

DECK EQUIPMENT AND HANDLING SYSTEMS



Fixed Boom Offshore Cranes
40T / 35 m

SH Group is a manufacturer and global supplier of tailor made handling systems and deck equipment for the marine, offshore and wind industry

Units in operation worldwide
1000+

**Svendborg, Lindø, Esbjerg,
Stavanger, Houston and
Singapore**

Year of establishment
1974

Turn over
EURO 55M



We are a Service company operating worldwide



BRANDS



Handling systems for ROV
and Research equipment



- Launch & Recovery Systems
- A-Frames
- ROV Winches
- Module Handling
- Dive Handling
- Oceanographic Winches
- Cable lay
- Transportable Tensioner,
15T Spooling device



Complete supplier of Cranes
and deck machinery



- Offshore, Cargo and Marine Cranes
- Anchor Handling and Towing equipment
- Anchor Windlass combined Towing or
Mooring
- Mooring and tugger Winches
- Shark Jaws and Towing Pins
- Sternrollers



Lifeboat and rescue boat
systems for ships, oil rigs,
and special vessels



- Lifeboat and rescue boat systems
- SOLAS
- NORSOK
- Boat-In-A-Box™
- Drop-In-Ball™

Spare parts + World Wide Service 24/7

IN-HOUSE PRODUCTION FACILITIES

With more than 50 highly experienced engineers and technicians, We are skilled in designing solutions that technically and economically meet any demands you might have.

We have our own Inhouse production- and test facilities with up-to-date machinery and educated workers. Combined, We are able to run production faster and under constant surveillance and dialog between all people in-

involved. As a result, We can resolve issues faster and deliver a better result on time!

Our project managers all have relevant backgrounds from the Offshore, Marine and Wind industries. That allows Us to put the right person on the job, often acting as your single point of contact.

Inhouse production facilities

- Engineering department
- Steel workshop
- Hydraulic and Mechanical workshop
- Electrical and Automation workshop

Our strategic business set-up enables us to stay competitive and offer a reliable support and service to our customers worldwide, 24/7.

