etc.

The Huisman Quality Welding School, Huisman Europe Services and the Huisman Academy also operate from Schiedam. Besides the headquarters in Schiedam, Huisman also holds Engineering offices in Breda and Twente.

CENTRAL LOCATION

Our Dutch production facility is accessible for seagoing vessels and has heavy lift capacity available, allowing us to install equipment at our quayside. Our premises also offers quick access to the road and rail networks.

PRODUCTION CAPABILITIES

In 2012 Huisman Schiedam completed the construction of the new 66m high, 57m wide and 59m long production hall. Since the halls' official opening it enables us to manufacture, test and commission most products indoors, making production far less dependent of weather conditions and allowing for fast installation, commissioning and testing onboard later on.

IN-HOUSE TESTING

The equipment is thoroughly tested throughout the production process and before delivery to allow for fast installation, commissioning and testing onboard. The products can be load tested at our test facilities up to a certain capacity. After installation, and before it is released to our clients for operation, the equipment is tested during harbour and sea trials.

The Dutch facility operates in line with the strict maritime security requirements for vessels and port terminals as set in the ISPS code.

HUISMAN INNOVATION TOWER (HIT)

Huisman expanded its testing and commissioning facilities in Schiedam with the build of a new 90m high drill tower. This tower is capable of handling 55m (180ft) stands and 46m (15ft) riser and has the ability to simulate dynamical vessel movements. The Huisman Innovation Tower (HIT) is used to demonstrate Huisman drilling equipment, to develop and test future equipment and systems and for the training of operators and Huisman staff.

90,000M² Total yard area

20,500M² Total covered production area

15,000M² Fabrication and assembly shops

13,300M² Office area

3,500M² Warehouse

2,200M² Paint shop

1,200MT Maximum hoisting capacity in shop

300M Quay length

360MT @ 18M
35MT @ 30M Quayside cranes







Overview production hall
with three pipelay towers



HUISMAN CZECH REPUBLIC



CZECH REPUBLIC

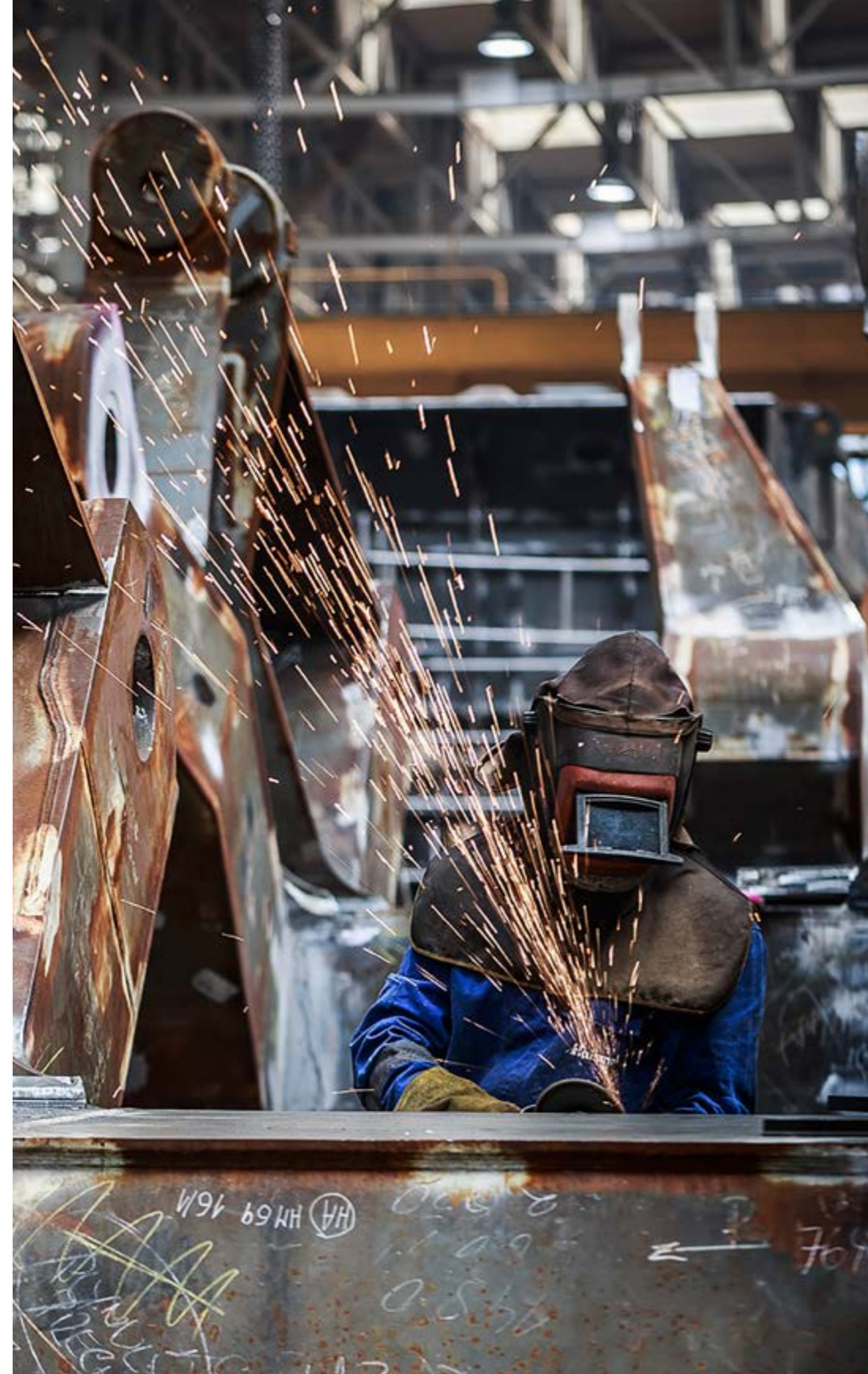
IN GENERAL

This Huisman facility, located in Sviadnov (Ostrava region), Czech Republic, opened in 1997 and has since then played an important role in the Huisman production and engineering force. The facility manufactures entire products, such as knuckle boom cranes, special lifting applications and the LOC 400 drill rig. It also builds components (such as tensioners, adjusters, traction and storage winches) that are completely assembled, commissioned, tested and then installed at the Huisman facility with quayside in the Netherlands or China.

The Huisman facility in the Czech Republic is specialised in the production of high tensile strength steel constructions (slewing platforms, winch frames, jibs, etc.) and critical components (large hydraulic cylinders, load cells, etc). The facility contains a cutting shop with robotic plasma cutting technology, a fabrication shop where manual, semi-automatic welding is performed and a machining shop where parts up to 100mt and up to 5m height can be machined. In addition, a state-of-the-art shot blasting hall, a brand new paint shop, machine shop, load cell shop and excellent testing facilities. In 2012 a new assembly

hall was opened along with a new engineering office and an extension and reconstruction of the production preparation buildings.

Huisman Czech Republic is certified according to ISO 9001, ISO 14001, OHSAS 18001, API Q1, etc.



106,000M² Total yard area

26,800M² Total covered production area

21,500M² Outside storage capacity

3,800M² Inside storage capacity

5,000M² Office area

120MT Maximum hoisting capacity in shop

125MT @ 9M
2x 33MT @ 10M
25MT @ 10M Yard cranes





HUISMAN CHINA



CHINA

IN GENERAL

Huisman expanded its operations to Fujian Province (Xiamen region) in China to facilitate customers in Asia and to increase the overall production capacity. The facility has been fully operational since April 2007 and delivers a significant contribution to the overall Huisman engineering and production capacity.

Huisman China is certified according to ISO 9001, ISO 14001, OHSAS 18001, API Q1 etc.

PRODUCTION CAPABILITIES

Huisman China has more than excellent production facilities at its disposal. The largest workshop, out of a total of 17 production halls, is 205m long, 54m wide and 62m high and has an internal lifting capacity of 2,000mt.

This makes it possible to assemble complete products in a vertical position. Huisman China's own Self Propelled Modular Trailers make it possible to transport these products over the premises and beyond.

The other workshops include a pre-treatment shop, cutting shop, rolling and bending shop, machining shop, shot blasting hall, painting hall and a maintenance facility.

Our welders are trained in Huisman China's own Welding School and raw materials are tested in the in-house laboratory.

QUAYSIDE

In December 2012 a 380m long quayside with deep water access became operational allowing us to install

our products with the 2,6mt quayside crane 'Skyhook'. Besides the enormous lifting capacity of the 'Skyhook', the quayside is equipped with a Ro-Ro facility and a heavy duty test facility.

ENGINEERING

Huisman China also offers a full range of Engineering disciplines. The Mechanical-, Electrical- and Control systems Engineering departments fully participate in Huisman's global engineering capacity and guarantee short response times to local facility support. The Commissioning Engineers thoroughly test individual subsystems prior to full load tests either at the quayside or during offshore trials.

284,000M² Total yard area

58,000M² Total covered production area

13,000M² Office area

2,000MT Maximum hoisting capacity in shop

2,600MT @ 30M Quayside crane

100MT @ 25M
30MT @ 25M Yard cranes

380M Quay length

17M Quayside water depth



From left to right: 160mt Pedestal Mounted Crane, 1,000mt Hybrid Boom Crane, 800mt Well Intervention Tower, 600mt Vertical-lay System, 2,600mt Skyhook Crane, 300mt Pedestal Mounted Offshore Crane



Huisman Training School



Material Testing
Laboratory



Tubs of 10,000mt
Tub Mounted Cranes Ø30m



HUISMAN BRAZIL





BRAZIL

Mid 2011, Huisman bought 34ha land alongside the river Itajaí-Açú in the city of Navegantes in Santa Catarina, a state in the southern part of Brazil on the Atlantic Ocean. This makes the facility easily accessible for seagoing vessels, allowing for fast installation, commissioning and testing of the Huisman designed and built offshore construction equipment. For the first investment phase that started early 2014, over 15,000m² of production facilities have been constructed. Over 285,000m³ of sand and 1300 46,5m long piles were used. The latter have been produced at our own pile plant on site. The customised piling machine was also built locally.

Huisman Brazil delivers various complete products from the Huisman product range with local content. Such as various crane types, AHT winches and pipelay equipment.

340,000M² Total yard area

20,000M² Total covered production area

570MT Maximum hoisting capacity in workshop

2 x 250MT Crawler Crane

200M Quay length (under development)

9M Water depth





HUISMAN ACADEMY

Huisman founded the Huisman Academy in 2011. Today the Academy is organised as Huisman's global Centre of Expertise in Learning and Development for clients as well as our for own staff.

The training facility is used for our clients to support knowledge and skills transfer programs for operating and maintaining equipment in the most effective and safe way. Huisman's staff is trained in job professionalism to increase and ensure the quality of the design and production process of the global Huisman organisation.

The Academy portfolio covers a coherent set of courses for the different Huisman product categories and job disciplines at various levels (basic, advanced and expert). Our clients can combine various standardised modules to ensure the best possible training for their employees.

OUR WAY OF WORKING AND FACILITIES

The Academy Training Developer assesses the requirements and works closely with our clients to provide a proper specification of the learning goals and materials based on our didactical standards. These standards follow the international ISO 10015 guidelines for professional training organisation.

The Huisman Academy in Schiedam, has its own modern facilities, including two of Huisman's specialised equipment simulators (Crane and Drilling Tower). These simulators are equipped with operator consoles and a full scaled 3D Dome visualisation. Together with several classroom based SCADA-simulators, a crane with Heave Compensation Lab and several electrical switch board cases, our professional trainers are equipped to combine theory and practical's for optimal transfer of knowledge and skills.



HUISMAN GLOBAL SERVICES

Huisman Global Services (HGS) is part of the Huisman Group and has the goal to deliver excellent services to all clients owning Huisman equipment. HGS aims to support her clients in safe and efficient operations worldwide.

Our range of services draws together the technical expertise of the entire mechanical, hydraulic, electrical, control systems and training departments of Huisman to meet the requirements of your business.

This includes:

- Operational Support Services;
- Survey & Inspection Services;
- Maintenance Services;
- Parts Services;
- Training Services;
- Equipment Lifecycle Services.

We have a dedicated, globally operating Service Team of skilled professionals, available to provide advice,

training and service support before, during and after installation and delivery. Our Service Engineers take responsibility to ensure that client-owned and operated equipment can be used as safely and efficiently as possible, resulting in optimised levels of equipment safety, uptime and performance.

Our Service Team is available to provide support from anyone of the Huisman locations or at any client specified site. Our Service Network is managed from

Huisman in the Netherlands, supported by our local Service Offices in Schiedam (the Netherlands), Houston (USA), Singapore, Perth (Australia) and Rio de Janeiro (Brazil). A HGS Account Engineer in the local Service Office will serve as the client's first point of contact regarding all issues related to any piece of Huisman equipment.

LOCAL SALES AND SERVICE OFFICES

42



HUISMAN EQUIPMENT BV

info@huisman-nl.com
[Local Sales Office](#)
[Production Facility](#)

Admiraal Trompstraat 2
 3115 HH Schiedam
 P.O. Box 150
 3100 AD Schiedam
 The Netherlands
 Phone: +31 (0)88 070 2222
 Fax: +31 (0)88 070 2220

HUISMAN EUROPE SERVICES

service@huisman-nl.com
[Global Services Office](#)

Jan Evertsenweg 2-4
 3115 JA Schiedam
 P.O. Box 150,
 3100 AD Schiedam
 Harbour no. 561
 The Netherlands
 Phone: +31 (0)88 070 2222

HUISMAN ACADEMY

info@huisman-academy.com

Jan Evertsenweg 38
 3115 JA Schiedam
 The Netherlands
 Phone: +31 (0)88 070 2222
 Fax: +31 (0)88 070 2220



HUISMAN KONSTRUKCE S.R.O.

mail@huisman.cz
[Production Facility](#)

Nadrazni 289
 739 25 Sviadnov
 Czech Republic
 Phone: +420 (0)558 440611
 Fax: +420 (0)558 440631



HUISMAN (CHINA) CO., LTD.

sales@huisman-cn.com
[www.huisman-cn.com](#)
[Local Sales Office](#)
[Production Facility](#)

No. 48 Zhaoshang Avenue
 China Merchants
 Economic & Technological
 Development Zone
 Zhangzhou City,
 Fujian Province, 363122
 People's Republic of China
 Phone: +86 (0)596 685 7317
 Fax: +86 (0)596 685 7220



HUISMAN LTDA

sales@huisman-br.com
[Local Sales Office](#)
[Production Facility](#)

Rua Prefeito Manoel Evaldo
 Muller, 4373
 Volta Grande
 /SC, Brazil
 CEP 88371-790
 Phone: +55 47 3406 3030

HUISMAN DO BRASIL SERVICES

info@huisman-br.com
[Global Services Office](#)

Rua Lauro Muller, 116/3703
 Botafogo
 Rio de Janeiro/RJ, Brazil
 CEP 22290-160
 Phone: +55 21 3232 1400



HUISMAN US. INC

info@huisman-us.com
[sales@huisman-us.com](#)
[Local Sales Office](#)

Regus City Center
 City Center One, Suite 300
 800 Town & Country Blvd.
 Houston, Texas 77024
 United States of America
 Phone: +1 832 564 3597
 Fax: +1 832 431 3001

HUISMAN NORTH AMERICA SERVICES

service@huisman-na.com
[Global Services Office](#)

2502 Wehring Rd.
 Rosenberg, TX 77471
 United States of America
 Phone: +1 832 490 1111



HUISMAN FAR EAST SERVICES PTE LTD

sales@huisman-sg.com
[service@huisman-sg.com](#)
[Local Sales Office](#)
[Global Services Office](#)

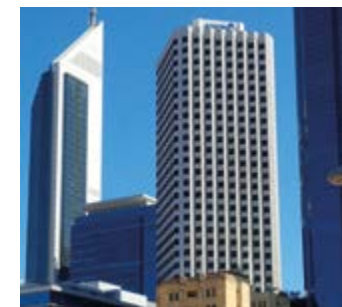
36 Tuas View Place
 Singapore 637882
 Phone: +65 (0)6861 4090
 Fax: +65 (0)6896 9003



HUISMAN NORGE AS

sales@huisman-no.com
[Local Sales Office](#)

Teatergaten 35
 N-5010 Bergen
 Norway
 Phone: +47 (0)5611 3300



HUISMAN AUSTRALIA SERVICES

sales@huisman-au.com
[service@huisman-au.com](#)
[Local Sales Office](#)
[Global Services Office](#)

Room 24.25 Level 24,
 77 St Georges Terrace
 Perth, WA 6000
 PO Box Z5189,
 St Georges Terrace
 Perth, WA 6831
 Australia
 Phone: +61 (0)8 6500 7580

02

43

For more information about our locations,
 please visit our website [huismanequipment.com](#).

CRANES

Introduction Cranes	45
Pedestal Mounted Cranes	48
Heavy Lift Mast Cranes	54
Offshore Mast Cranes	58
Tub Cranes	64
Subsea Cranes	66
Offshore Wind Cranes	70
Floating Cranes	72
Land Cranes	74
Various Cranes	76

Huisman's in-house developed and manufactured cranes have been used within the industry for over 30 years and have become the standard in the design and construction of heavy lift cranes. Our commitment to work on continuous product improvement and finding new technical solutions for increasing demands is reflected in our pioneering and innovative way of working. We pride ourselves on our reputation as a reliable partner as evidenced by our extensive track record and the number of long-lasting client relationships.

We develop and build a wide range of both on- and offshore cranes, varying in size and type. Our crane designs are characterised by increased workability and functionality for the owner. Increased vessel stability, extended weather window and larger free deck space are examples of the advantages our cranes have to offer. Besides a range of standardised cranes with options, we have extensive experience in providing tailor-made cranes. In either case, our solutions have proven to be cost effective in total cost of ownership.

Huisman cranes are designed and built with safety as number one priority, in accordance with international standards and are certified by recognised classification societies such as LR, DNV and ABS.

PEDESTAL MOUNTED CRANE

- Small tail swing, optimising free deck space
- Drive system installed in enclosed crane house, protected from marine environment

KNUCKLE BOOM CRANE

- Ability to reduce pendulum of load and therefore enhancing safety and impact on ship stability
- Secondary controlled hydraulic system for superior active heave compensation performance

HYBRID BOOM CRANE

- Combines advantage of Pedestal Mounted Crane with Knuckle Boom Crane
- Subsea installation up to 1,200mt SWL
- Superior loadcurve compared to conventional Knuckle Boom Cranes
- High maximum lifting height

TUB MOUNTED CRANE

- Lightweight tub design
- Small tail swing, optimizing free deck space
- No counter weight
- Crane range up to 10,000mt SWL

LEG ENCIRCLING CRANE

- Lightweight crane design allows for larger payload on jack-up vessels
- Small tail swing allows for optimised utilisation of free deck space
- Crane range up to 2,500mt SWL
- Fully electrical driven

HEAVY LIFT MAST CRANE

- Small footprint allows for optimised utilisation of free deck space

OFFSHORE MAST CRANE

- Small footprint allows for optimised utilisation of free deck space

SHEERLEG CRANE

- Custom design
- Fully electric driven

COMPACT RINGER CRANE

- Modular crane design, upgradable up to 5,000mt SWL
- Optionally containerised
- Fully electric driven

PEDESTAL MOUNTED CRANE



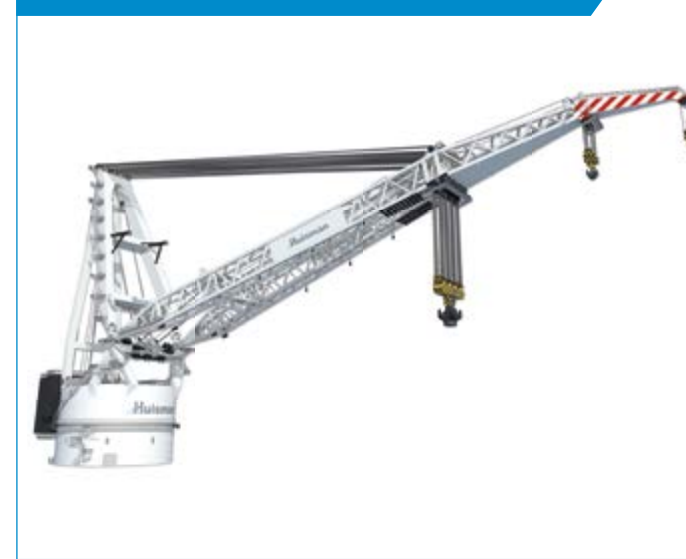
KNUCKLE BOOM CRANE



HYBRID BOOM CRANE



TUB MOUNTED CRANE



LEG ENCIRCLING CRANE



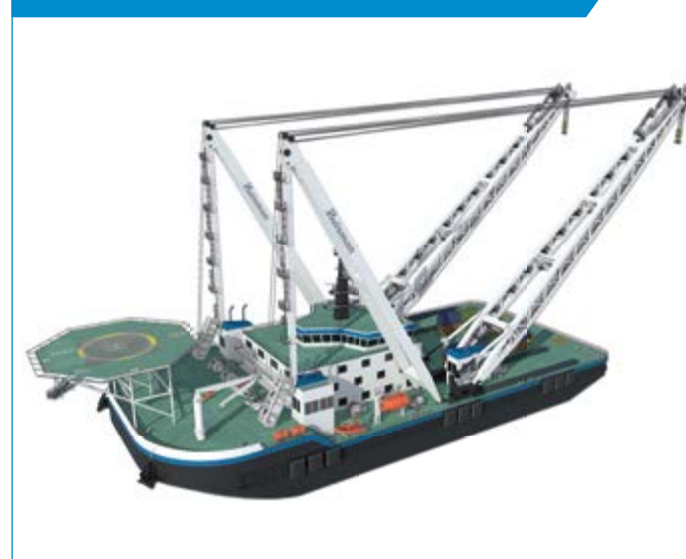
HEAVY LIFT MAST CRANE



OFFSHORE MAST CRANE



SHEERLEG CRANE

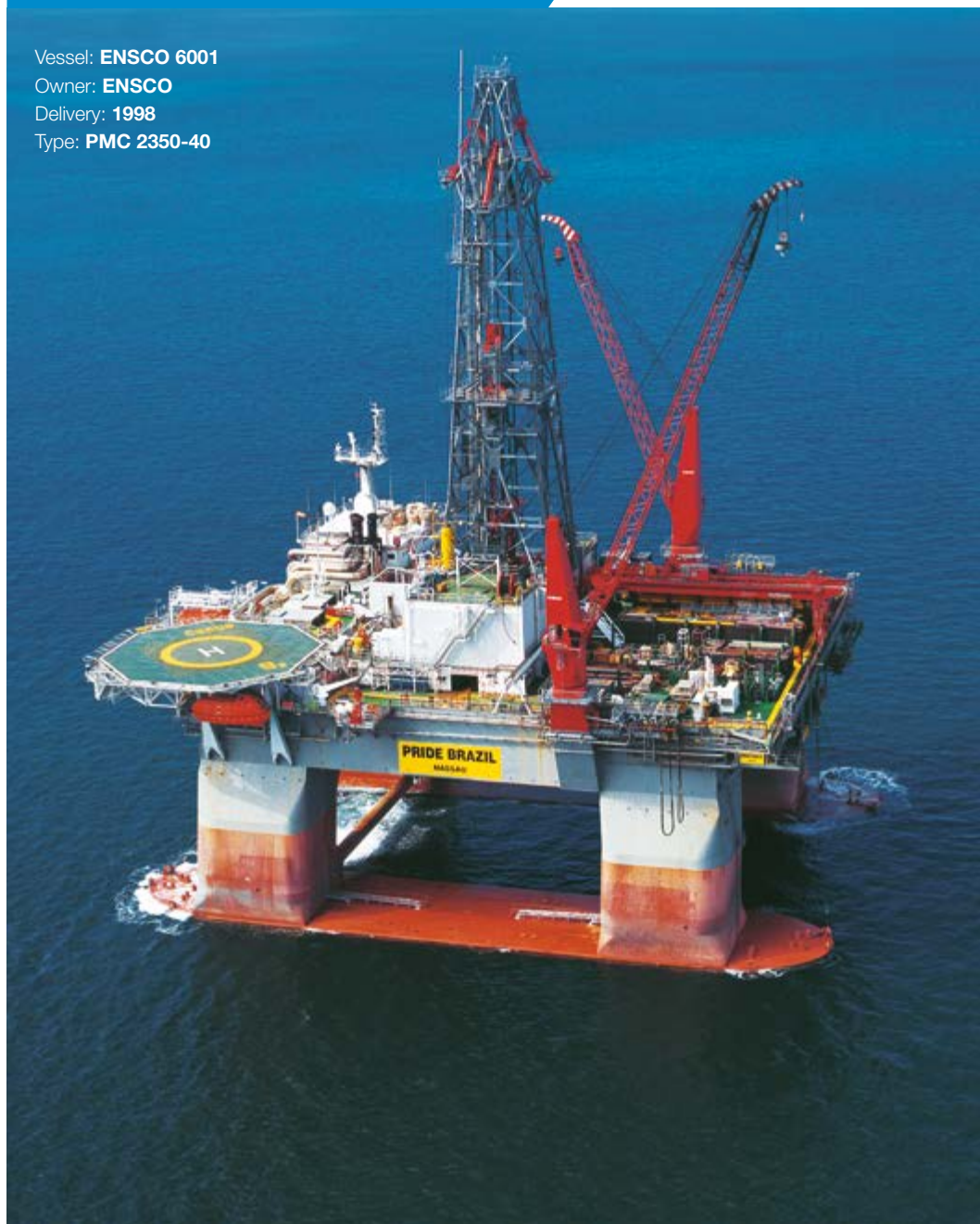


COMPACT RINGER CRANE



30MT PEDESTAL MOUNTED CRANE

Vessel: **ENSCO 6001**
Owner: **ENSCO**
Delivery: **1998**
Type: **PMC 2350-40**



40MT PEDESTAL MOUNTED CRANE

Vessel: **Audacia**
Owner: **Allseas**
Delivery: **2009**
Type: **PMC 3150-30**

FEATURES

- Automatic overload protection system (AOPS)
- Designed for pipe transfer



65MT KNUCKLE BOOM CRANE

Type: **PMC 4800-65**



80MT PEDESTAL MOUNTED CRANE

Vessel: **Noble Globetrotter I**
Owner: **Noble Drilling**
Delivery: **2012**
Type: **PMC 3150-80**



100MT PEDESTAL MOUNTED CRANE

Vessel: **ENA Habitat**
Owner: **Eastern Navigation**
Delivery: **2015**
Type: **PMC 4800-100**



100MT PEDESTAL MOUNTED CRANE

Vessel: **SEMAC-1**
Owner: **Saipem**
Delivery: **2005**
Type: **PMC 6200-100**

FEATURES

- Automatic Overload Protection System (AOPS)
- Designed for pipe transfer



160MT PEDESTAL MOUNTED CRANE

Vessel: **Q5000**
Owner: **Helix**
Delivery: **2014**
Type: **PMC 3600-60**



300MT PEDESTAL MOUNTED CRANE

Vessel: **Crest Station 3**
Owner: **Pacific Radiance**
Delivery: **2009**
Type: **PMC 6200-300**



PEDESTAL MOUNTED CRANES

400MT PEDESTAL MOUNTED CRANE

Vessel: Zhong You Hai 101
Owner: CPOE
Delivery: 2010
Type: PMC 15500-400



500MT PEDESTAL MOUNTED CRANE

Location: Flexi France, Le Trait (France)
Owner: Technip
Delivery: 2013
Type: PMC 20000-500



HEAVY LIFT MAST CRANES

2X 700MT HEAVY LIFT MAST CRANE

Vessel: **Happy Buccaneer**
Owner: **BigLift Shipping**
Delivery: **1984 (2x 550mt Heavy Lift Mast Crane)**
Upgrade: **2006 (2x 700mt Heavy Lift Mast Crane)**
Capacity: **700mt @ 29m**



2X 900MT HEAVY LIFT MAST CRANE

Vessel: **Happy Sky**
Owner: **BigLift Shipping**
Delivery: **2013**
Capacity: **900mt @ 25m**

Single lift installation of a 900mt Heavy Lift Mast Crane at Huisman China.



2X 900MT HEAVY LIFT MAST CRANE

Vessel: **Happy Star**
Owner: **BigLift Shipping**
Delivery: **2014**
Capacity: **900mt @ 25m**



2X 900MT HEAVY LIFT MAST CRANE

700MT SUPER FLY-JIB

Vessel: **Jumbo Javelin**
Owner: **Jumbo**
Delivery: **2004**
Capacity: **900mt @ 25m**

FEATURES

- 700mt Fly-jib
- Each crane can be outfitted with a modular 70mt subsea installation system with 14,000m wire rope



2X 1,500MT HEAVY LIFT MAST CRANE

Vessel: **Jumbo Kinetic**
Owner: **Jumbo**
Delivery: **2015**
Capacity: **1,500mt @ 20m**



400MT OFFSHORE MAST CRANE

Vessel: **Hai Yang Shi You 286**
 Owner: **COOEC**
 Delivery: **2014**
 Capacity: **400mt @ 16m/200mt @ 31m**

FEATURES

- Deepwater hoist system on main hoist:
- Hook travel up to 3,000m (5,300m optional)
 - Active and passive heave compensation



850MT OFFSHORE MAST CRANE

Vessel: **Caballo Maya**
 Owner: **Coastline Maritime**
 Delivery: **2011**
 Capacity: **850mt @ 25m**



900MT OFFSHORE MAST CRANE

Vessel: **Lewek Champion**
 Owner: **Ezra**
 Delivery: **2008**
 Capacity: **900mt @ 32m**

FEATURE

- S-lay stinger is suspended from pedestal



2X 1,800MT OFFSHORE MAST CRANE



Vessel: **OOS Gretha**
Owner: **OOS International**
Delivery: **2012**
Capacity: **1,800mt @ 27m**

FEATURES

- Optional deepwater hoist:
- Capacity 300/600mt
 - Hook travel up to 6,000m single line
 - Active and passive heave compensation

3,000MT OFFSHORE MAST CRANE



Vessel: **Lewek Constellation**
Owner: **Ezra**
Delivery: **2014**
Capacity: **3,000mt @ 25m**

FEATURES

- Deepwater hoist system on whip and auxiliary hoist:
- Hook travel up to 2,000m single line
 - The auxiliary hoist and whip hoist can be combined into a heavy lift deepwater hoist system with a capacity of 1,200mt

4,000MT OFFSHORE MAST CRANE

Vessel: **Aegir**
Owner: **Heerema**
Delivery: **2012**
Capacity: **4,000mt @ 34m**

FEATURES

- Dual main hoist with weight saving splittable blocks
- Crane can be fitted with single main hoist hook
- Suitable for 3-point lift with main and auxiliary hoist



5,000MT OFFSHORE MAST CRANE

Vessel: **Seven Borealis**
Owner: **Subsea 7**
Delivery: **2011**
Capacity: **5,000mt @ 34m**

FEATURES

- Deepwater hoist system on auxiliary hoist:
- Capacity 300/600/1,200mt
 - Hook travel up to 6,000m single line
 - Active and passive heave compensation



5,000MT TUB CRANE



Capacity: 5,000mt @ 32m

FEATURES

- Low own weight
- Huisman made slew bearing
- Full revolving with maximum capacity

2X 10,000MT TUB CRANE



Vessel: **Sleipnir**
 Owner: **Heerema**
 Delivery: **2018**
 Capacity: **10,000mt @ 48m**

FEATURES

- Low own weight
- In-house made slew bearing
- Bridge passage possible using a foldable back frame
- Full revolving with maximum capacity

120MT KNUCKLE BOOM CRANE

Vessel: **Seven Atlantic**
Owner: **Subsea 7**
Delivery: **2009**
Type: **KBC 6200-120**

FEATURES

- 2,000m hook travel main hoist
- 1,500m hook travel auxiliary hoist
- Active heave compensation and constant tension on both winches



150MT KNUCKLE BOOM CRANE

Vessel: **Ocean Alliance**
Owner: **Otto Candies**
Delivery: **2011**
Type: **KBC 6200-150**

FEATURES

- 3,000m hook travel main hoist
- Up to 1,850m auxiliary hoist
- Active heave compensation and constant tension on both winches



250MT KNUCKLE BOOM CRANE

Vessel: **Seven Pacific**
Owner: **Subsea 7**
Delivery: **2010**
Type: **KBC 6200-250**

FEATURES

- 2,500m hook travel main hoist
- Up to 1,850m hook travel auxiliary hoist
- Active heave compensation and constant tension on both winches



400MT OFFSHORE MAST CRANE



Vessel: **Seven Waves**
 Owner: **Subsea 7**
 Delivery: **2014**
 Capacity: **400mt @ 16m/200mt @ 29m**

- FEATURES**
- Hook travel up to 3,000m (5,300m optional)
 - Active and passive heave compensation

4 X 400MT HYBRID BOOM CRANE



Vessel: **Stingray Project**
 Owner: **Maersk Supply Service**
 Delivery: **2016, 2017**
 Capacity: **400mt @ 12.5m**

- FEATURES**
- Hook travel up to 3,000m
 - Active and passive heave compensation

900MT PEDESTAL MOUNTED CRANE



Vessel: **Skandi Africa**
 Owner: **DOF**
 Delivery: **2015**
 Capacity: **900mt @ 17m/450mt @ 32m**

- FEATURES**
- Hook travel up to 4,400m
 - Active and passive heave compensation
 - Equipped with wire rope spacer

1000MT HYBRID BOOM CRANE



Vessel: **Seven Arctic**
 Owner: **Subsea 7**
 Delivery: **2015**
 Capacity: **1000mt @ 18m/660mt @ 26m/330mt @ 48m**

- FEATURES**
- Excellent load curve, high lifting height, fully electric driven, deepwater hoist system on main hoist:
- Anti-twist device
 - Hook travel up to 6,000m
 - Active and passive heave compensation

230MT PEDESTAL MOUNTED CRANE



Vessel: **GMS Endeavour**
Owner: **Gulf Marine Services**
Delivery: **2010**
Capacity: **230mt @ 20m**

600MT PEDESTAL MOUNTED CRANE



Vessel: **Neptune**
Owner: **GeoSea**
Delivery: **2011**
Capacity: **600mt @ 25m**

1,500MT LEG ENCIRCLING CRANE



Vessel: **Seajacks Scylla**
Owner: **Seajacks**
Delivery: **2015**
Capacity: **1,540mt @ 32m**

FEATURES

- Low own weight
- In-house made slew bearing
- Twin boom
- Full electric drive system

2,500MT LEG ENCIRCLING CRANE



Capacity: **2,500mt @ 28m**

2,200MT FLOATING CRANE



Vessel: **Taklift 4**
Owner: **Boskalis Offshore**
Delivery: **1981 (1,600mt Floating Crane)**
Upgrade: **2010 (2,200mt Floating Crane)**

3,300MT HEAVY LIFT VESSEL



Vessel: **Rambiz**
Owner: **Scaldis**
Delivery: **1996**

1,600MT CONTAINERISED CRANE



Owner: **Mammoet**
Delivery: **2000**

FEATURES

- Optional containerised (ISO Containers)
- 21m Twin Ring with hydraulic jacks for even load distribution

2,500MT - 5,000MT COMPACT RINGER CRANE



FEATURES

- Small footprint
- Modular design
- Full electric drive system



2X 55MT GANTRY MOUNTED CRANE

600MT OFFSHORE MAST CRANE

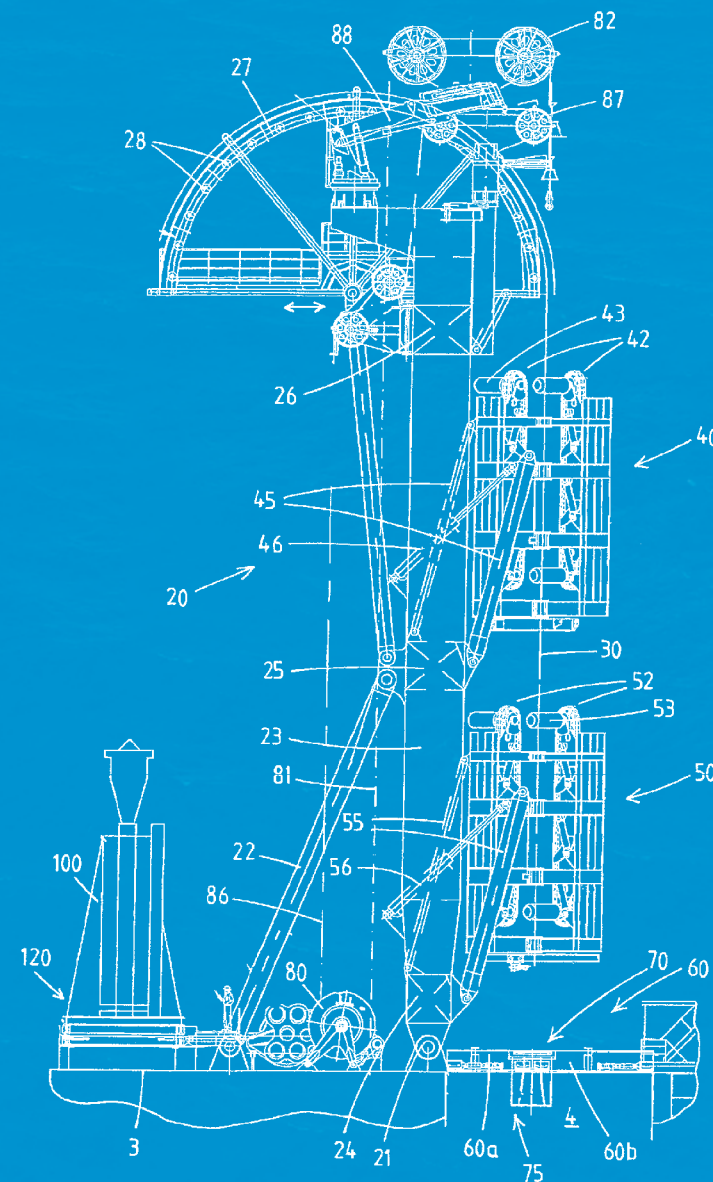


20,000MT GANTRY CRANE



2,600MT SKYHOOK CRANE





PIPELAY

Introduction Pipelay	79
Flex-lay	82
Reel-lay	90
S-lay	92
J-lay	94
Multi-lay	98
Storage Systems	106

Huisman is a worldwide market leader in the turnkey delivery of deepwater pipelay systems. We deliver dedicated systems such as flex-lay systems, s-lay systems, j-lay systems and reel-lay systems. We also deliver combination systems such as the multi-lay systems. In addition to fully integrated pipelay systems, we can also provide a full package of related standalone equipment such as baskets, reel drive systems, etc.

The complexity of our projects and their innovative character require solution-oriented thinking, technical excellence, creativity and a drive for innovation. This is why we not only provide standardised pipelay systems, but also highly customised pipelay systems. By closely cooperating with our clients we can meet client specific lay requirements and create the pipelay systems of the future, equipped for deeper waters and higher capacities.

INTRODUCTION PIPELAY

Pipelaying operations are performed by four principle methods; flex-lay, reel-lay, j-lay and s-lay. Each field being developed, being an offshore oil field or wind farm, etc. requires at least one or more pipelaying methods.