Project Management



Engineering department



Steel workshop



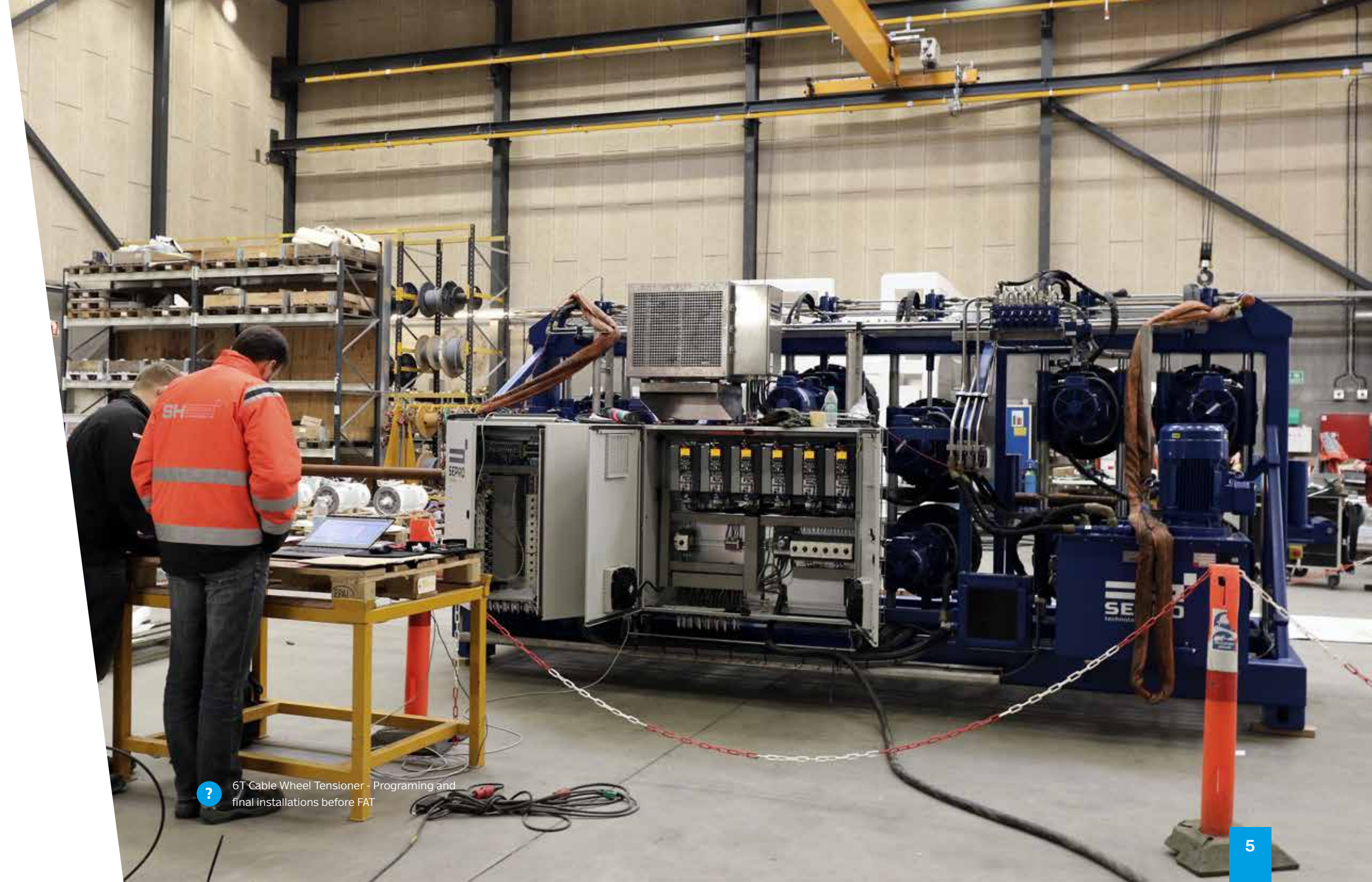
Hydraulic & Mechanical workshop



Electrical & Automation workshop



A complete supply chain from **one source**



6T Cable Wheel Tensioner - Programing and final installations before FAT

LAUNCH & RECOVERY SYSTEMS

ROV HANDLING SYSTEMS

Sepro™ has got one of the most comprehensive product portfolios in the market for LARS (Launch & Recovery Systems) and has an extensive experience and knowledge within design, engineering, project management and production.

Sepro™ offers turnkey system deliveries including system integration as well as single product deliveries. Design, production, assembly and testing are carried out at one of SH Group's locations. This is done deliberately in order to ensure optimum control of quality and functionality for each individual delivery.

We have an excellent track record with the majority of these systems in daily operations worldwide.

? Deck mounted Overside system






? Moonpool Handling System

? FAT - Electrical Winch

ROV HANDLING WINCHES








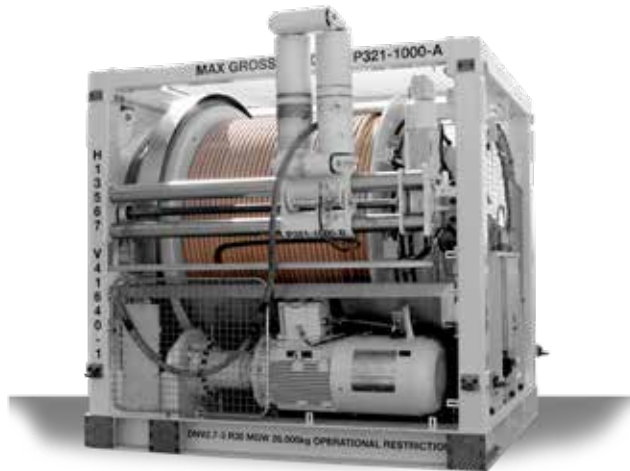
OceanObserver™
10ft container dimension. Free flying ROV
Bespoke Design