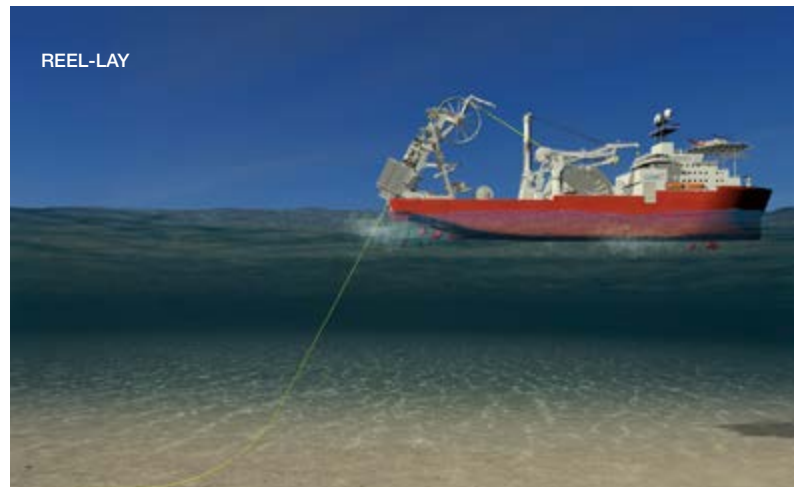
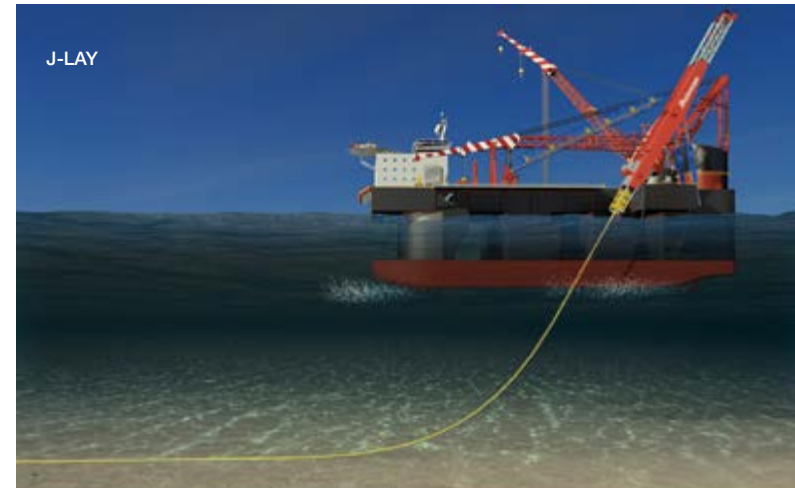
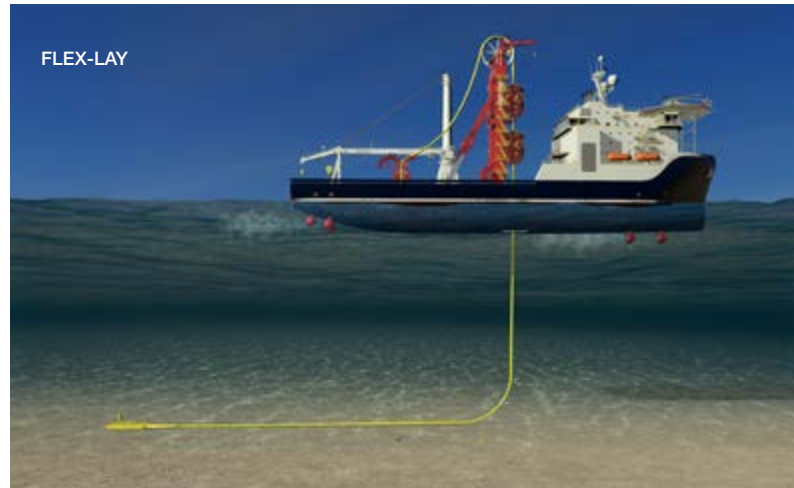
Huisman has extensive experience in designing and manufacturing all types of pipelay systems and we are experts at combining several pipelay methods into a multi-lay system for maximum utilization possibilities on a single vessel.

With flex-lay, a flexible pipe, umbilical or cable is unspooled from a storage system and lowered to the seabed by one or more tensioners located in a pipelay ramp in (near) vertical position.

With reel-lay, an onshore welded length of rigid steel pipe is unspooled from a reel and lowered to the seabed by one or more tensioners located in a tilted pipelay ramp.

With j-lay, individual sections of (concrete coated) pipe are welded on top of each other and lowered to the seabed by a traveling block or tensioner located in a tilted pipelay ramp.

With s-lay, individual sections of (concrete coated) pipe are welded behind each other and lowered to the seabed by one or more horizontal tensioners and guided over a stinger.



150MT FLEX-LAY SYSTEM

Vessel: **Normand Vision**
Owner: **Ocean Installer**
Delivery: **2014**

FEATURES

- 2x 75mt Retractable tensioner
- 185mt A&R system
- Baseframe with integrated moonpool hatches



150MT FLEX-LAY SYSTEM

Vessel: **Toisa Proteus (Originally)**
Owner: **Subsea 7**
Delivery: **2008**

FEATURES

- 2x 75mt Tensioner
- 185mt A&R system
- Baseframe with integrated hang-off module
- Ramp angle adjustment system



260MT FLEX-LAY SYSTEM

Vessel: **Seven Pacific**
 Owner: **Subsea 7**
 Delivery: **2010**

FEATURES

- 260mt Retractable tensioner
- 300mt A&R system
- 300mt Moonpool hatch with integrated hang off clamp
- Below deck storage system
 - 2x 1,250mt below deck carousel system
 - Deck pipe loading tensioner

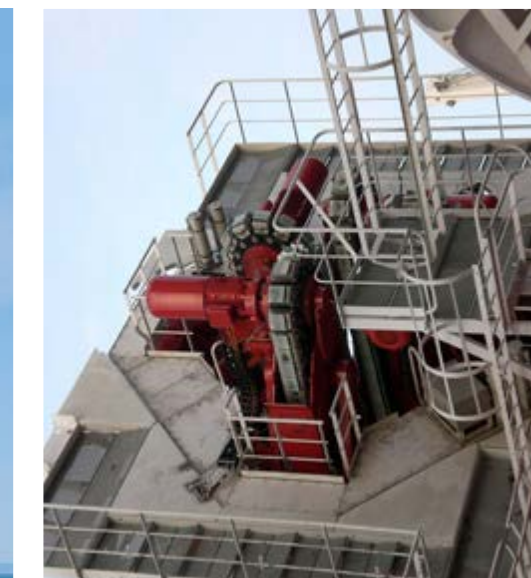


340MT FLEX-LAY SYSTEM

Vessel: **Seven Mar**
 Owner: **Subsea 7**
 Delivery: **2007**

FEATURES

- 2x 170mt Tensioner
- 360mt A&R system
- Deepwater lowering system with active heave compensation
- Baseframe with integrated 340mt retractable hang off module
- Ramp angle adjustment system



550MT FLEX-LAY SYSTEM

Vessel: **Seven Waves/Seven Rio/Seven Sun/Seven Cruzeiro**
 Owner: **Subsea 7**
 Delivery: **2014/2016**

FEATURES

- 2x 275mt Tensioner
- 600mt A&R system
- 600mt Moonpool hatch with integrated hang-off module
- Ramp angle adjustment system
- 400mt Offshore mast crane



600MT FLEX-LAY SYSTEM

Vessel: **Seven Arctic**
 Owner: **Subsea 7**
 Delivery: **2016**

FEATURES

- 275mt and 325mt Tensioner
- 600mt A&R system
- 600mt Moonpool hatch with integrated hang off module
- Ramp angle adjustment system
- 1,000mt Hybrid boom crane



650MT FLEX-LAY SYSTEM

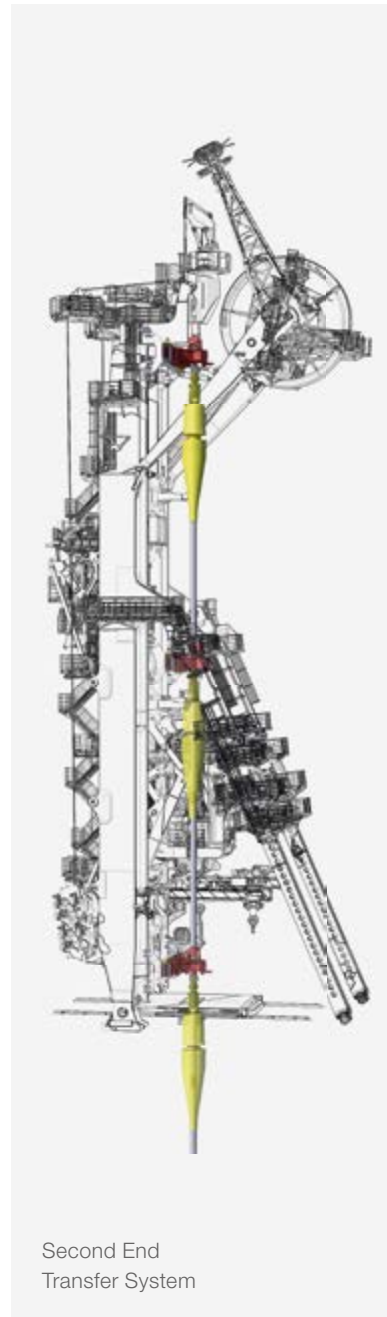
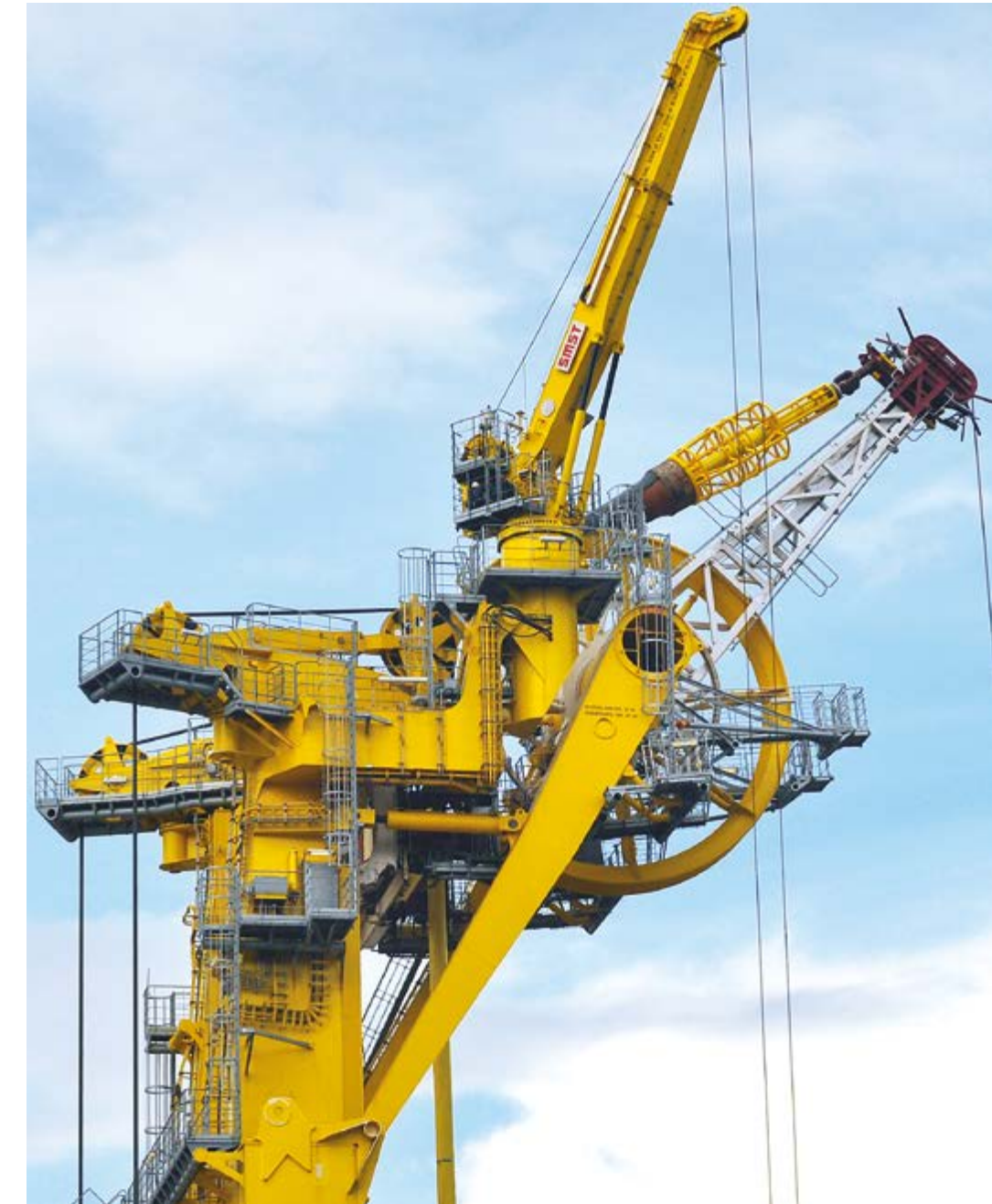
Vessel: **Skandi Africa**
Owner: **Technip DOF**
Delivery: **2015**

FEATURES

- 2x 325mt Tensioner
- 637mt A&R system (2x 380mt systems combined)
- 720mt Moonpool hatches with integrated hang off module
- Ramp angle adjustment system
- Flexible pipe spooling system
- 3,500mt Basket system
- 900mt Pedestal mounted crane
- 150mt Knuckle boom crane



End Connector Handler



Second End Transfer System

400MT REEL-LAY SYSTEM

Vessel: **Seven Oceans**
Owner: **Subsea 7**
Delivery: **2007**

- FEATURES**
- 400mt Tensioner
 - 450mt A&R system
 - 80mt Secondary A&R winch
 - Aligner with pipe straightening system
 - 600mt Hang off module
 - Ramp angle adjustment system
 - 3,500mt rigid pipe reel with spooling device
 - 75mt spooling tensioner
 - Fully mechanised PLET handling system
 - 400m Offshore mast crane

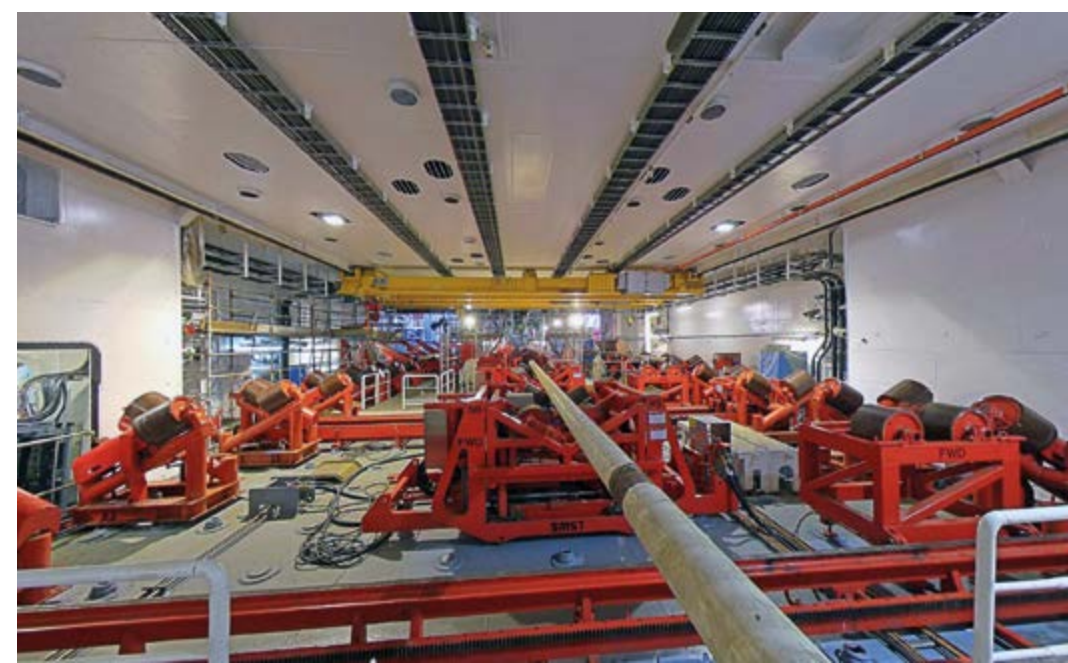
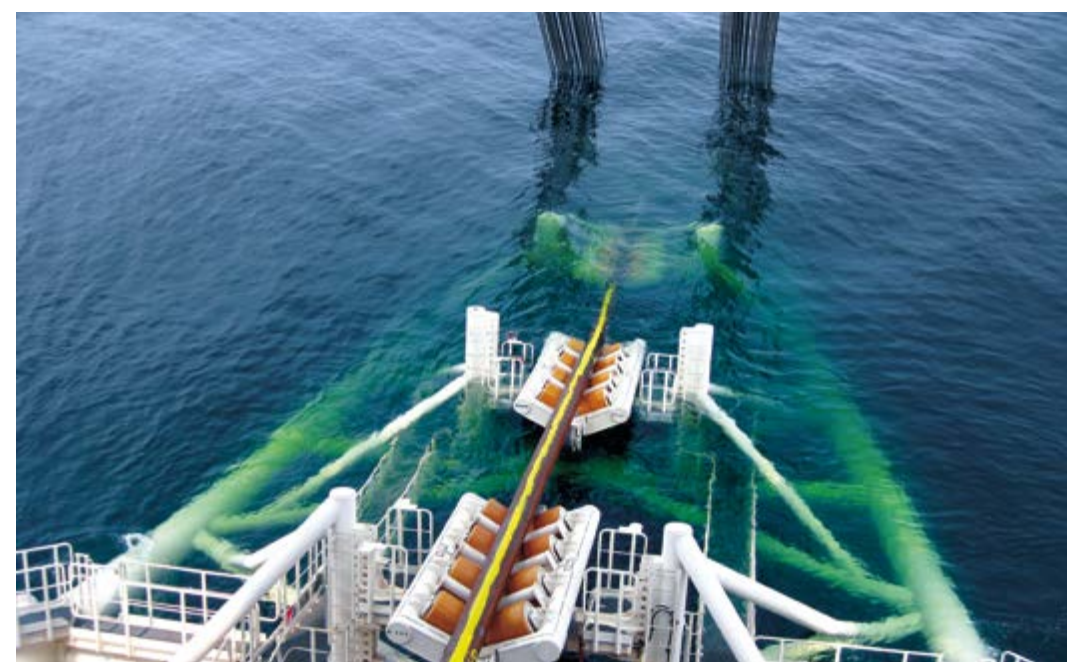


600MT S-LAY SYSTEM

Vessel: **Seven Borealis**
Owner: **Subsea 7**
Delivery: **2012**

FEATURES

- 3x 200mt Tensioner
- 600mt A&R system
- 200mt Secondary A&R system
- Pipe handling system
- 600mt Stinger
- 3,600mt Stinger handling system
- 5,000mt Heavy lift mast crane



525MT J-LAY SYSTEM

Vessel: **Saipem 7000**
Owner: **Saipem**
Delivery: **1999**

FEATURES

- 525mt Pipelay tower
- External line-up tool and internal line-up tool
- Pipe elevator system
- Quad pipe loader
- Ramp adjustment system

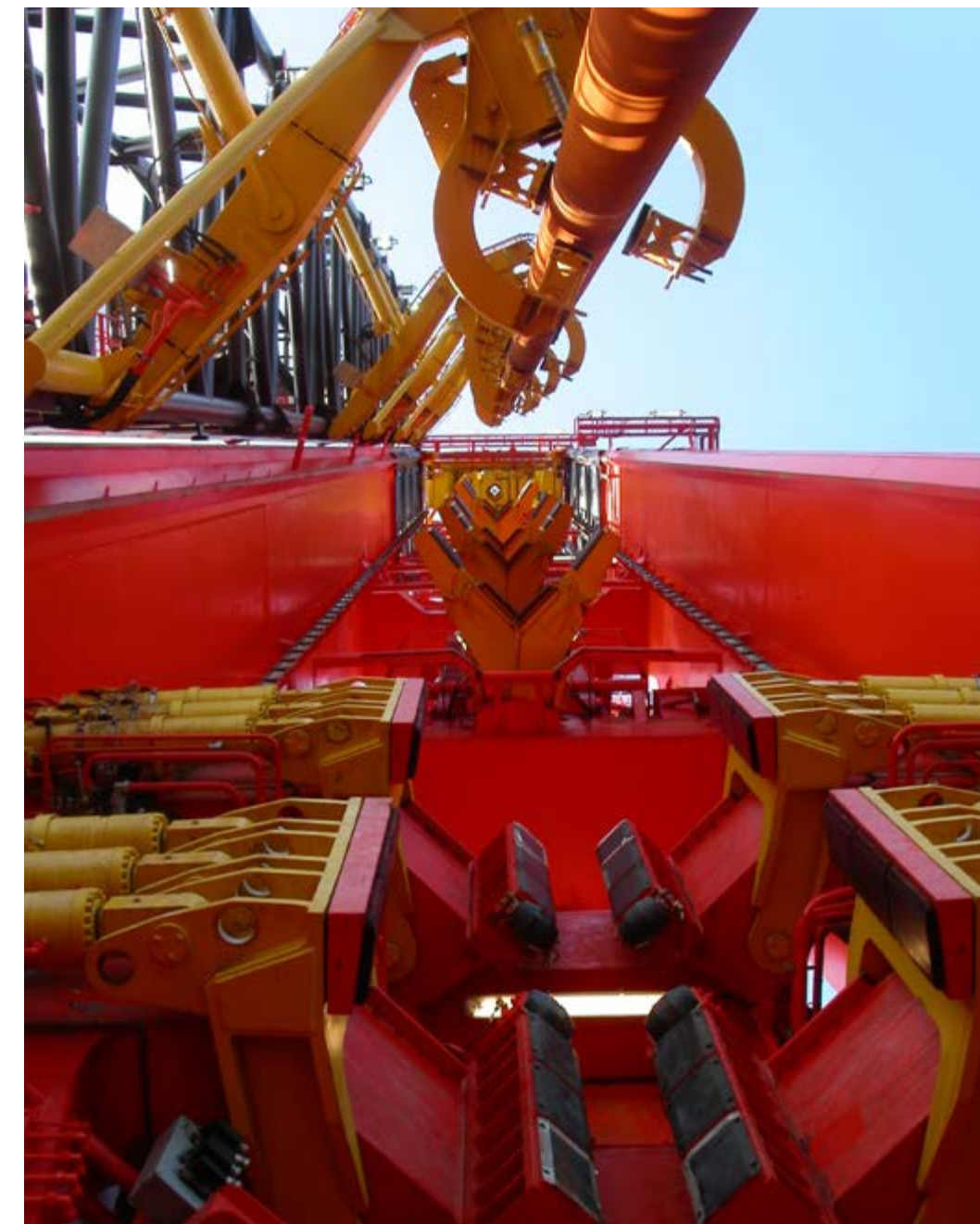


1,050MT J-LAY SYSTEM

Vessel: **Balder**
Owner: **Heerema Marine Contractors**
Delivery: **2002**

FEATURES

- 1,050mt Pipelay tower
- 1,050mt Pipe lowering system
- External line-up tool
- 275m Pipe sections
- Hex pipe loader
- Ramp adjustment system



550MT MULTI-LAY SYSTEM

Vessel: **Deep Blue**
 Owner: **Technip**
 Delivery: **2001**

CAPACITIES

- 550mt Rigid-lay
- 420mt Flex-lay
- 900mt J-lay

FEATURES

- 2x 275mt Tensioner
- 360mt A&R system
- 185mt secondary A&R winch
- Aligner with pipe straightening system
- Aligner for flexible pipe
- Hang off module
- 900mt Pipe lowering system
- Quad pipe loader
- External line-up tool and internal line-up tool
- Ramp adjustment system
- 2x 3,000mt Rigid pipe reels
- 2x Rigid pipe spooling tensioner
- Flexible pipe spooling tensioner



570MT MULTI-LAY SYSTEM

Vessel: **Seven Seas**
 Owner: **Subsea 7**
 Delivery: **2008**

CAPACITIES

- 400mt Rigid Reel-lay (future option)
- 430mt Flex-lay
- 400mt J-lay
- 750mt Lowering System

FEATURES

- 400mt and 170mt Tensioner
- 450mt A&R system
- 125mt Secondary A&R system
- J-lay module integrated welding station
- External line-up tool
- 2x Aligner for flexible pipe
- 450mt Moonpool hatches with integrated hang off module
- Fully mechanised PLET handling system
- Ramp adjustment system
- Flexible Pipe spooling system
- 2x 1,250mt Carousels
- Double joint pipe loader
- 400mt Offshore mast crane



J-lay module with integrated welding station

800MT MULTI-LAY SYSTEM



Vessel: **Lewek Constellation**
 Owner: **EMAS**
 Delivery: **2015**

CAPACITIES

- 800mt Rigid Reel-lay
- 520mt Flex-lay
- 1,000mt Lowering System
- 400mt J-lay (future option)

FEATURES

- 2x 400mt Tensioners
- 1,000mt A&R system
- 185mt Secondary A&R system
- Aligner with pipe straightening system
- 2x Aligners for flexible pipe
- 750mt Moonpool hatches with integrated hang off module
- Fully mechanised PLET handling system
- Ramp adjustment system
- Flexible pipe spooling system
- 2x 1,250mt Carousel system
- Multiple 1,200mt portable reels
- 3,000mt Offshore mast crane



Flex-lay



Reel-lay



J-lay



Installation mode

2,000MT MULTI-LAY SYSTEM

Vessel: **Aegir**
 Owner: **Heerema Marine Contractors**
 Delivery: **2013**

CAPACITIES

- 2,000mt J-lay
- 800mt Reel-lay
- 520mt Flex-lay
- 2,000mt Lowering System

FEATURES

- 2x 400mt Tensioners
- 2,000mt A&R system
- Aligner with pipe straightening system
- 2,000mt Pipe lowering system
- Moonpool hatches
- 2,000mt Skidding hang off module
- External line-up tool
- Quad Ppipe loader
- Integrated PLET handling system
- Ramp adjustment system
- Rigid pipe spooling system
- Multiple 2,000mt portable reels
- 4,000mt Offshore mast crane



Reel-lay



J-lay



Installation mode



STORAGE SYSTEMS



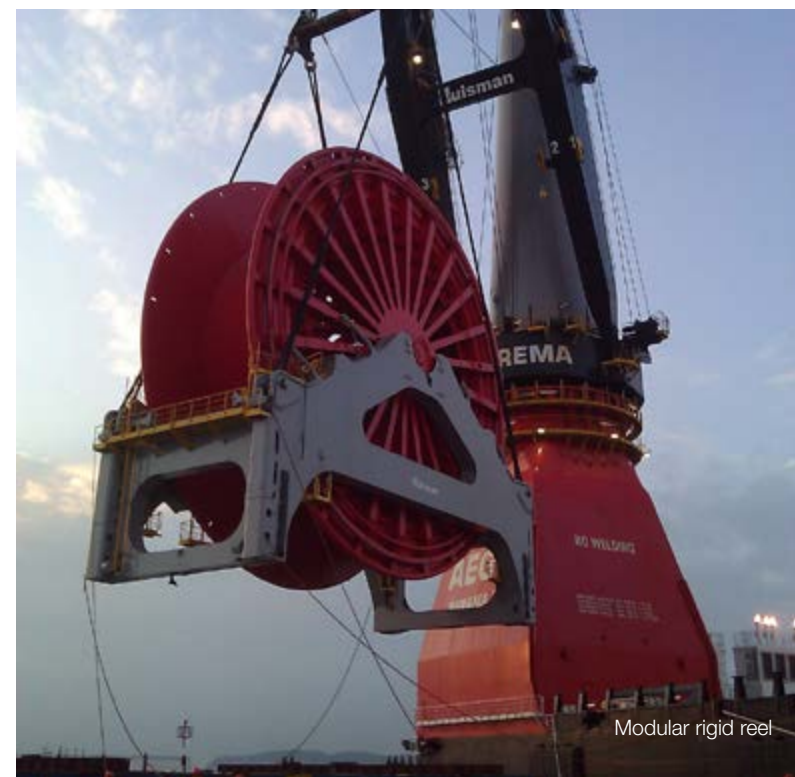
Reel drive system



Rigid reel



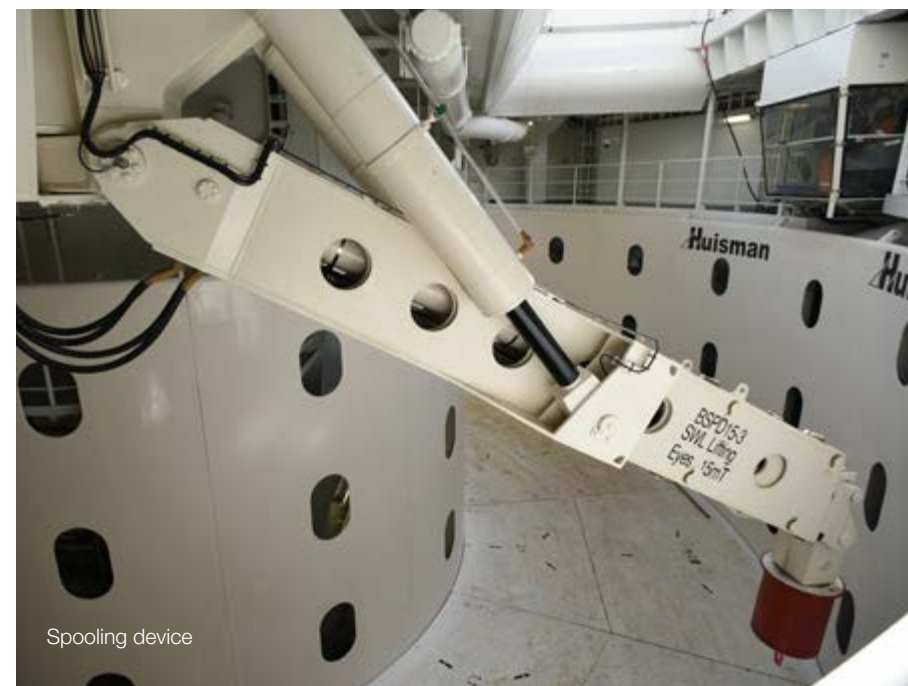
Reel drive system



Modular rigid reel



Basket



Spooling device



Spooling tensioner



Carousel

DRILLING

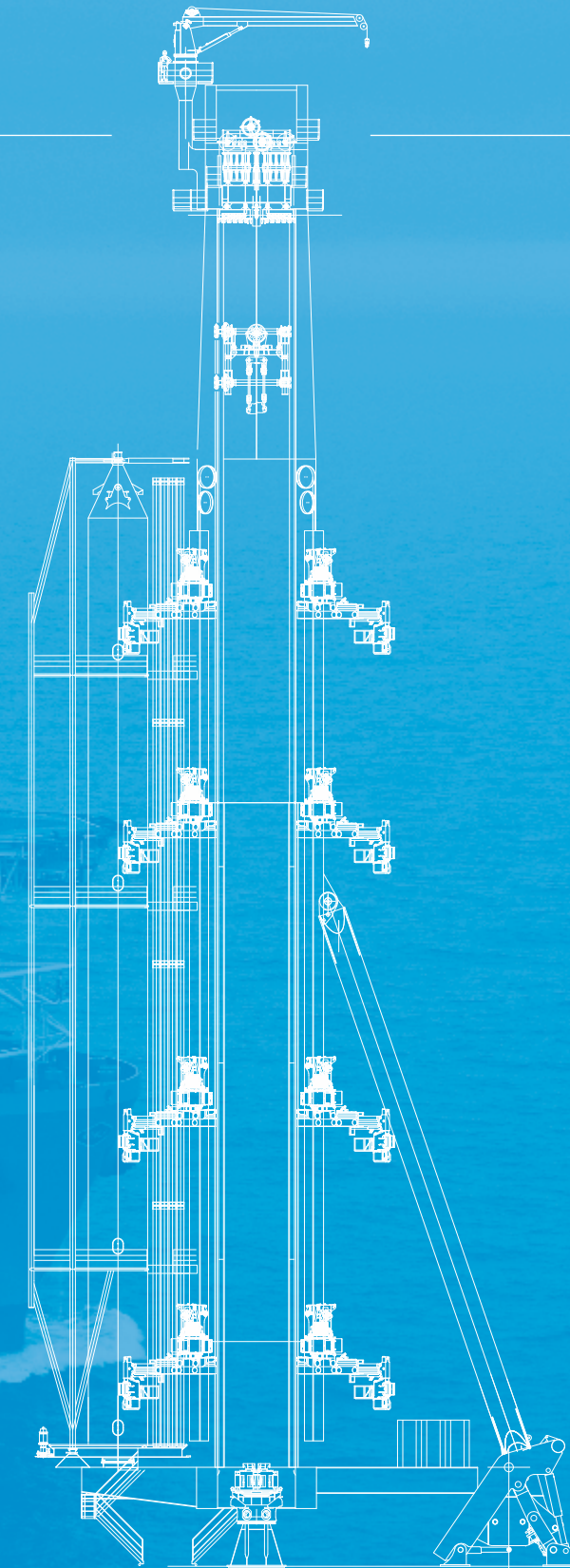
Introduction Drilling	109
Modular Drilling Rigs	112
Multi Purpose Tower	118
Drill Ships	120
Next Step	122
Huisman Innovation Tower (HIT)	126
Well Intervention	128

Huisman has been designing and building equipment for the offshore drilling market for over 15 years. Initially Huisman delivered cranes and pipe handling equipment, but with the development of the Multi Purpose Tower (MPT) in the late 90's, Huisman has created the means to drastically reinvent offshore drilling and equipment handling. What started off with the delivery of off riser and pipe handling equipment has evolved into the design and delivery of two state of the art UDW drilling vessels, the 'Noble Globetrotter I' (2012) and the 'Noble Globetrotter II' (2013).

In 2005 Huisman introduced its first land drilling rig to the market: the LOC 250. This was a fully containerised super single drilling rig for use on land. The introduction was soon followed by the LOC 400. Currently new land rig designs are being developed that will be able to efficiently drill multiple wells on one drill site.

In addition to on- and offshore drilling, Huisman also supplies equipment for the well intervention market. With the ever increasing number of subsea wells the need for efficient means of well intervention is growing every day. Huisman has already delivered several well intervention systems.

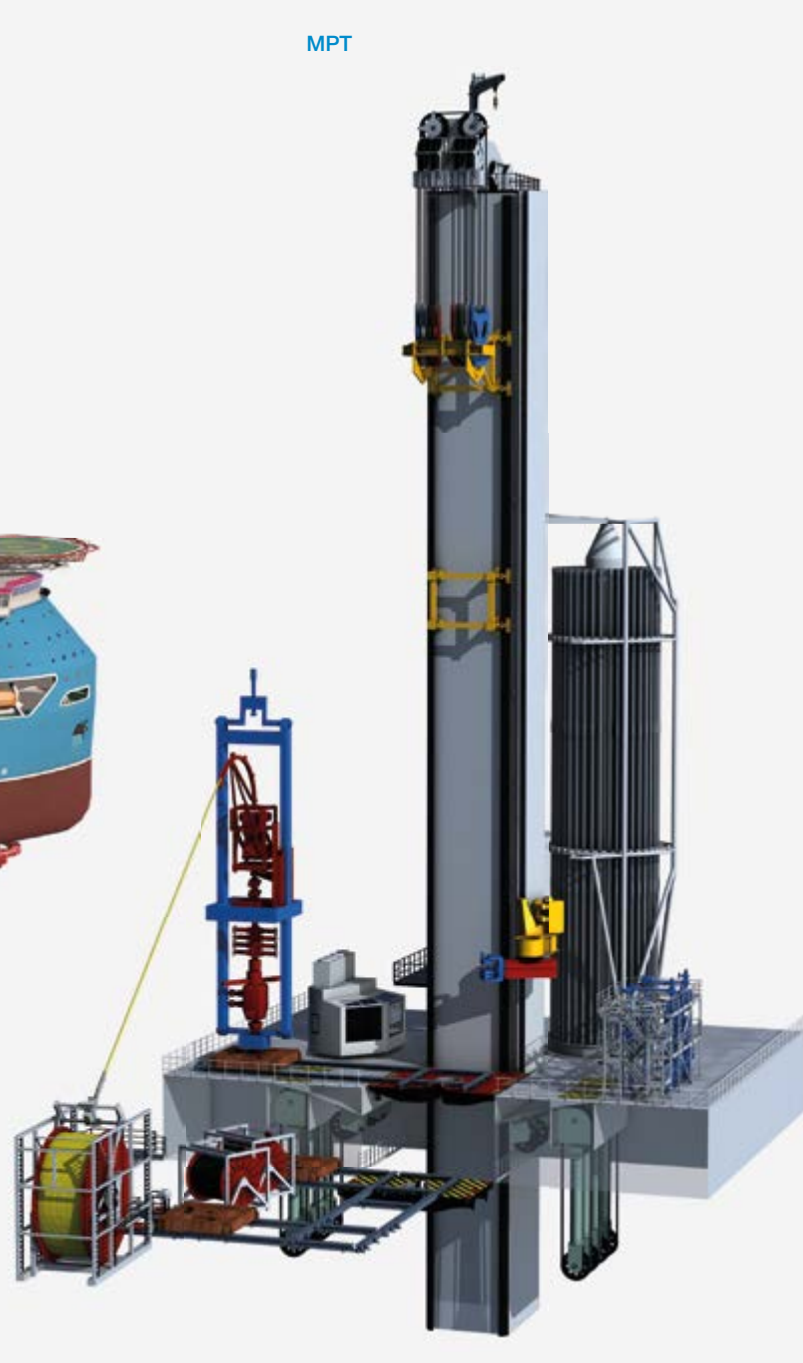
Huisman is continuously exploring and realising new step changing solutions to improve drilling operations. The Huisman drilling systems can reduce the flat time by doubling the tripping speed. For the future Huisman is looking for ways to safely and efficiently take offshore drilling to the arctic regions where many believe large undiscovered oil reserves lie hidden. Moving onwards, the focus point is to further improve efficiency and reduce HSE risks by fully automating the drilling system. Currently the land rigs are already able to trip in and out of the hole fully automatic, without the need of any people on the drill floor.



DMPT + EQUIPMENT DEMARCATION



MPT



Huisman offers complete drilling packages and is dedicated to explore and realise new solutions to improve drilling efficiencies and reduce well costs. Our projects are typically complex and innovative, requiring solution-aimed thinking, technical excellence and partnerships with our clients. This approach has resulted in a number of new value adding solutions and the delivery of innovative and high tech drilling equipment sets. Our drilling sets can be customised to fit the needs for a specific system; drilling, well intervention or plug and abandonment.

Huisman has introduced robotics on the drill floor to get a drilling system with a high degree of automation. The high degree of automation, including automated connections and automated tripping, removes people from the drill floor during most operations and minimize human involvement during other operations.

The distinct feature of the Huisman offshore drilling equipment set is the Multi Purpose Tower (MPT). The concept of the MPT is based on the use of a vertical box structure. The box structure provides both the main load carrying element and an enclosed environment for the mounting of all major equipment. The Dual MPT (DMPT) has two hoist sides with their own independent hoist systems. The DMPT is equipped with two circular setback drums for vertical pipe storage. To transport pipes vertically from the setback drums to the well centre the DMPT is equipped with a pipe racker system consisting of multiple manipulators. These manipulators are mounted on each corner of the DMPT between well center and the setback drum.

Besides the MPT Huisman can deliver all equipment related to tubular, BOP and X-mas tree handling; catwalk machines, skid carts, cranes and riser tensioner systems. Huisman has the in-house capabilities for vessel

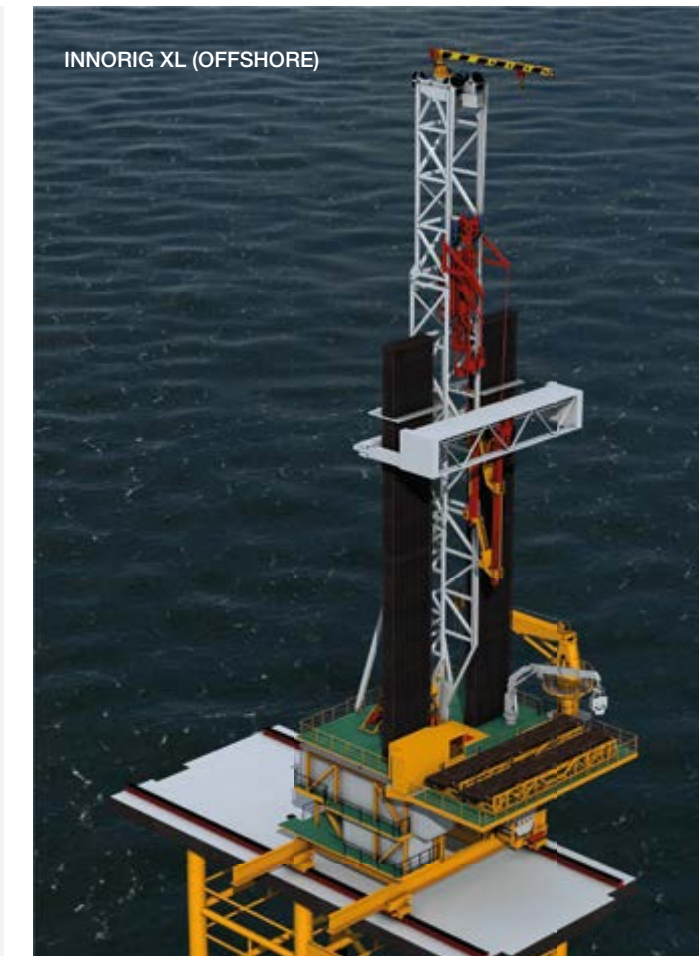
design. This allows us to provide solutions in which vessel and equipment are fully integrated, leading to radically improved designs for drilling vessels.

Huisman also delivers modular drilling rigs for both on- and offshore. The rig package and backyard can be designed in container size modules. Offshore the rig can be installed in a few loads, minimizing installation time.