Example	
 SPOOLING FRONT	 CABLE CAPACITY 1.900 M - Ø28.6
 DRUM Ø 1.200 mm	 UMBILICAL YES
 AHC NO	








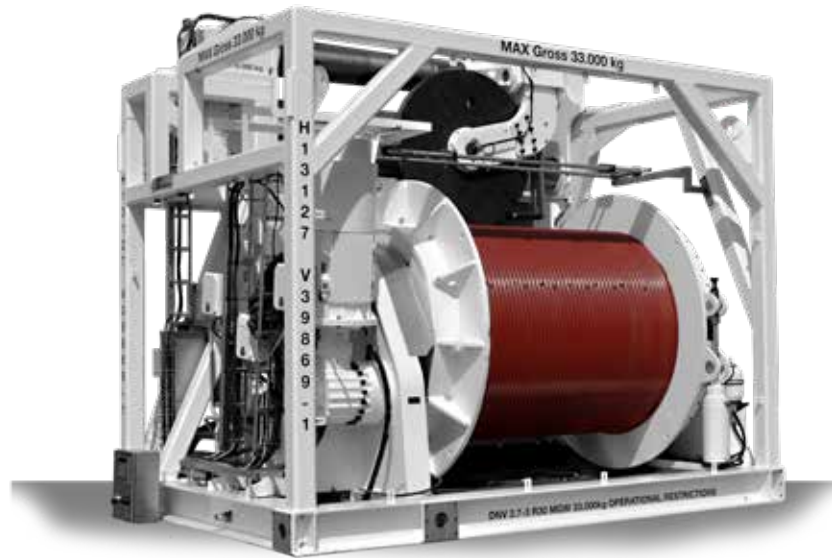
OceanFighter™

Example	
 SPOOLING FRONT	 CABLE CAPACITY 3.400 M - Ø35
 DRUM Ø 1.300 mm	 UMBILICAL YES
 AHC YES	








OceanMaster™
Zone II
Bespoke Design

Example	
 SPOOLING FRONT	 CABLE CAPACITY 1.200 M - Ø40
 DRUM Ø 1.200 mm	 UMBILICAL YES
 AHC NO	








OceanFighter™
Zone II
Bespoke Design

Example	
 SPOOLING RIGHT ANGLE	 CABLE CAPACITY 2.100 M - Ø40
 DRUM Ø 1.600 mm	 UMBILICAL YES
 AHC YES	



OceanMaster™
Zone II. Replacable Drum
Bespoke Design

Example	
 SPOOLING RIGHT ANGLE	 CABLE CAPACITY 4.300 M - Ø40
 DRUM Ø 1.500 mm	 UMBILICAL YES
 AHC NO	

ROV HANDLING



Deck mounted **HPL™** - Suitable for limited deck space and narrow hangars. Extensive outreach and excellent dipping functionality.



Deck mounted **DPL™** - Compact solution for limited deck space. The DPL™ lifts the ROV and TMS between the legs.



Overhead Rail System **ORS™** - Gantry type of LARS with extensive lowering capabilities along the ship-side rails making launch of ROV possible below splash zone.



Wall-mounted Rail System **WRS™** - Increased lowering capabilities and clean deck area giving space to ROV operation, service and maintenance.

ROV & EQUIPMENT HANDLING



Deck mounted A-Frame SWL 4T with ROV garage for easy storage and maintenance. The A-Frame is delivered with a local control station and a radio remote.



Compact twin LARS

This L-frame is designed for a very small hangar. Its low and compact dimensions allows the vessels top hangar doors to be closed during operation.



15T Cable Tensioner

Manual / auto mode. Choose from over / under spooling, and right / left twisted. Data storage on length, tension and speed from WinCC Audit Trail, non editable file. PLC (Siemens) controlled



Trencher System

A-Frame (SWL-15T) LARS Trencher System.



Cable laying

A-Frame (SWL-10T) for support of subsea tools for laying fibre optic cables. The A-Frame is standing 8 meters tall and 7 meters wide.



Cursor frame

New and upgraded Cursor frame for ROV handling installed on a O&G platform in the Norwegian North Sea.



10 kN Hose Reel

OCEANOGRAPHIC RESEARCH

Handling systems and deck equipment from SH Group will meet any requirements whether the research vessel is on a seismic or hydrographic survey, construction or dredging job or oil exploration. All our equipment is reliable, safe and easy to operate in any type of weather - even the toughest conditions at sea.

Design, production, assembly and testing is carried out in Denmark. This is done deliberately in order to ensure optimum control of quality and functionality for each individual delivery, hence reducing installation and testing time on site.



”

Since a research voyage is planned many months ahead, it is very important that all launch and recovery equipment on board, are reliable and operational when required, as you only have a specific window to carry out the planned test, sample collecting, filming etc. The LARS delivered to us by SH Group has proven itself as being very reliable and easy to operate. Something which is vital when used and operated by different people on board our vessel.
Stig Vågenes, ROV Manager - University of Bergen



OCEANOGRAPHIC RESEARCH



Deep Sea research equipment for mounting on naval inspection vessel for arctic use. Design Temperature is -30°C to +40°C.






The LARS System consists of two hydraulic winches: 50 kN Winch/10 kN Winch and A-Frame 80 kN with a hydraulic extension boom to deploy and recover scientific instrumentation (CTD and water sampling rosette, seismic equipment and cable sheaves for up to 4000 m with 16mm rope/wire).

OCEANOGRAPHIC WINCHES



OceanObserver™
10ft container dimension. Free flying ROV
Bespoke Design






Example

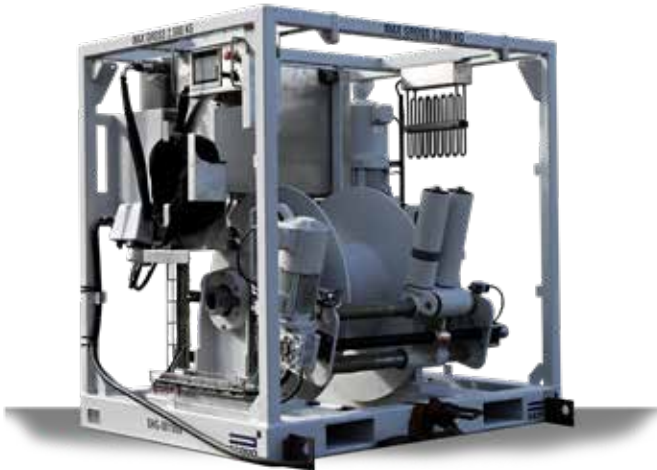
 SPOOLING FRONT	 CABLE CAPACITY 1.900 M - Ø28.6
 DRUM Ø 1.200 mm	 UMBILICAL YES
 AHC NO	



OceanEnviro™
Super compact
Bespoke Design






Example

 SPOOLING FRONT	 CABLE CAPACITY 1.900 M - Ø0
 DRUM Ø 700 mm	 UMBILICAL YES
 AHC NO	



OceanReacher™
Bespoke Design






Example

 SPOOLING FRONT	 CABLE CAPACITY 780 M - Ø16
 DRUM Ø 460 mm	 UMBILICAL YES
 AHC NO	



SDC Winch
Bespoke Design






Example

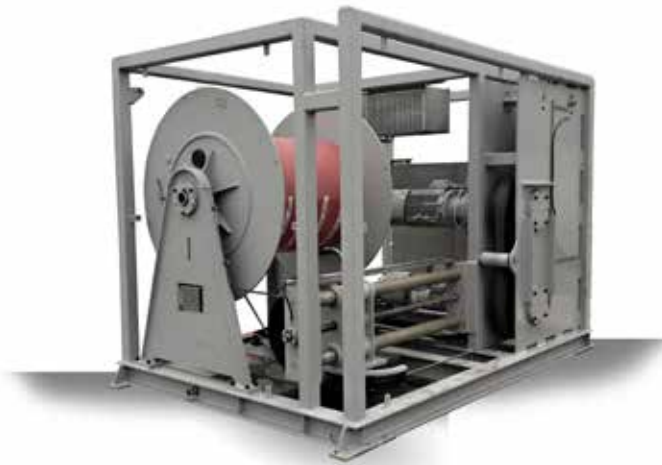
 SPOOLING RIGHT ANGLE	 CABLE CAPACITY 8.000 M - Ø9.53
 DRUM Ø 1.250 mm	 UMBILICAL YES
 AHC YES	



Small Wire Winch
Bespoke Design






Example

 SPOOLING FRONT	 CABLE CAPACITY 4.000 M - Ø5
 DRUM Ø 800 mm	 UMBILICAL NO
 AHC NO	



Water Sampler Winch
Traction & Storage
Bespoke Design

Example

 SPOOLING RIGHT ANGLE	 CABLE CAPACITY 7.000 M - Ø14
 DRUM Ø 900 mm	 UMBILICAL YES
 AHC NO	

DIVE SYSTEM HANDLING

Moonpool and Deck mounted

Dive handling systems from SH Group meets the highest standards for performance, reliability and safety. We design over-the-side systems and state-of-the-art twin bell moonpool systems for SDC. The systems can contain A-Frame, Winch, Sheave Units, Moonpool cursors, Umbilical Service Winch, Umbilical Shock Absorber and HPU's.

Design, production, assembly and testing is carried out in Denmark. This is done deliberately in order to ensure optimum control of quality and functionality for each individual delivery, hence reducing installation and testing time on site.




? Deck mounted Diving Support Module



Diving Support Module located on deck. The DSM is a unit comprising of 4 A-frames, 2 Tugger winches and 4 Hose reels. The DSM is a self-contained unit including electrical power cabinet, hydraulic supply/valves/handles/joysticks, socket outlets and lightning with switches.



DIVE SYSTEM HANDLING

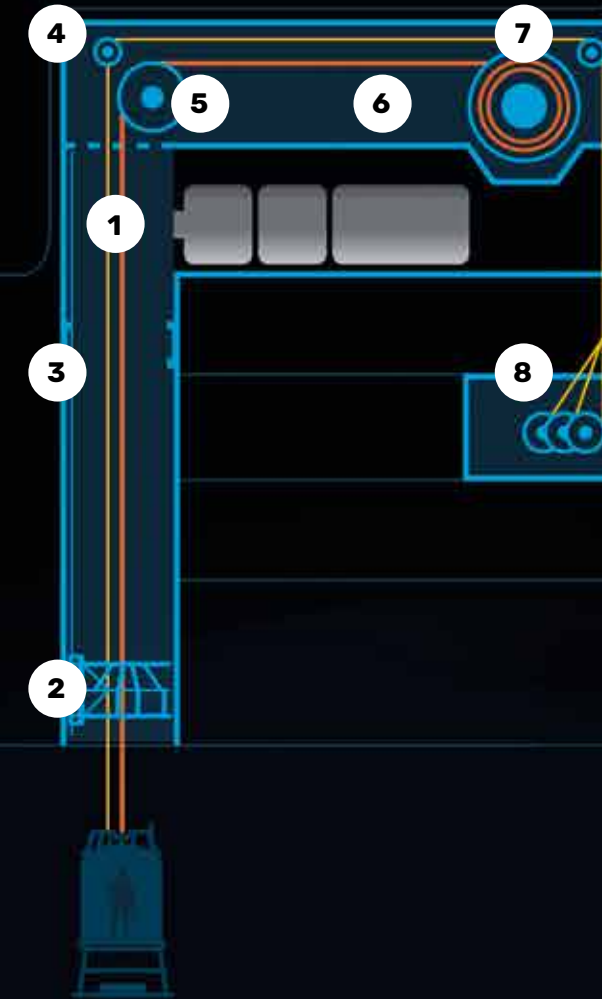
 Moonpool Dive Handling system

OUR SYSTEM

Our delivery supports the 24 man twin-bell diving system installed on board DSV Deep Explorer, a DP3 class diving support vessel with a state-of-the-art dive control system.