INNORIG (ONSHORE)



INNORIG XL (OFFSHORE)



LOC 250

Name of unit: **Sparta**
Owner: **Fidelity**
Delivery: **2005**



LOC 400

Name of unit: **LOC 400**
Delivery: **2009**



SCOPE OF DELIVERY LOC 250 AND LOC 400

Complete unit including:

- Substructure
- Mast
- Drawworks
- Wire line winch
- Pipe handling system
- Drillers cabin
- Mud treatment unit
- Mud tanks
- Mud pumps
- Electric AC power system
- Control system

FEATURES

- Fully automated tripping
- Rig moves in one or two days
- Very small footprint
- Advanced auto driller
- Highly integrated control system

LOC 400

Name of unit: **NGD Rig 405**
Owner: **New Gen Drilling**
Delivery: **2013**



HM150



SCOPE OF DELIVERY HM150

Complete unit including:

- Telescopic drilling mast
- AC 150 tons top drive
- Double drum drawworks
- Drillfloor with cabin
- Rotary table
- Automatic pipe handling system
- Complete mud system
- Electric power unit
- Generators
- Well control system

FEATURES

- Highly mobile
- Advanced auto driller
- Highly integrated control system
- Pad drilling capabilities
- All loads are trailerised
- Craneless rig-up

INNORIG - ONSHORE



SCOPE OF DELIVERY INNORIG 250 AND INNORIG 400

Complete unit including:

- Walking system (onshore)
- Skidding system (offshore)
- Substructure
- Mast
- Drawworks
- Top drive
- One size fits all pipe handling systems
- Drillers cabin
- Complete mud system

- Electric AC power system
- Control system
- Well control system

FEATURES (ONSHORE)

- Fully automated tripping
- Rig moves in one - two days
- Optional: all loads trailerised
- Very small footprint
- All loads container sized
- Advanced auto driller
- Optional: desert wheel set available
- Highly integrated control system

INNORIG - OFFSHORE



FEATURES (OFFSHORE)

- For drilling or plug and abandonment applications
- Modular option with light weight loads
- Tender assisted with three main hoists and one day rig up
- Total weight of rig < 600t; including skidding system and well control
- One size fits all skid system - fits all capping beam spacing
- Tubular transfer using pipe tubs instead of high line

INNORIG XL - ONSHORE



SCOPE OF DELIVERY INNORIG XL

Complete unit including:

- Walking system (onshore)
- Skidding system (offshore)
- Substructure
- Mast
- Drawworks
- Top drive
- One size fits all pipe handling system
- Automated pipe racker
- Drillers cabin
- Complete mud system
- Electric AC power system
- Well control system

FEATURES

- Fully automated tripping
- Advanced auto driller
- Highly integrated control system
- Pad site and desert options available
- Craneless rig-up
- Offshore modular and tender assist options available

INNORIG XL - OFFSHORE



COMPONENTS



SPLITTABLE BLOCKS

- Change reeving between 4, 8 or 12 falls with one push off a button

AUTO SLIPS

- Handle multiple pipe diameters without changing inserts
- Large passage for e.g. bits

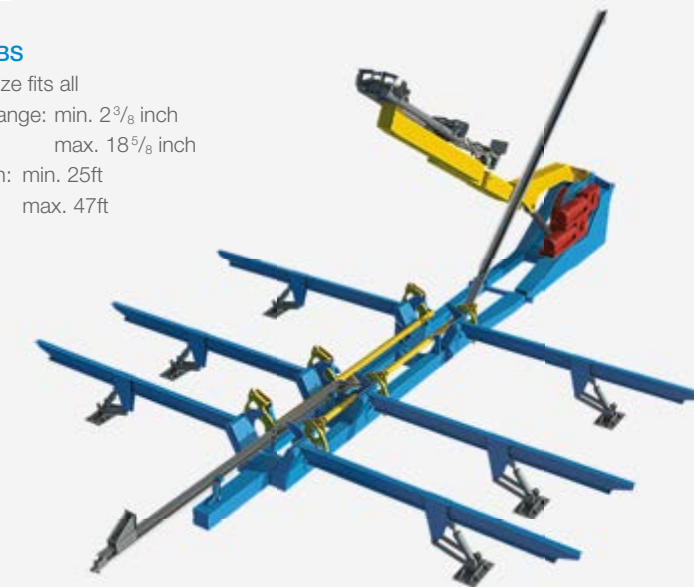


Type	AS375	AS605	AS755
Rotary size	37.5"	60.5"	75.5"
Load rating	660,000 lbs	1.5 mln lbs	3.6 mln lbs
Grips*	5" - 9 3/4"	5" - 9 3/4"	3 1/2" - 9 3/4"
Opening up to	13 5/8" ID	18" ID	21" ID

*) without changing inserts

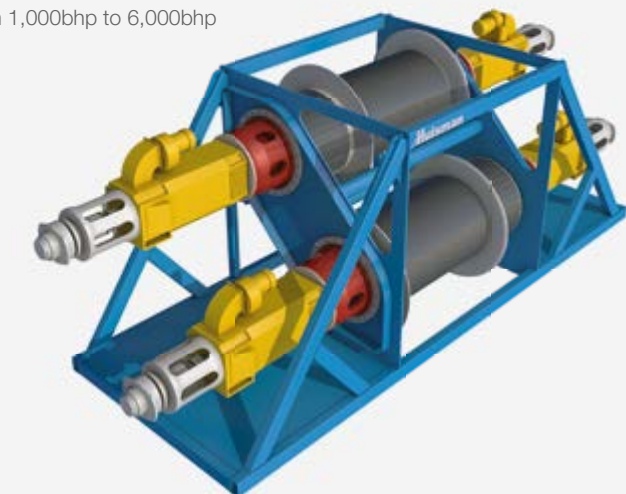
PIPE TUBS

- One size fits all
- Pipe range: min. 2 3/8 inch max. 18 5/8 inch
- Length: min. 25ft max. 47ft



DUAL DRUM DRAWWORKS

- Eliminates slip & cut operations
- Enables longer wire-life
- Redundancy by two drums
- Available from 1,000bhp to 6,000bhp



TRADITIONAL LOOK



FUNCTIONAL LOOK



NEW LOOK



SINGLE MPT



DUAL MPT



DRILLING SIDE



DMPT SIDE VIEW WITH RAISED CONSTRUCTION FLOOR



CONSTRUCTION SIDE



FEATURES

- The Multi Purpose Tower can be outfitted with one or with a second hoist (dual MPT) for heavy and offline activities
- Capacities up to 4,8mln lbs
- Height under crown up to 250" (180" stands)
- Box girder type main structure provides both the main load-carrying element and an enclosed environment for all major equipment
- No V-door limitation: free access from all sides
- Optional bolted flange connection allowing to pass the Panama Canal, Suez Canal and Bosporus bridges
- Travelling block with splittable block comprising two fixed and a number of detachable single sheave blocks for hands free re-reeving
- Splitting is a push-button operation. Splitting is achieved by detaching pairs of sheave blocks from the travelling block and attaching them to the crown-block. Block can be splitted from 24 to 20, 16, 12 or 8 falls
- Outfitted with active heave compensation system (AHC)
- Outfitted with passive heave compensation system (PHC)

NOBLE BULLY

NOBLE GLOBETROTTER

Vessels: **Noble Bully I, Noble Bully II**
 Owner: **Noble Drilling/Shell**
 Delivery: **2010/2011**

Winner of the Shell 'Global Floater Rig of the Year' award. Noble Bully I (GoM): Rig of the year 2013, Noble Bully II (Brazil): Rig of the year 2014.

SCOPE OF DELIVERY PER VESSEL

- 1,090/550mt (2.4/1.2mIn lbs)
Dual Multi Purpose Tower with active and passive heave compensation
- Complete pipe handling system including rotating setback drums and pipe rackers
- Riser tensioner system
- BOP skid cart
- X-mas tree skid cart
- BOP gantry crane
- X-mas tree gantry crane
- Riser handling crane
- Pipe handling gantry crane
- Pipe hold overhead crane
- Riser catwalk machine
- Tubular catwalk machine
- 2x 100mt pedestal crane



Vessels: **Noble Globetrotter I, Noble Globetrotter II**
 Owner: **Noble Drilling**
 Delivery: **2012/2013**

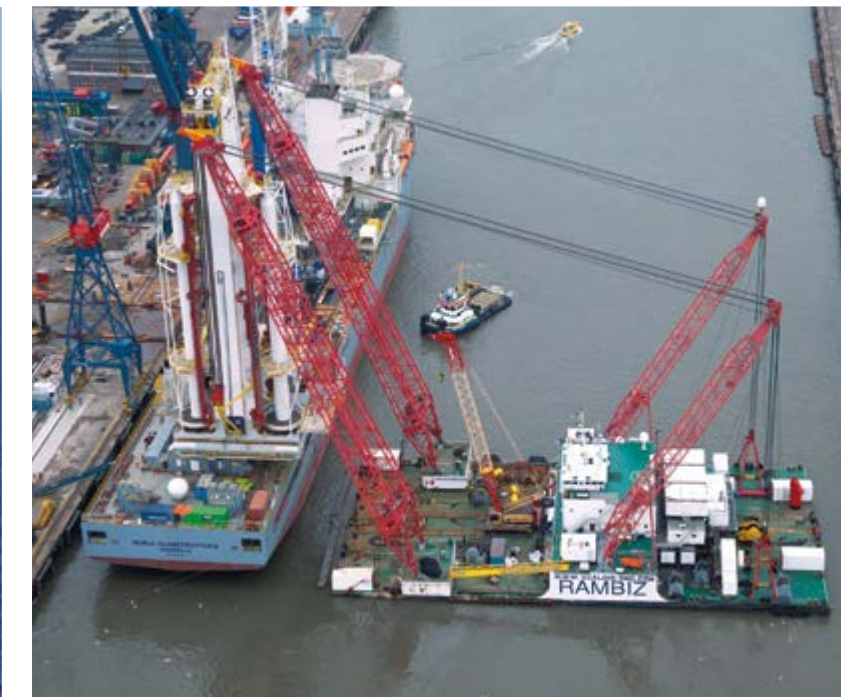
SCOPE OF DELIVERY PER VESSEL

Conceptual and basic design of complete vessel including stability, hull construction, seakeeping analysis, motion analysis, power plant, auxiliary systems, accommodation etc.

- Pay load 20,000mt
- Displacement 54,000mt
- Lower substructure
- Water depth 10,000ft (3,000m)

- Large open deck space
- MPT's top removable for bridge passage
- 2x 1,090mt (2x 2,4mIn lbs) Dual multi purpose tower with active and passive heave compensation
- Complete pipe handling system including rotating setback drums and pipe rackers
- Substructure including drill floor
- Hoistable construction floor
- 2x riser / tubular catwalk machine
- Riser tensioner system

- Moon pool skid cart
- BOP skid cart
- X-mas tree skid cart
- Test stump elevator
- 185mt Pedestal mounted offshore crane with active heave compensation deep water hoisting system
- Riser handling crane
- 80mt Pedestal crane
- Pipe handling knuckle boom crane
- 2x Pipe hold overhead crane



SCOPE OF DELIVERY PER VESSEL

Conceptual and basic design of complete vessel including stability, hull construction, seakeeping analysis, motion analysis, power plant, auxiliary systems, accommodation etc.

- Pay load 20,000mt (30,000mt)
- Displacement 60,000mt (70,000mt)
- Water depth 13,200ft (4,000m)
- Dynamic Positioning Class 3
- Persons on board 240
- Vessel speed 12kn
- Large functional deck space at work deck
- 2x 1,360mt or 1,630mt DMPT (see next pages)

HUISDRILL 12000

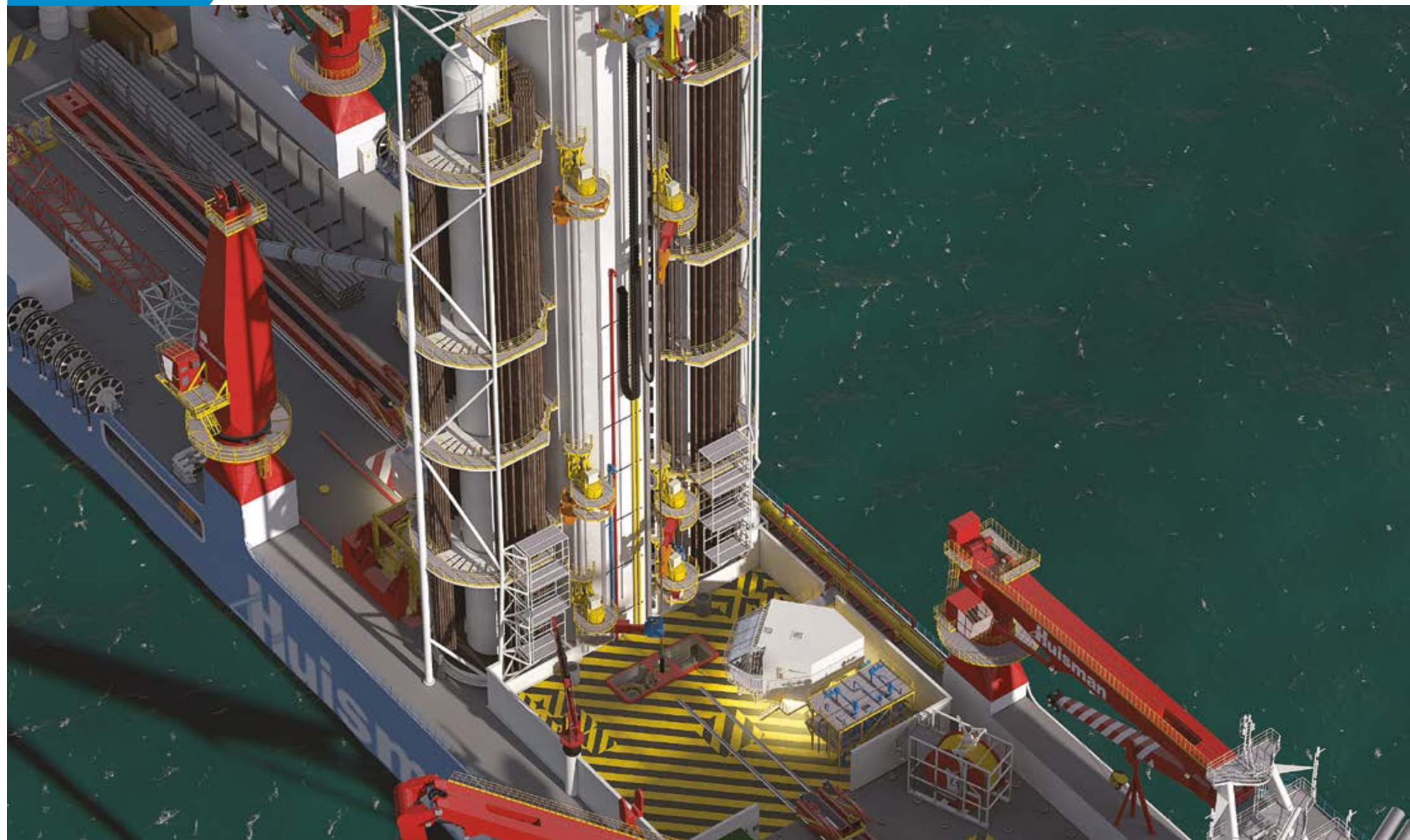


Ultra-deepwater well construction presents very unique technical and economic challenges to deepwater operators worldwide. It forces operators to explore new ways to control costs. Key to achieving such cost control is improving rig efficiency and focusing on flat time reduction.

Huisman has a firm believe that true 'clean-slate' innovation holds the key to a step-change solution. A dialogue over many years with both deepwater operators and drilling contractors allowed for a thorough review of the existing drilling systems and their historical limitations. This in turn led to development of an entirely new type of drillship with innovative drilling systems. Application of this vessel and its sophisticated systems in Drilling-the-Well-on-Paper (DWOP exercises), coupled with extensive field experience from working a previous generation of these systems in the field (deployed on the Noble Globetrotter en Noble Bully drill ships employed by Shell), shows that drill times and costs may be reduced by 20-25%.

The vessel is equipped with a Multi purpose tower that has no V-door limitations and features two well centers, enabling concurrent operations to minimize flat time. The tower can run 180ft stands, can run 150ft riser joints, has robotic tripping and pipe handling. The vessel itself can hold 30,000mt VDL, can operate in waters up to 12,000ft, can store and run two 20k BOPs, and is inherently prepared for MPD and DGD operations. Its large, unobstructed flat work deck, which is flush with the drill floor, provides over 4500m² of deck space.

HUISDRILL 12000



DMPT

The forward side, the drilling side, of the DMPT is dedicated to drilling operations. The aft side, the construction side, of the DMPT is dedicated to offline operations such as stand building, offline BOP/riser and X-mas tree running. The construction side is fitted with a unique movable construction deck that allows running of large subsea components as one piece without the need for an elevated drillfloor/substructure.

The DMPT is outfitted with two setback drums which can be accessed from both the drilling and the construction side. The configuration of the setback drums enables true offline stand building. The setback drums are capable of storing tubulars up to 180ft length. Further up to 16 identical robotised Multi Functional Manipulators are mounted, providing multiple functions, such as robotic tripping and drilling ahead, safe and easy maintenance and increased flexibility during well completions operations.

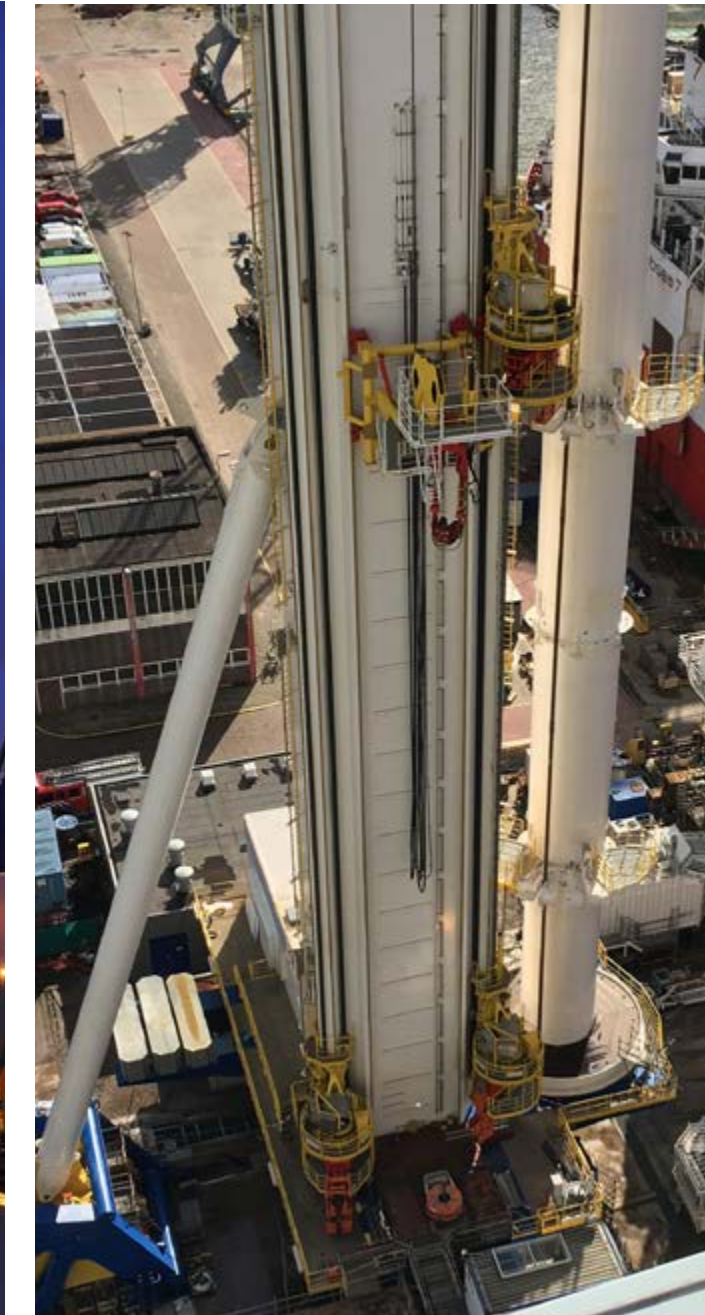
The DMPT can be delivered with various load capacities (up to 1,630mt/3.6mln lbs) and is outfitted with active and passive heave compensation. The tower can handle stands up to 180ft length. The tower also provides (semi) automated 150ft riser/BOP running.