Watch the video from the depths of DSV Deep Explorer: www.shgroup.dk/content/deep-explorer.aspx



3. Hydraulic support arms for SDC



4. Shock Absorber



5. Umbilical Shock Absorber



6. Redundant HPU's



7. Umbilical Service Winch



8. 3 pcs. SDC lift winches

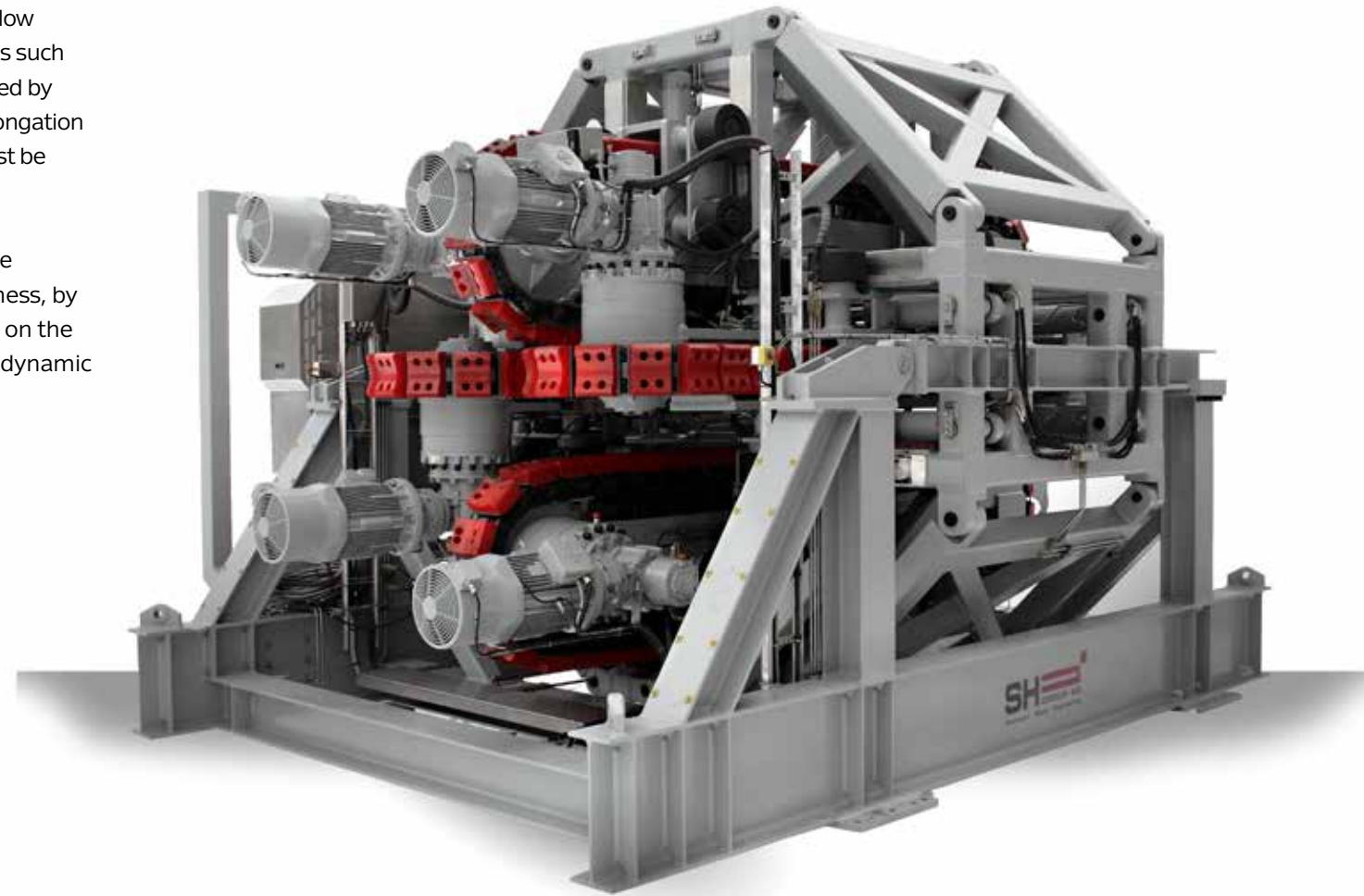


1. Passive Cursor Frame and Telescopic trunk to diver's quarters

CABLE ENGINES

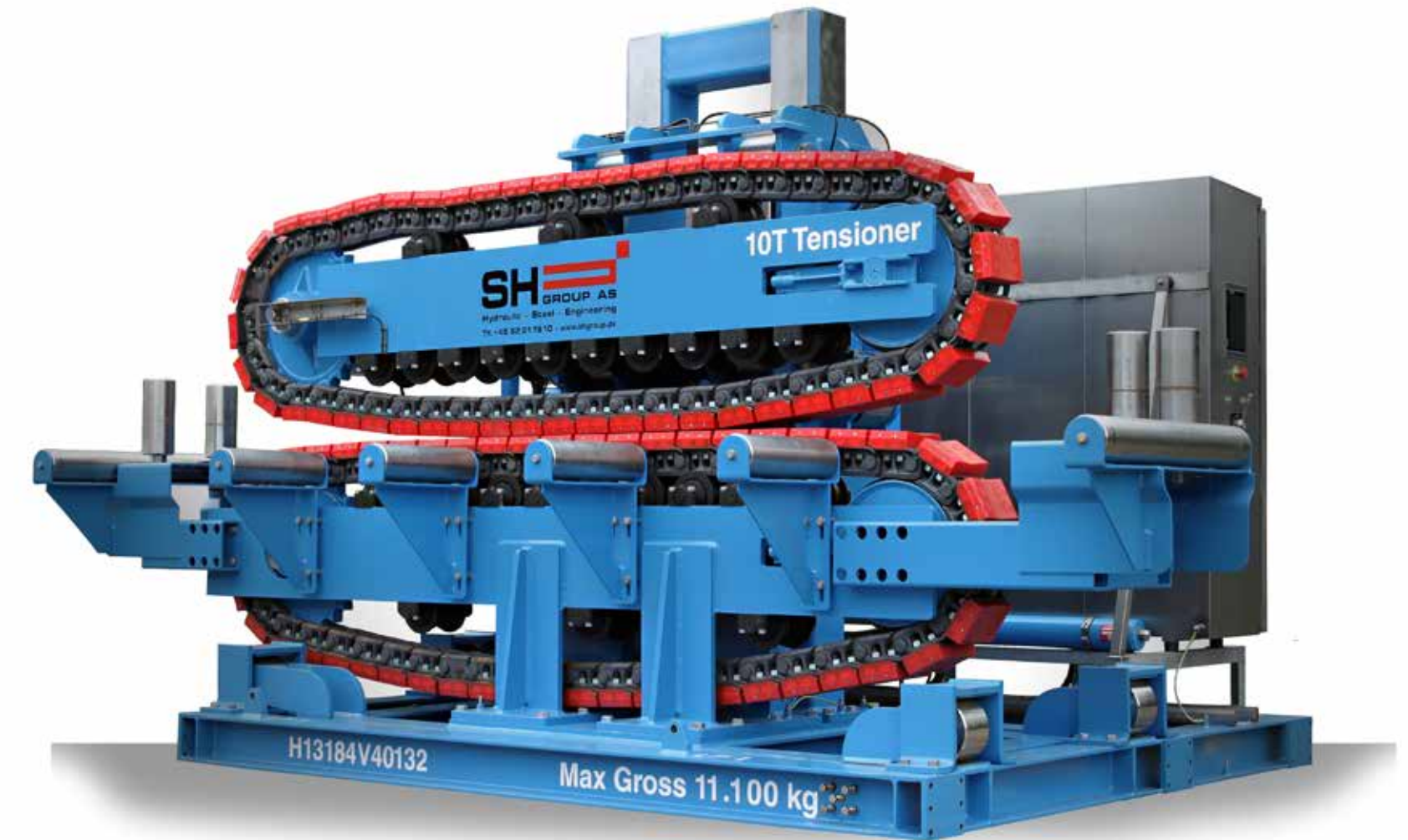
Cable laying is a complex task, because of the low tolerances on cable elongation. Dynamic forces such as cable weight in water, bottom tension caused by negative slack, and vessel speed, affect the elongation of the cable, thus the tension on the cable must be controlled at all times.