HUISMAN INNOVATION TOWER (HIT)

HUISMAN INNOVATION TOWER

FULLY ROBOTIC

- 3.0/3.6 mln lbs (1,360 / 1,630mt) rated load
- 180ft stands
- 150ft riser
- Full scale setback drum
- Dual drum draw works/splittable blocks
- Open drill floor construction to allow installation of several types of rotary tables and/or hang-off equipment
- Active/passive heave compensation systems
- Drill floor 6m above ground level
- Total height approximately 90m
- Test well:
 - Ø 118" up to 50m
 - Ø 20" up to 400m
- Static angle: 5 degrees
- Dynamic angle: +/- 2 degrees



WELL INTERVENTION SYSTEM

Vessel: **Q4000**
 Owner: **Helix Energy Solutions**
 Delivery: **2001**



SCOPE OF DELIVERY

- 1 x 800mt (1.8mtn lbs) Multi purpose tower with active and passive heave compensation
- 1 x 360mt deepwater mast crane
- 1 x 160mt pedestal crane

WELL INTERVENTION SYSTEM

Vessel: **Well Enhancer**
 Owner: **Helix Energy Solutions**
 Delivery: **2009**



SCOPE OF DELIVERY

- 180mt (400,000 lbs) Multi purpose tower
- Deepwater winch with 3,000m 76mm wire rope
- Active heave compensation system
- Guide and pod line system



WELL INTERVENTION SYSTEM

Vessel: **Q7000**
Owner: **Helix**
Delivery: **2016**

SCOPE OF DELIVERY

- 800mt Multi purpose tower
- Moonpool skid cart
- Riser tensioner system
- Guide wire system
- 150mt knuckle boom crane
- 160mt pedestal crane
- 150mt deck skid system

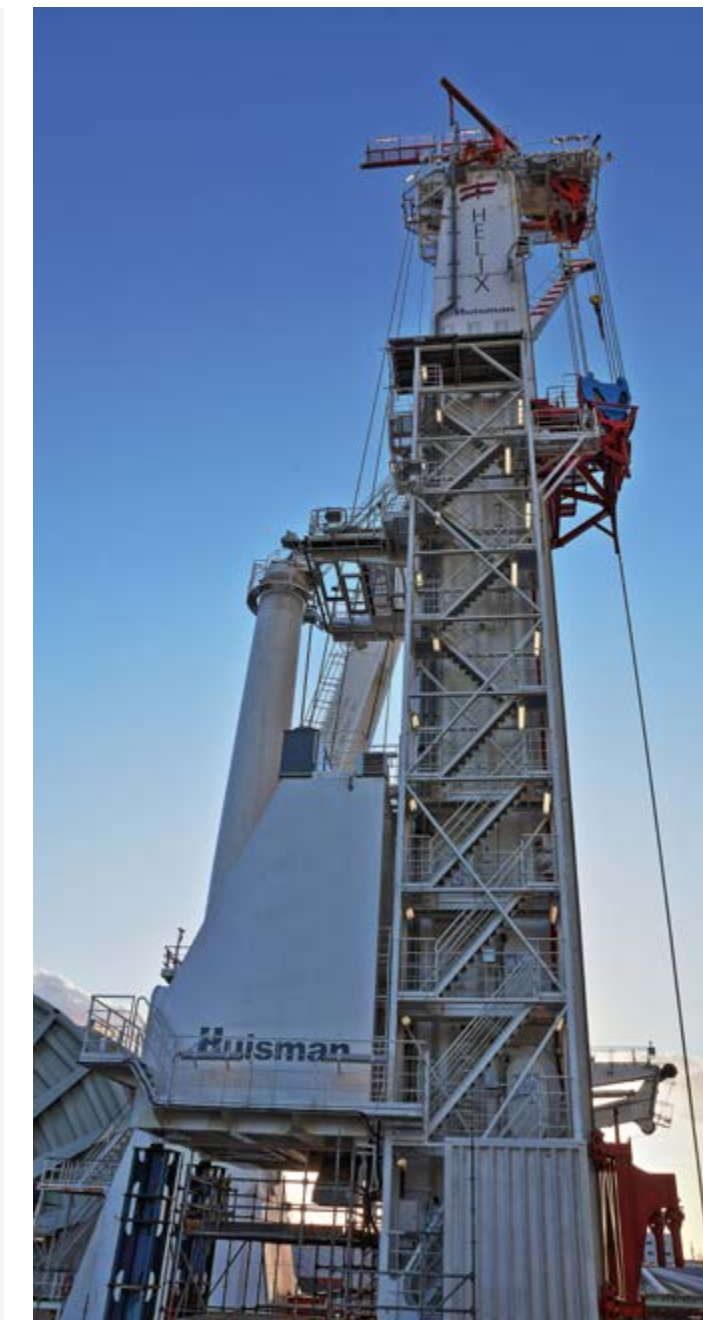


WELL SERVICE MONOHULL

Vessels: **Siem Helix I & II**
Operator: **Helix**
Delivery: **2016**

SCOPE OF DELIVERY

- 800mt Multi purpose tower
- Moonpool hatch
- Catwalk machine
- Control cabin
- Pipe handling knuckle boom crane



WINCH SYSTEMS

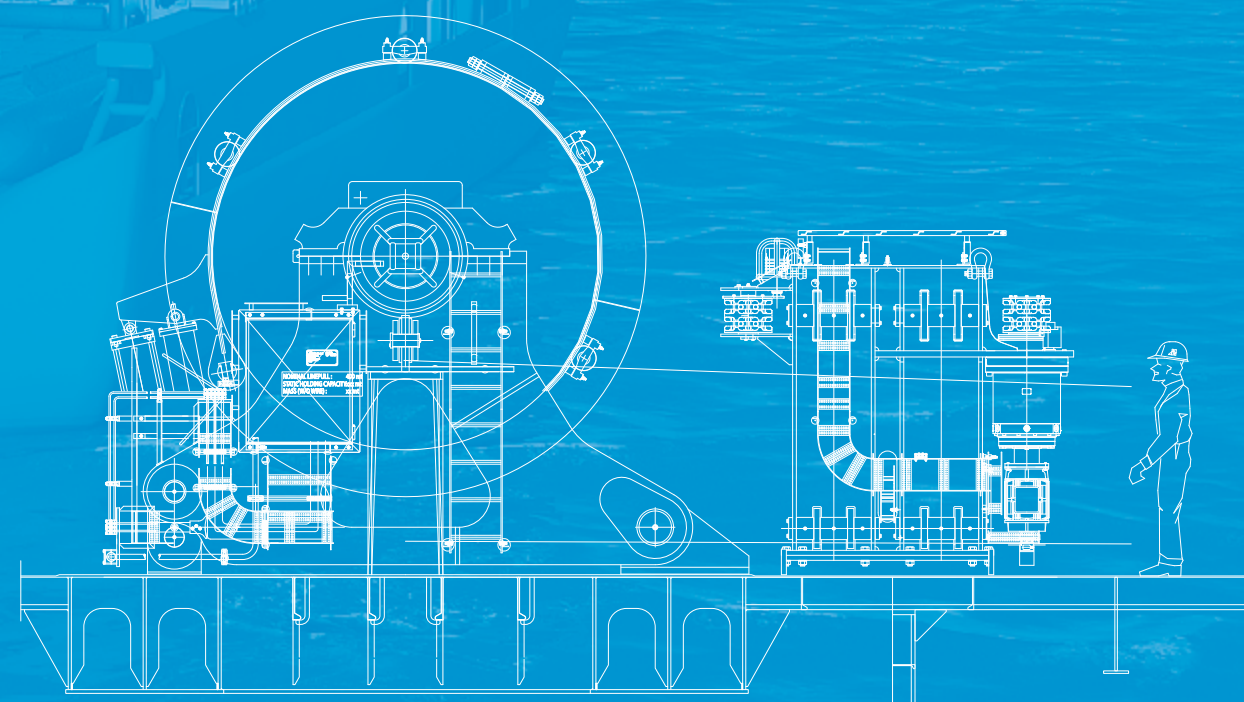
Introduction Winch Systems	133
Subsea Installation	134
Deepwater Mooring Systems	136
Anchor Handling and Towing	138

Winches are the heart of products like cranes, drilling equipment and pipelay systems, which Huisman is building for decades. This ranges from subsea installation winches to deepwater mooring winches and anchor handling and towing winches.

Huisman subsea installation systems are modular. They can be integrated in cranes and multipurpose towers, or act as a standalone winch system. To compensate vessel motions during installation of equipment on the seabed, passive, active or combined heave compensation systems can be provided.

Huisman has for instance delivered several combined mooring systems for ultradeepwater drilling units and has built up a solid track record in this field of application.

Based on our extensive experience in the design and delivery of equipment, Huisman has developed a new and revolutionary design for a range of electric driven anchor handling and towing winch systems, offering a greater level of safety, redundancy and functionality. Handling tools, including anchor launch and recovery systems and cable lifter exchange systems, have been developed to further improve safety and efficiency in anchor handling operations.



SUBSEA INSTALLATION WINCH



Vessel: **Development Driller III**
Owner: **Transocean**
Delivery: **2010**

SCOPE OF DELIVERY

- 125mt Subsea installation winch
- 2,750m of 80mm Wire rope
- Active heave compensation
- Hang-off platform

SUBSEA INSTALLATION SYSTEM



Vessel: **HOS Achiever**
Owner: **Hornbeck Offshore Services**
Delivery: **2008**

SCOPE OF DELIVERY

- 300mt Traction winch
- 3,000m 109mm Storage winch
- 300mt Combined active heave compensation

FEATURE

- Integrated heave compensator and traction winch

16-POINT DEEPWATER MOORING SYSTEM

Vessel: **Development Driller I & II**
 Owner: **Transocean**
 Delivery: **2002/2004**

SCOPE OF DELIVERY

- 8x 240mt Combined traction winch/windlass
- 4x Main drive unit
- 8x Storage winch
- 16x Fairlead
- 8x Change-over system (stopper plate system)
- Electric drive and control systems
- 4x Local control cabin
- 4x Cooling water set for dynamic brakes



8-POINT DEEPWATER MOORING SYSTEM

Vessel: **Olinda Star**
 Owner: **Queiroz Galvao**
 Delivery: **2008**

SCOPE OF DELIVERY

- 8x 180mt Single drum winch
- 4x Main drive unit
- 8x Fairlead
- Electric drive and control system
- 4x Local control cabin
- 4x Cooling water set for dynamic brakes



4X 400MT ANCHOR HANDLING AND TOWING SYSTEM

Vessel: **AL23, AL24, OC03, OC04**
 Owner: **CBO**
 Delivery: **2016/2017**

SCOPE OF DELIVERY

- 400mt Anchor handling & towing winch
- 2x 120mt Secondary winches
- Set of cable lifters



400mt Anchor Handling Winch Drum



400mt Anchor Handling Winch Frame



400mt Anchor Handling Winch Frame

EMERGENCY RELEASE FUNCTION

To assure vessel safety during harsh offshore conditions with the risk of dangerous forces jeopardising the vessel stability, an emergency release function is provided. Integrated in the winch drive train is a water-cooled clutch unit that allows controlled release of the winch drums, with the possibility to regain control over the wire or chain when the vessel is back in a stable position. This feature complies with possible requirements with regard to response time and residual line tension.

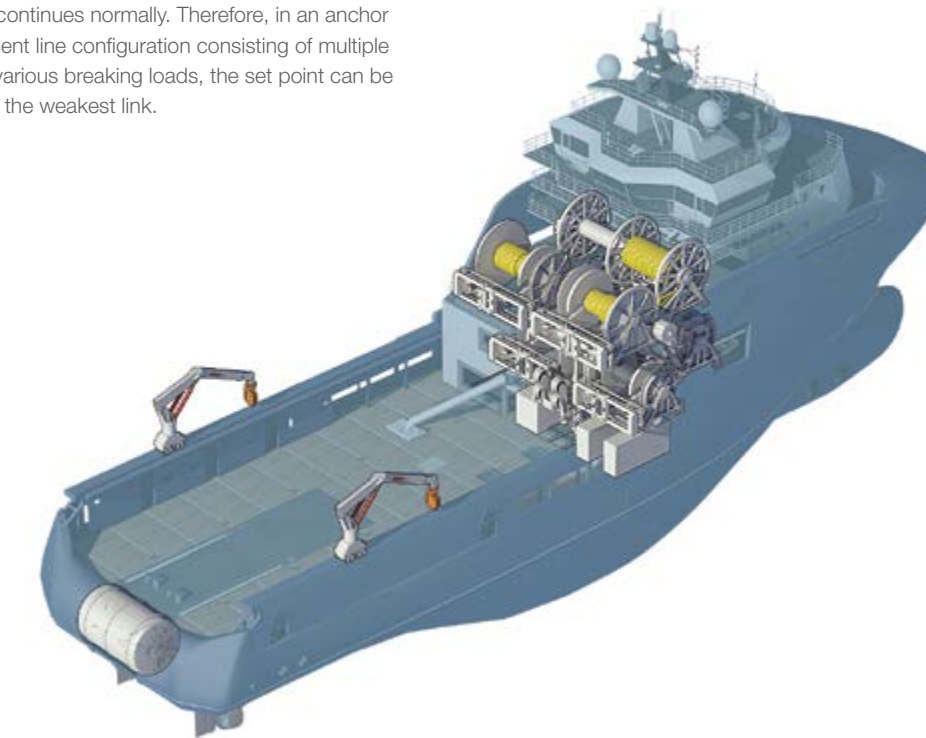
ADJUSTABLE OVERLOAD PROTECTION SYSTEM

Allows the winch operator to set the maximum allowable line pull. If the lines pull surpasses the set point, the clutch will slip and the winch will briefly pay out line. As soon as the line pull falls below the set point, the drum will stop slipping and the AHT operation continues normally. Therefore, in an anchor & deployment line configuration consisting of multiple lines with various breaking loads, the set point can be set to safe the weakest link.

SCOPE OF DELIVERY

Huisman Equipment has developed a full range of Anchor Handling and Towing winch systems, ranging from 200 up to 800mt line pull and can provide the following components:

- Anchor handling winches
- Towing winches
- Secondary winches
- Storage winches
- Anchor launch & recovery system
- Cable lifter exchange system
- Cargo rail cranes
- Various deck equipment



HEAVE COMPENSATION

Introduction Heave Compensation	141
Active Heave Compensation	142
Passive and Active Heave Compensation	148
Passive Heave Compensation	150

Huisman has been designing and building heave compensation systems since 1985 and gained experience with a wide array of applications. We provide both active and passive heave compensation systems as well as a combination of both.

We use three different systems for active heave compensation; secondary controlled hydraulic winches, frequency controlled electric winches or hydraulic cylinders. The latter also can be used for passive heave compensation or a combination of active and passive heave compensation.

Our equipment can be fitted with constant tension and passive and/or active heave compensation systems to compensate the relative motion between the vessel and fixed objects such as wellheads or structures on the seabed.

The main advantages of Huisman heave compensation systems are:

- Increased weather window through high compensation speed combined with high pay load.
- Low power demand compared to competitors due to clever energy management, reducing operational costs.
- Redundancy increasing safety. Passive compensation remains available during power loss.
- High accuracy and high controllability by the operator.



ACTIVE HEAVE COMPENSATION ON HYDRAULIC WINCHES



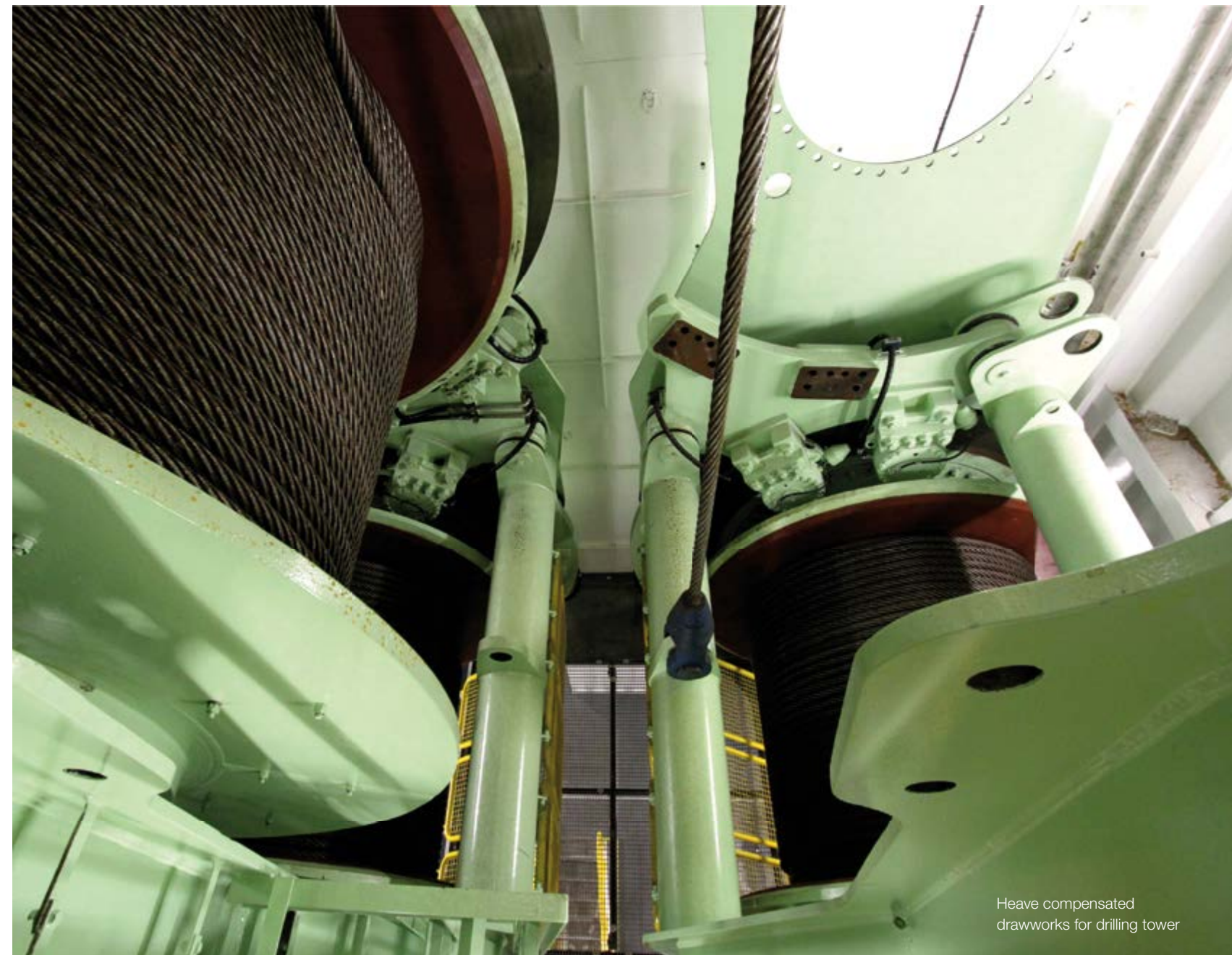
Huisman delivers a unique, in-house developed, secondary controlled hydraulic active heave compensation system. A secondary controlled hydraulic winch enables compensation of the heave motion of the vessel with an extremely fast response time at low power consumptions. In response to the signal of a motion reference unit the winch will pay in or pay out wire rope. Huisman has over 30 years of successful experience with this system.

With a secondary controlled hydraulic system, both active heave compensation and constant tensioning are available on the winch. Huisman delivers hydraulic winches with a safe working load up to 400mt and up to 3,000m wire storage capacity.

Examples are hydraulic winches as installed on the Seven Pacific and Development Driller.



ACTIVE HEAVE COMPENSATION ON ELECTRIC WINCHES



Heave compensated drawworks for drilling tower



Huisman delivers electric driven winches with active heave compensation. High power, low inertia E-motors allow real-time compensation of the heave motion of the load. In response to the signal of a motion reference unit the winch will pay in or pay out wire rope. Huisman has close to 20 years of successful experience with this system. Systems which are able to store electric energy in order to reduce power consumption fluctuations on the vessel's power grid are currently under construction.

With an electric system both active heave compensation and constant tensioning are available on the winch. Huisman can currently deliver these electric winches with a maximum installed power of 2,300kW (3,000HP) per winch. Examples are the drawworks as installed on the Q4000, the Noble Bully and the Noble Globetrotter drill ships.

ENERGY STORAGE SYSTEM FOR HEAVE COMPENSATION SYSTEMS



Heave compensation demands large power fluctuations in time periods of around the 8 - 10 seconds. These large power fluctuations are not desirable for the stability of the ship's electrical power grid. Heave compensation systems are traditionally hydraulic systems since it is rather easy to store hydraulic energy with help of medium separators and pressure vessels. A new state-of-the-art Electrical Energy Storage (EES) system has been developed to be able to store electrical energy.

The application of a super-capacitor based EES system in a power electronic system with a common DC Bus will limit the effect of the power fluctuations on the ship's electrical power grid. The regenerated power is temporary stored in super-capacitors and used again when power is demanded. This will save energy, which is conventionally dissipated in a brake resistor or in more recent development fed back into the ship's power grid. Also the power demand from the ship's power grid is more constant and can be rated around the average instead of the maximal power demand.

TRAINING AND TESTING FACILITY



Huisman has a Training and Test Facility which allows the testing of different types of heave compensation systems. The facility comprises a frame with a heave compensated hoist system with which both active and passive heave compensation tests can be performed.

This facility allows Huisman to develop and test new heave compensation applications and ideas. By being able to do scaled down tests, new ideas can be tested safely and in a controlled environment. Since the facility also has a control cabin and 'Scada system', software updates and entirely new software can also be tested.

PASSIVE AND ACTIVE HEAVE COMPENSATION BY CYLINDERS



Huisman also delivers active heave compensation systems which make use of a combination of active and passive cylinders. The heave compensator consists of a passive main cylinder, two additional active cylinders, and a sheave over which the main hoist wire runs. The main cylinder is connected via a medium separator to a pressure vessel unit. This passive system is balanced with the load in the wire that reduces the power requirement of the system considerably.

The active cylinders are connected to a hydraulic power unit. In response to the signal of a motion reference unit the active cylinders will extend or retract to keep the load at a constant elevation. Since the main load is compensated by the passive main heave cylinder, the active cylinders only have to compensate the unbalance in the actual load during active heave compensation. This active heave compensation system is used on our deepwater cranes, A&R systems and deepwater lowering systems.



PASSIVE HEAVE COMPENSATION



Passive heave compensation is used in the following situations:

- Where the load is linked to the seabed or to another vessel
- While lowering an object through the splash zone
- When an object with large drag is lowered through the water

Passive compensation is failsafe, because it does not require external energy.



SPECIAL PROJECTS

Introduction Special Projects	153
Civil Works	154
Salvage Equipment	156
Rock Dumping	158
Tidal Energy	160
Blue Piling	162

Huisman is well geared for special projects because of our innovative and flexible solution-oriented thinking. Huisman has all disciplines in house from engineering, production, commissioning, testing facilities to installation locations.

We have a long successful track record in many different applications, in particular:

- Salvage
- Civil works
- Rock dumping
- Deep water installation

Huisman has delivered equipment and services for many famous salvage projects such as the Russian nuclear submarine 'The Kursk', the car transport vessel 'Tricolor' and Prestige oil recovery.

Civil Works comprises heavy lifting, transport and lifting equipment which is well suited for the core of the competences of Huisman.

Huisman has supplied several custom-made rock dumping units and ROV systems for subsea pipeline protection.



SKIDDING UNITS



Name of units: **Turtle, Lobster**
Owner: **Strait Crossing**
Delivery: **1995**

FEATURES

- Maximum load 8,500mt
- Systems can make 90° turns



7,000MT LIFTING FRAME AND HOISTING SYSTEM

Vessel: **Svanen**
Owner: **Ballast Nedam Offshore**
Delivery: **1990/1997**

FEATURES

- 2x 3,250mt lifting beams
- 7,000mt lifting frame

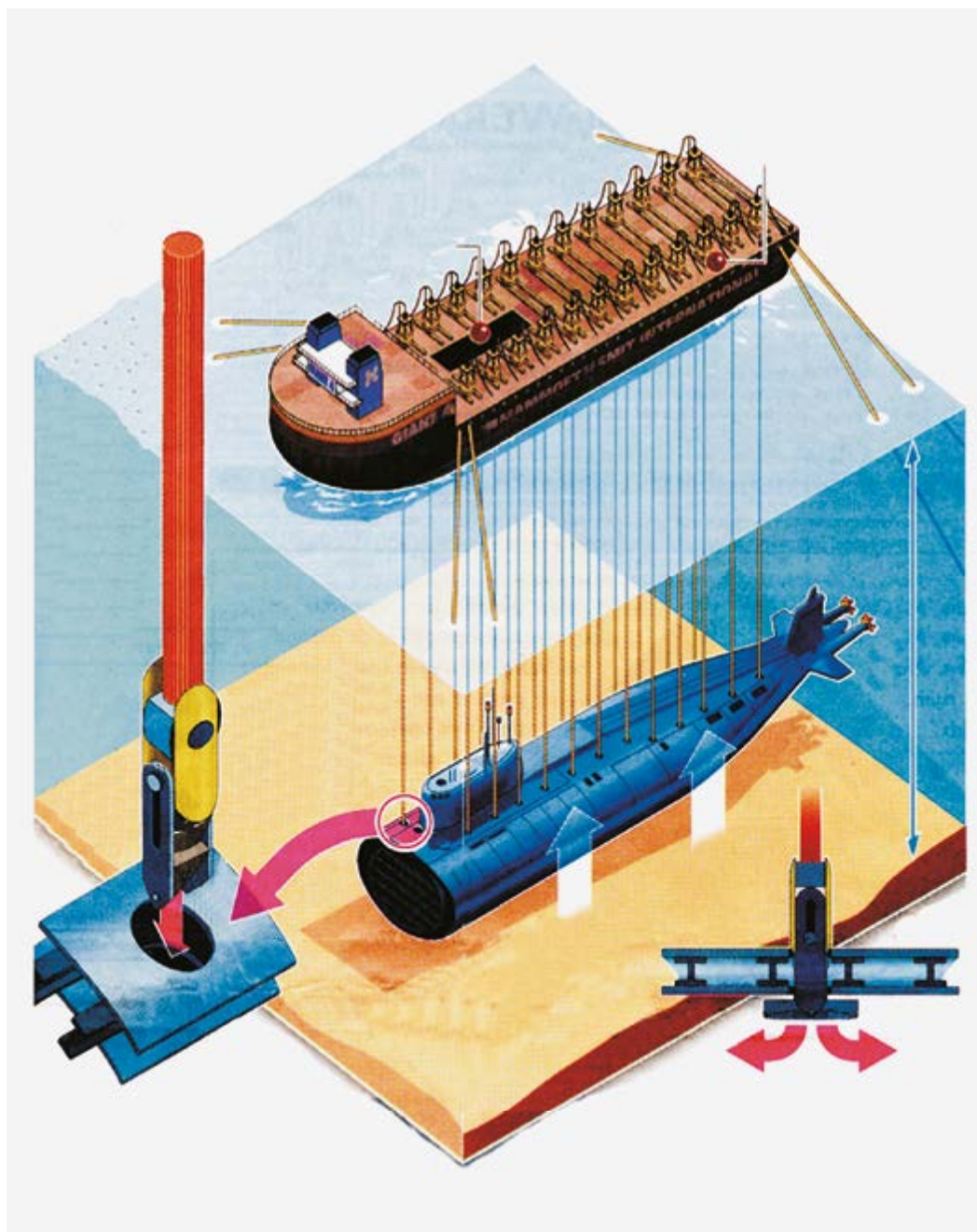


SALVAGE GRIPPER SYSTEM

Owner: **Mammoet**
Delivery: **2001**

FEATURES

- SWL 900mt each gripper
- Combined load over 40,000mt



SALVAGE TRICOLOR

Vessel: **Rambiz**
Owner: **Scaldis**
Delivery: **1996**

FEATURES

- 2x 1,500mt Cranes



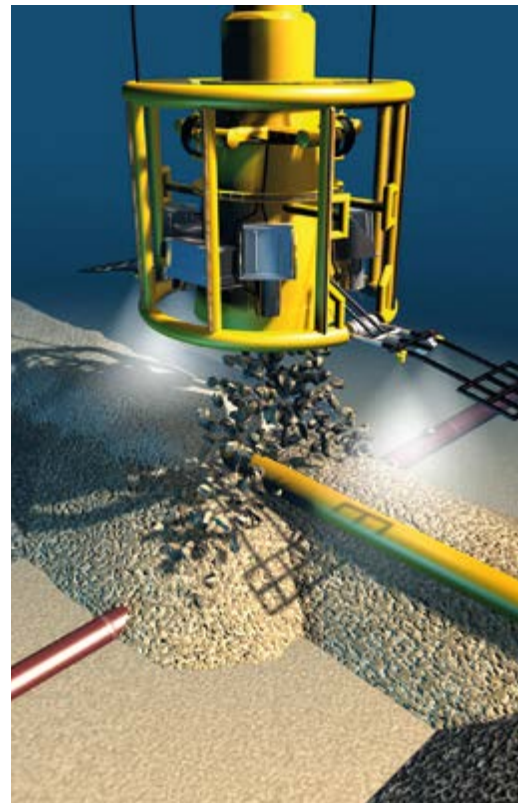
ROCK DUMPING UNIT



Vessel: **Seahorse**
Owner: **Deeprack**
Delivery: **1999**

FEATURES

- Rock dumping tower with hoist winches
- Pipe rack crane
- Umbilical winches
- Grab hoist crane



DEEPWATER ROCK DUMPING UNIT



Vessel: **Flintstone**
Owner: **Tideway**
Delivery: **2011**

FEATURES

- Gimbaling rock dumping tower with hoist winches
- Pipe rack and pipe loader crane
- Electric heave compensated umbilical winches
- Electric energy storage system
- Fully automated fall pipe handling system



Electric Energy Storage Systems

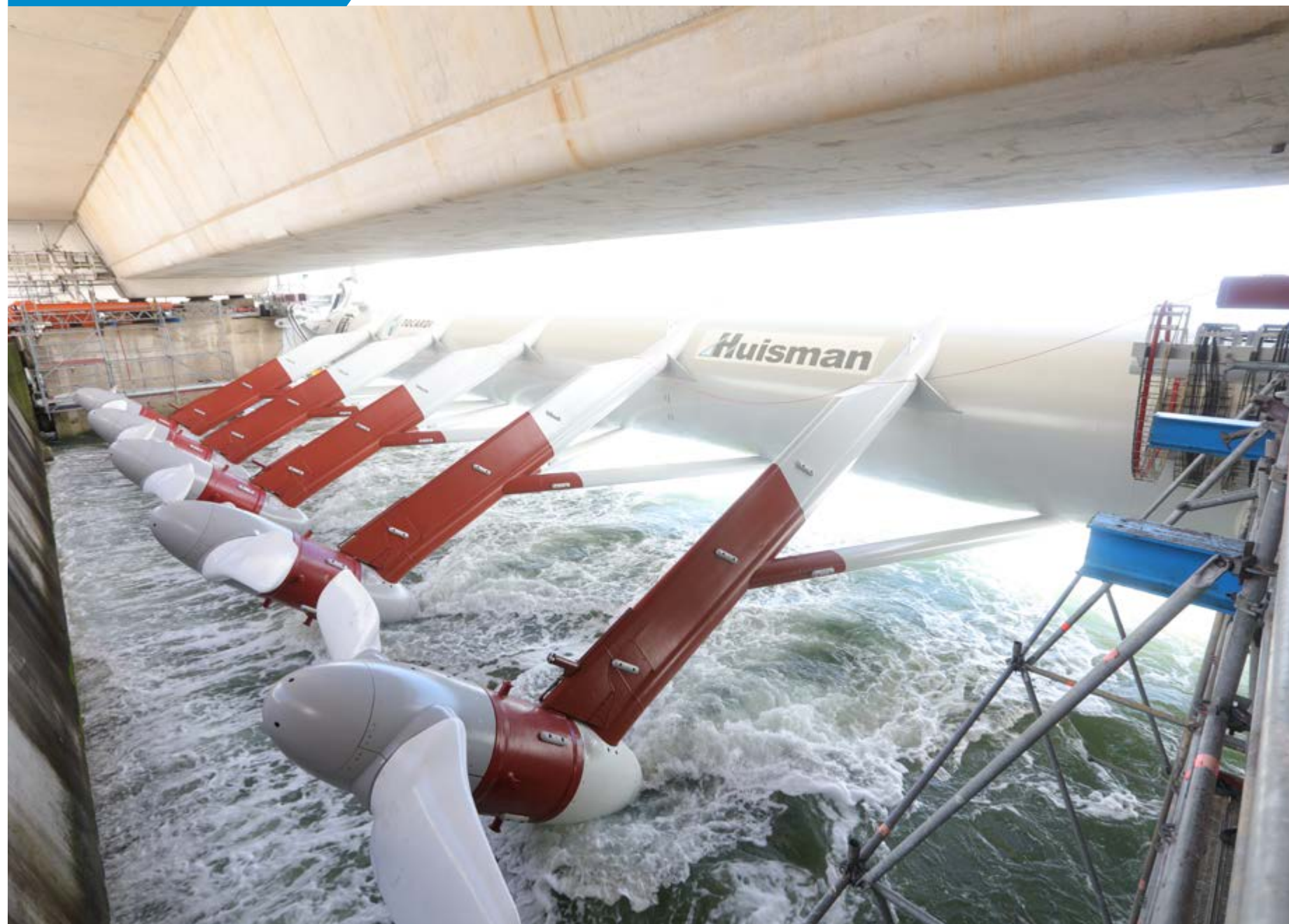


Name of system: **1.2MW Tidal Power Plant**
Location: **Oosterschelde**
Delivery: **2015**

FEATURES

- Design and build of 1.2MW Tidal Power Plant on the Oosterschelde Surge Barrier
- The Tidal Power Plant has an innovative design combining water management and renewable energy. The Tocardo Turbines will generate electricity for approximately 1,000 households

1.2MW TIDAL POWER PLANT

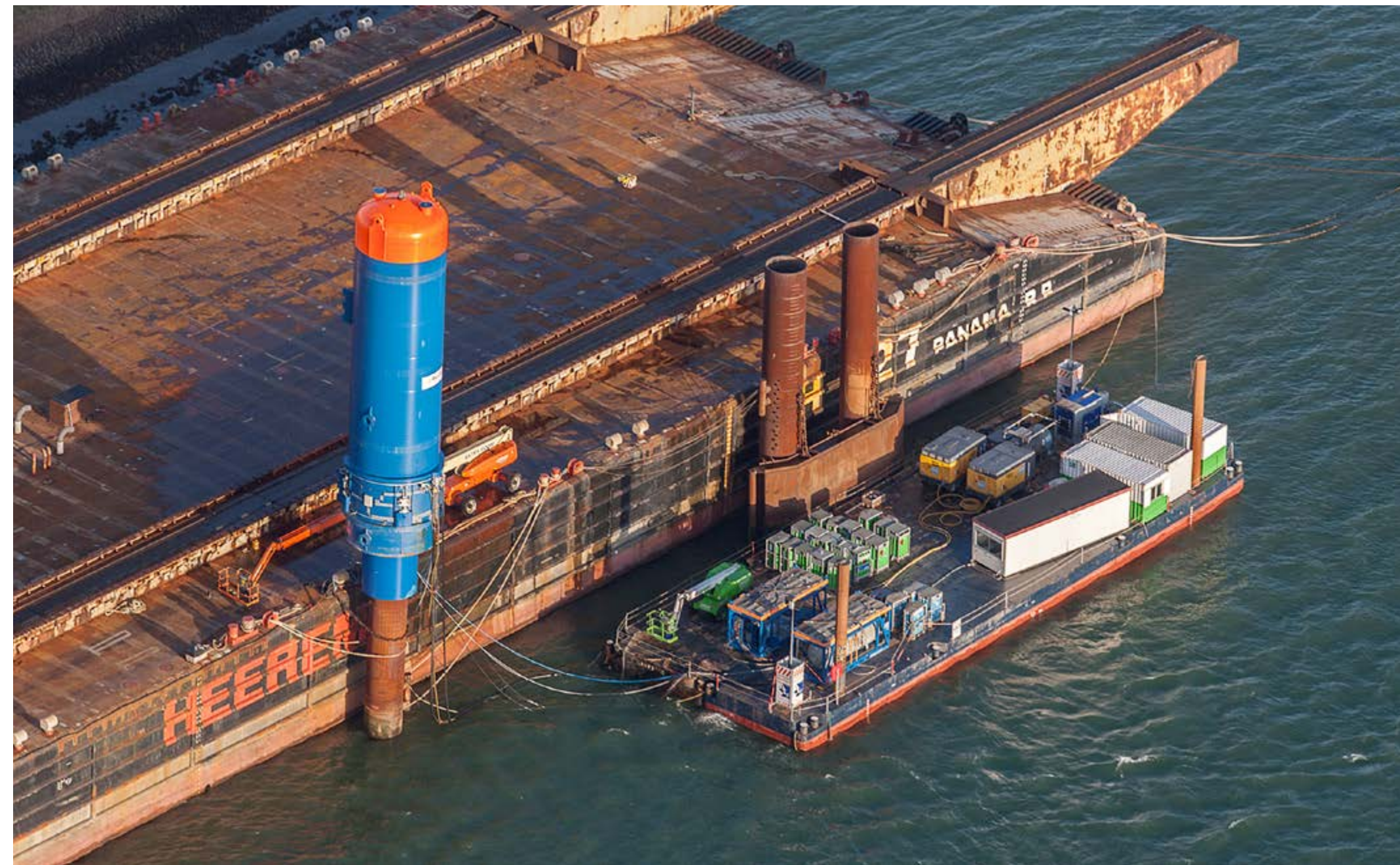


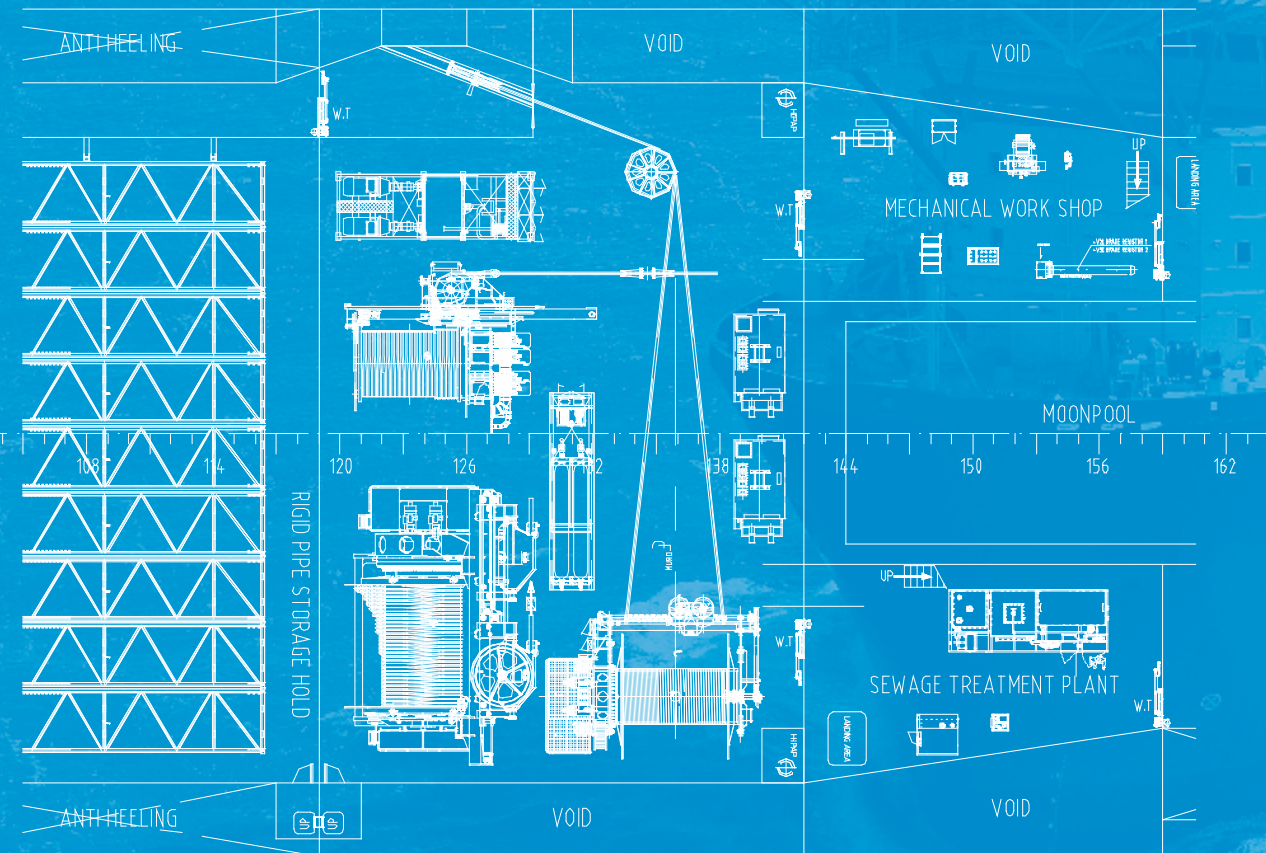
BLUE HAMMERS

Owner: **Fistuca**

FEATURES

- Environmentally friendly, reduced underwater noise levels
- High performance, fast installation
- Minimises pile fatigue
- Allows driving large diameter steel and concrete piles
- Reliable, no major moving parts
- Upgradable to higher capacity





VESSEL CONCEPTS/DESIGNS

Introduction Vessel Concepts/Designs	165
Naval Department	166
Vessel Concepts/Designs	168

Huisman offers naval architectural skills with a dedicated naval architectural department. This department supports all departments within Huisman in dealing with all naval architectural challenges encountered. Huisman furthermore exploits its naval skills to support innovation and acquisition of our mission equipment by developing or assist in developing integrated design solutions. Knowledge on mission equipment combined with our naval architectural knowledge adds value for our clients as there is a close link between the design and the functionality of our mission equipment and the design of the ship or offshore structure. Main focus remains functionality of the complete package, while valuing our cooperations with yards, design offices and end-users.