SH Groups 4-track and 2-track tensioners are designed to give the best possible effectiveness, by using a feed-back loop to adjust the tension on the cable. This way we control the effects of the dynamic forces with our products.



4 Track Cable Engine

Drive: Electrical/Hydraulic
Cable diameters: $\varnothing 50\text{mm}$ – $\varnothing 800\text{mm}$
Speed: 0 – 1.000 m/h



2 Track Cable Engine

Drive: Electrical/Hydraulic
Cable diameters: $\varnothing 20\text{mm}$ – $\varnothing 500\text{mm}$
Speed: 0 – 1.000 m/h

CABLE ENGINES

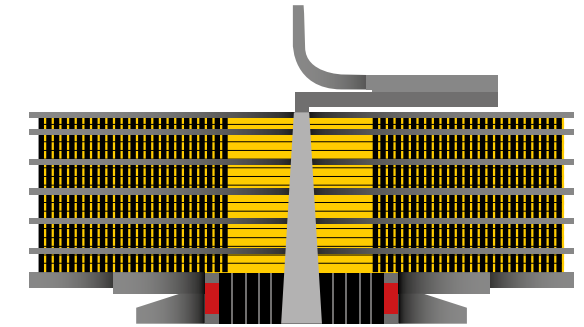
6T Wheel Tensioner

Drive: Electrical/Hydraulic
Cable diameters: ø20mm – ø300mm
Speed: 0 – 1.800 m/h



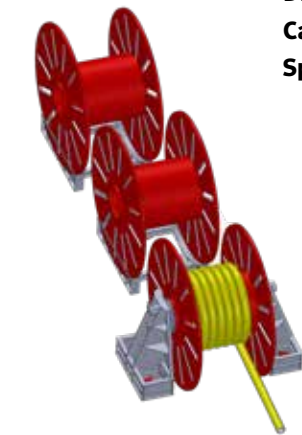
High Speed Wheel Tensioner

Drive: Electrical/Hydraulic
Cable diameters: ø20mm – ø500mm
Speed: 0 – 11.000 m/h