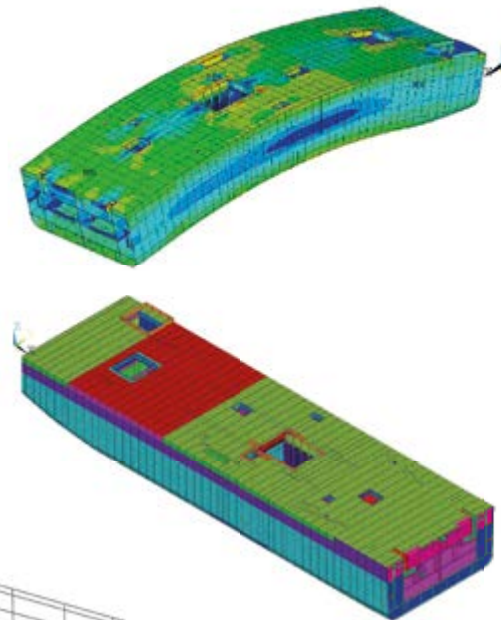
We assist and/or advise our clients, yards, design offices and end-users on integrating our mission equipment during the development of a vessel or during conversions of existing designs. Outside the supporting role, we develop concept design solutions where we virtually design the vessel around our mission equipment to achieve a high level of integration.

WHAT SERVICES DOES THE NAVAL DEPARTMENT OFFER:

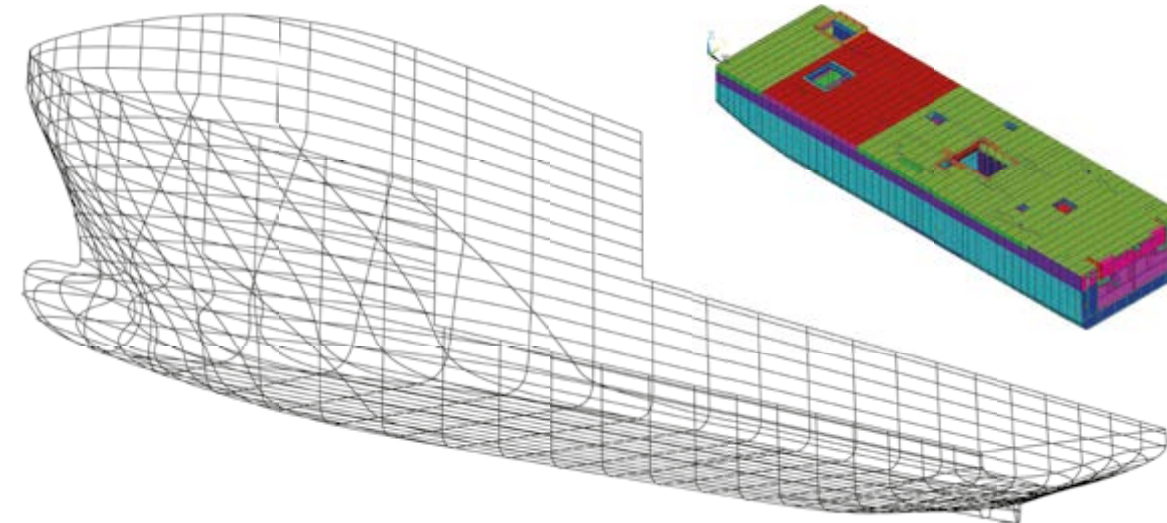
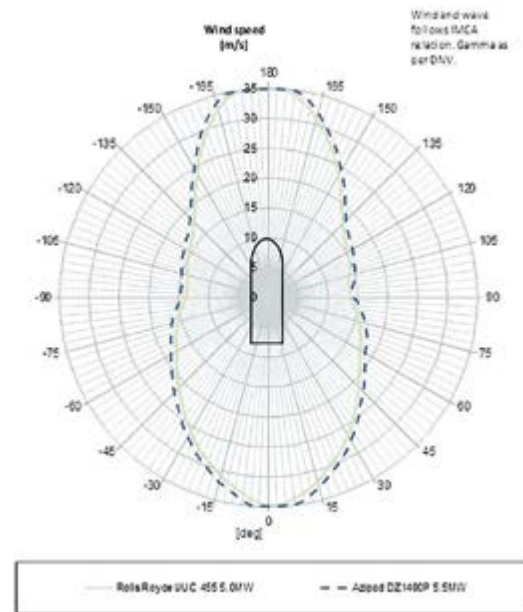
On request the Naval department can develop and/or assist in optimising the general layout of a vessel with a focus on functionality and integration of the mission equipment. Starting point will be a basis of design, which defines the wishes, requirements and limitations of the client.

Functionality of equipment and integration of equipment are key factors in setting up the general arrangement, but also logistics, material handling and maintenance are key factors when developing the layout/general arrangement. Typical deliverables and analysis performed are the General arrangement, lines plan, light ship weight calculations, freeboard calculations, determining the load cases from the operational requirements and perform the corresponding stability calculations.

In an early stage of the concept design a principle midship section and a preliminary construction plan is defined keeping in mind the intended mission equipment. In this early stage it is possible to design the vessels structure around the mission equipment which is the ideal starting point for integrating mission equipment and its support structures into the design. The majority of the work continues in the basic design phase with detailed calculations, analysis, and construction drawings. The analysis can focus on local reinforcements, a specific section of the vessel or on the vessel as a whole. Besides the standard calculations, the expertise is available to perform extensive and complicated FEM calculations for strength, buckling and fatigue.



Experience with most hydrodynamic analysis related to vessel design is available. Analysis of mooring system and dynamic positioning systems in both frequency and time domain, vessel motion and accelerations required for equipment design and interface forces, full workability analysis for the vessel and its mission equipment, speed prediction and determine hydrodynamic loads on the vessel for further structural analysis are part of our portfolio. Assistance can be provided in other hydrodynamic challenges related to for example engineered and subsea lifts and other fluid dynamic related analysis. Supervision of modeltesting, development of model test programs and analysis of the model testing results can be provided.



We can assist our clients with our knowledge on power generation, propulsion and electrical systems. Key elements like exhaust gas systems and ventilation systems which have large impact on the layout of the vessel are developed and integrated in the design. On request the system diagrams with all mission equipment and third party interfaces are incorporated, electric single line diagrams and the electric load balance can be part of the delivery package. Engine room, thruster room and switchboard room arrangements are designed keeping in mind the required redundancies and philosophies on the system, as requested by client and classification societies.



Vessels: **Noble Globetrotter I & II**
 Owner: **Noble Drilling**
 Delivery: **2012/2013**

FEATURES

- Length overall: 189.0m
- Width: 32.2m
- Depth: 18.9m
- Dynamic Positioning: DP3
- Dual Multi Purpose Drilling Tower: 2x 1,090mt

The HuisDrill 10000 is a dynamically positioned drill ship suitable for 12,000ft water depth. The vessel is suitable for worldwide unrestricted service. The vessel's main task is exploration and development drilling in the waters offshore Brazil, Africa or the Gulf of Mexico. Huisman developed the concept design.

HUISDRILL 10000



HUISDRILL 12000



FEATURES

- Length overall: 208m
- Width: 36.4m
- Depth: 19.6m (freeboard deck)
- Depth: 23.8m (work deck)
- Draft: 12m
- Variable deck load: 20,000mt (30,000mt)
- Displacement: 60,000mt (70,000mt)
- Water depth: 13,200ft (eq. to 4,000m)
- Dynamic Positioning: Class 3
- Persons on board: 240
- Vessel speed: 12kn

The HuisDrill 12000 is a dynamically positioned (class 3) deepwater drilling vessel for drilling operations in water depths up to 4,000m. The vessel has a large functional work deck situated above the freeboard deck which is designed to remain clear of obstacles like ventilation houses and mooring equipment. The work deck is flush with the drill floor which improves safety for people and improves logistics on handling of all construction equipment.

Huisman developed the concept and basic design.

The Orion Class semi-submersible drilling units are based on a hull design that can be customised according to owner requirements. The design can be customised for water depths of 500m, 1,000m, 1,500m, and 3,000m. The units can be equipped with a mooring system, a thruster assisted mooring system or DP system. The unit is suitable for worldwide unrestricted service. The units main task is exploration and development drilling. The basic design is finished.

FEATURES

- Length deck box: 82.2m
- Width deck box: 67.2m
- Height deck box: 9.0m
- Length pontoons: 106.8m
- Height of main deck above baseline: 44.4m
- Station keeping: Mooring/DP3
- Dual multi purpose drilling tower: 2x 1,090mt

ORION



JBF ARCTIC



ARCTIC S



The Huisman designed JBF Arctic allows operations at two operating drafts. The unique design combines the advantages of a conventional semi-submersible resulting in very low motions in waves and a heavily strengthened ice resistant unit when operating in ice at deep draft. The JBF Arctic drilling unit is designed to drill wells in arctic conditions, moored in ice infested waters with ice thickness up to approximately 2.0 - 3.0 meter. The latest design named 'Arctic S' features a third operating mode. The Arctic S can also be deployed in shallow water as a bottom based structure.

FEATURES JBF ARCTIC

- Deck box top diameter: 106.0m
- Deck box bottom diameter: 90.0m
- Height deck box: 17.0m
- Lower hull diameter: 116.0m
- Height of main deck above base line: 49.0m
- Mooring system: 20 lines
- Drilling system: 2x 1,090mt

FEATURES JBF ARCTIC S

- Deck box top diameter: 88.0m
- Deck box bottom diameter: 77.2m
- Height deck box: 14.9m
- Lower hull diameter: 100.0m
- Height of main deck above base line: 38.5m
- Mooring system: 16 lines
- Drilling system: 1,090mt

Main deck 38.5 m

Ice draught 29.2 m

Open water draught 18.5 m

Survival draught 17 m

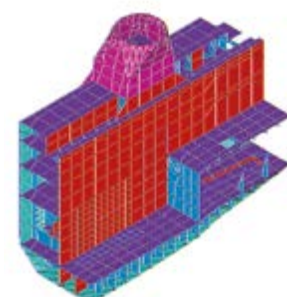
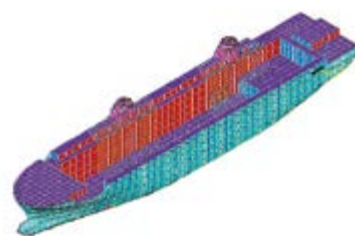
Transit draught 10.3 m

Vessels: **Jumbo Javelin, Fairpartner, Fairplayer, Jumbo Jubilee**
 Owner: **Jumbo Shipping**
 Delivery: **2004/2009**

From the year 2004 onwards Huisman has delivered several 900mt mast cranes for the J1800 Class vessels of Jumbo Shipping.

Besides the delivery of the 900mt heavy lift mast cranes Huisman was also responsible for the integration of the cranes.

The drawworks of the cranes were integrated in the ship structure as low as possible to optimise the layout and to improve the stability of the vessel.



JUMBO SHIPPING J1800 CLASS VESSELS



3,300MT HEAVY LIFT VESSEL



Vessel: **Rambiz**
 Owner: **Scaldis**
 Delivery: **1996 2x 1,375mt**
After conversion A-frames
Starboard 2x 800mt
Portside 1x 1,700mt

In 1995 Huisman designed a sheerleg catamaran for a bridge construction project in shallow water. The sheerleg was built from three existing pontoons. The design work included the full vessel design package approved by Lloyd's; extensive model testing and hydro-mechanical calculations subcontracted by Huisman to MARIN; and the global and local structural calculations. Huisman performed the inspection and repairs of the existing pontoons including new reinforcements, modifications, the construction and assembly of the catamaran. The cranes were designed, built, and delivered by Huisman.

In 1999, when the bridge construction project was finished, a major conversion of the Rambiz was performed by Huisman. The modifications included a reduction of the vessels width by shortening the cross-beam and an increase of the length of the vessel. All design work was done by Huisman. The manufacturing was subcontracted to Damen Shipyard.

Vessel: **Sapura 3000**
 Owner: **SapuraAgency**
 Delivery: **2007**

The conceptual layout of the vessel was performed by Huisman. The basic design was subsequently performed by Sea of Solutions.

Huisman took active part in the hydro dynamic analysis of the ship including the model tests. The crane structural integration analysis and a number of verification calculations and studies, including the stability analysis, the longitudinal strength, and the midship section design were carried out by Huisman.

The cranes, the stinger and the pipelaying equipment were designed, built, and delivered by Huisman.

SAPURA 3000



5,000MT CRANE AND S-LAY VESSEL

FEATURES

- Length overall: 189.6m
- Width: 49.0m
- Depth: 15.5m
- Dynamic Positioning: DP3
- Mast crane: 5,000mt @ 34m radius (fully revolving)
5,000mt @ 40m radius (over stern)
- Pipelaying tension: 650mt

This V-shape hull DP3 crane vessel features a variable draft design which allows for high transit speed and excellent seakeeping. The vessel is equipped with a 5,000mt Huisman offshore mast crane and a 650mt s-lay system.



1,000MT RIGID-LAY VESSEL

FEATURES

- Length overall: 200m
- Width: 38m
- Depth: 17m
- Dynamic positioning: DP3
- Pipelaying tension: 1,000mt

The 1,000mt Rigid-Lay Vessel is a dynamically positioned pipelay vessel with maximum pipe tension capacity of 1,000mt.

The reel storage capacity is 10,000mt of rigid pipe. The unique V-shape hull design provides high transit speed and excellent seakeeping.



570MT MULTI-LAY VESSEL

FEATURES

- Length: 199.4m
- Width: 32.2m
- Depth: 14.7m
- Dynamic Positioning: DP2
- Pipelaying tension: 570mt

The 570mt Multi-lay vessel is a dynamically positioned pipelaying vessel with maximum pipe tension capacity of 570mt. The vessel is suitable for worldwide unrestricted service.

Huisman developed the concept design.



FEATURES

- Length overall: 134.4m
- Width: 72.0m
- Depth: 28.8m
- Dynamic Positioning: DP3
- Wind turbines payload: 2x 1,000mt

To improve the efficiency of offshore wind turbine installation, Huisman developed the Wind Turbine Shuttle: a dynamically positioned, fast sailing (14 knots) SWATH - Small Water plane Area Twin Hull - type construction vessel which can carry and install two fully assembled wind turbines. By combining low vessel motions, compensating systems and an accurate dynamic positioning system, the wind turbine is kept virtually stationary in relation to the fixed foundation during installation in sea states up to 3.5m significant wave height.

WIND TURBINE SHUTTLE



Wind Turbine Shuttle with two wind turbines



Wind Turbine Shuttle with two jackets



Wind Turbine Shuttle with two monopiles

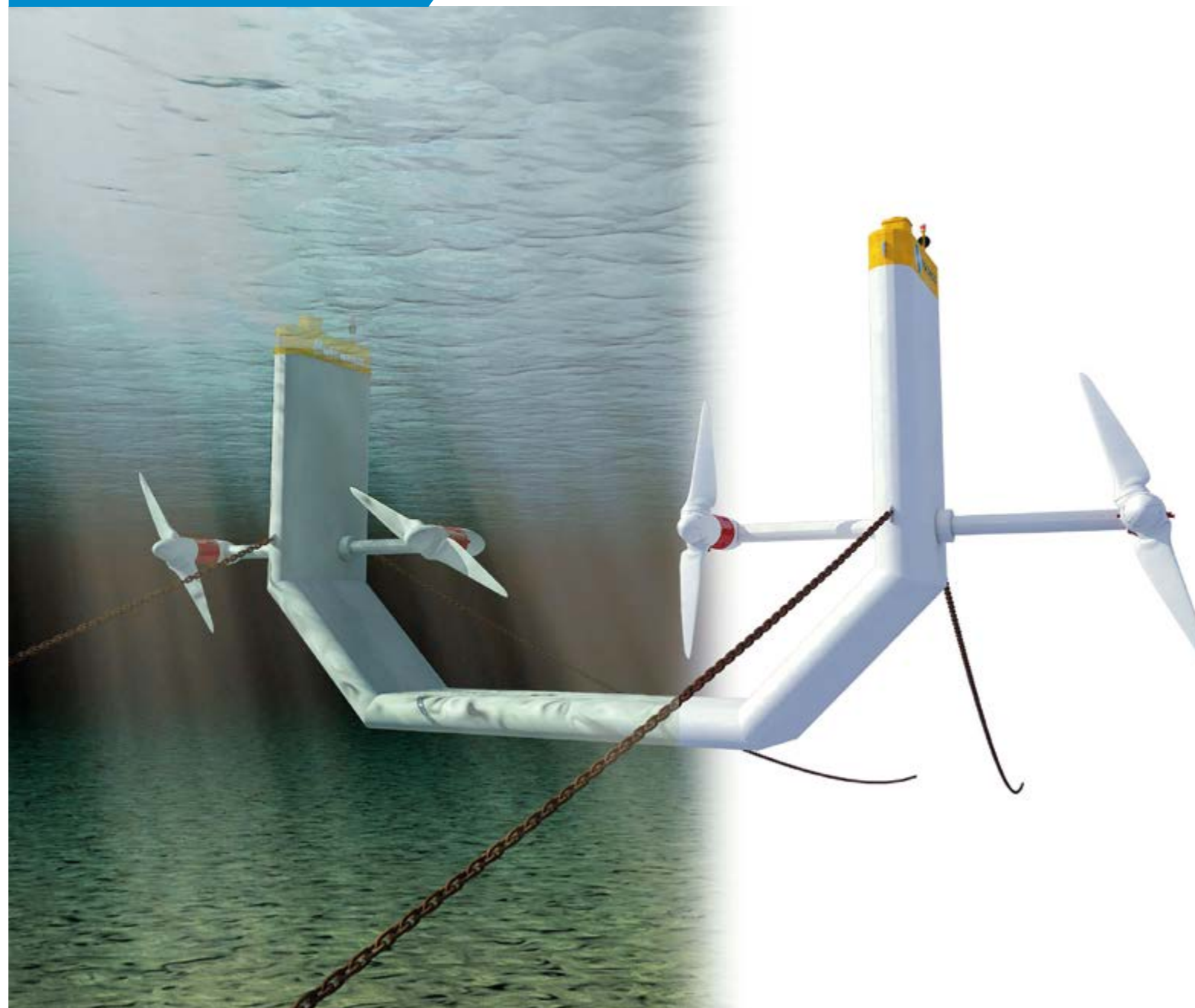


Wind Turbine Shuttle with piles



Decommissioning of top sides

UNIFORM FLOATING STRUCTURE



FEATURES

- Tidal turbines 4x Tocardo T2 (4x200kW) rotor diameter approximately 9m
- Length over all: 6m
- Breadth over all: 53m
- Depth: 18.5m
- Operating draft: 15.5m
- Water depth range between 25-60m
- Position mooring system

This Uniform floating structure (UFS) as developed by Huisman and Tocardo supports 4 tidal turbines. It is uniform in the sense that it can support multiple type and size of turbines at sites all over the world. The UFS will be held on position by a site specific redundant mooring system. Power generated by the turbines will be converted on board the unit to grid quality power and exported to shore via an electrical cable.