Carousels / Turntables

Drive: Electrical/Hydraulic
Cable diameters: ø50mm – ø800mm
Speed: 0 – 1.000 m/h



Reel Drive Systems

Drive: Electrical/Hydraulic
Cable diameters: ø50mm – ø800mm
Speed: 0 – 1.000 m/h

LIFEBOAT AND RESCUE BOAT SYSTEMS



NORSOK (R-002)

The Xervo™ NORSOK system is the top of the line. The specification includes not less than four winch Brakes, mode-selector where the user can choose between training and emergency modes for optimized safety in all situations, and use of redundancy and back-up systems.

The result is a superior safety level with purely mechanical back-up functionalities, at the same time yielding a reliable system which is able to be used in no-power conditions.

The system includes:

- Box design for protection of four winch Break system
- Triple winch brake system
- Climate control inside box
- Service door and platform inside the box
- Built-in material handling system
- Redundant Drop-In-Ball™ hook system
- Diagnosis system monitoring the state of Crucial components

? Jack-up - Boat-In-A-Box™ - NORSOK System
6 lifeboats and 1 rescue boat



SOLAS

The Xervo™ SOLAS system has been developed on the basis of the original Xervo design. The goal has been to achieve the best possible safety level while complying with commercial and regulatory requirements.

The system has been developed using risk assessments and our knowledge base from existing projects complying with the NORSOK safety standard.

The system includes:

- Unique maintenance concept
- Double winch brake system
- High quality materials and paint systems
- Soft start & stop
- Box design for protection of boat (optional)
- Nadiro Drop-In-Ball™ hook system (optional)

? Jack-up - Boat-In-A-Box™ - NORSOK System
4 lifeboats and 1 rescue boat



Artic System

For extreme environment, Xervo™ offers the Arctic upgrade as per the new IMO Polar Code. Implemented 1. jan. 2017 to both SOLAS and NORSOK systems. The Specification is compliant with classification standards for Arctic operation.

The system includes:

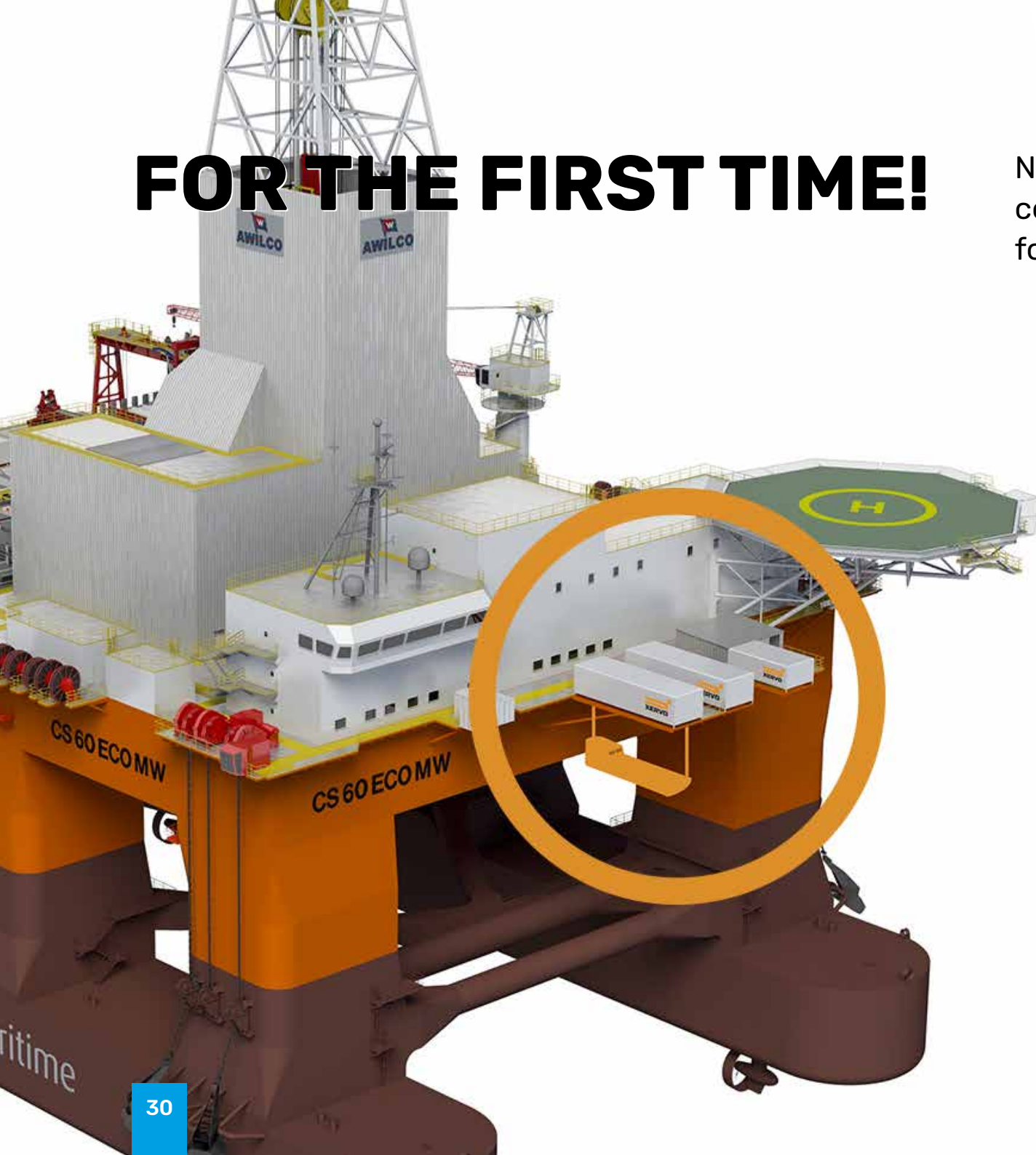
- Box design for protection of four winch break system
- Engineered for ice load and low temperature Steel grades
- Air heating and trace heating applied
- Special materials and sealings applied

Boat-In-A-Box™ davit system

Xervo™ is the inventor and manufacturer of the unique Boat-In-A-Box™ davit system suitable for marine and offshore applications. The system protects the boat, the winch, the hook system, as well as all components and wires. The modular concept is suitable for both newbuildings and retrofits.

The Boat-In-A-Box™ system is installed with either hydraulically controlled davit arms or as a fixed installation. The modular concept means easy installation and easy maintenance, which reduces cost-of-ownership over the lifetime of the system.

FOR THE FIRST TIME!



NORSOK R-002 approved conventional lifeboat equipment for a semi-submersible drilling rig.

The delivery is a breakthrough in the industry.

Xervo™, the leading producer of approved conventional NORSOK lifeboat systems delivers the first NORSOK R-002 lifeboat equipment for a semi-submersible drilling rig, capable of operating on the Norwegian Continental Shelf (NCS).

The Boat-In-A-Box™ davit system is a fully insulated and air heated closed box performing to -20 degrees Celcius. It is fully operational during ESD and capable of withstanding any extreme weather conditions. It has got an installation height of 100+ m. and is approved by DNVGL

The Boat-In-A-Box™ davit system meets all offshore regulations outlined in MODU, the Petroleum Safety Authority Norway (PSA) rules and NORSOK.



Boat-In-A-Box™

SOLAS System



? Boat-In-A-Box™ - SOLAS System



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DECK EQUIPMENT

NorCrane™ is specialized in design and manufacturing of deck equipment systems for the marine and offshore industries. We have developed a wide range of products to supply shipyards and shipowners with flexible solutions covering cranes, winches and overall mooring equipment for all types of vessels.

We offer turnkey system deliveries including system integration as well as single product deliveries. Our strategic business set-up enables us to stay competitive and offer a reliable support and service to our customers worldwide, 24/7.

All equipment will be designed according to international class rules and be delivered with full class certificates. NorCrane™ offers efficient, easy and safe to use equipment, build on Scandinavian quality and know-how.



Deck machinery



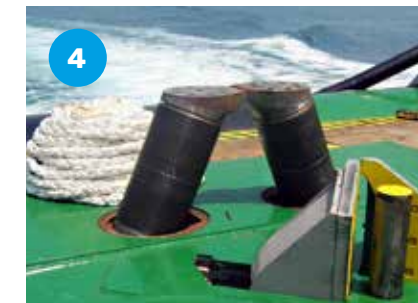
Anchor Handler Winch



Cranes - Offshore, Marine or Cargo



Mooring Winches



Shark Jaws and Towing Pins



Sternrollers



Capstans



Anchor Windlass combined Towing or Mooring



Towing Winch with Towing Hook



Tugger Winch



CRANES

OFFSHORE . MARINE . CARGO

Whatever the configuration: our NorCrane™ Cranes can be modified to do the job. We have supplied shipyards and shipowners all over the world with cranes for all types of vessels.

Offshore Cranes

Knuckle or Fixed jib configurations up to 140T.

Marine Cranes

Can be delivered with all three configurations for Fixed, Knuckle or Telescopic Jibs up to 120T.

Cargo Cranes

27T @ 30 meter radius, standard bulk configuration.

All cranes are designed according to international class rules and can be delivered with full class certificates. All offshore cranes can be delivered according to latest API 2 C specifications.

? two Fixed Boom – 40T / 35 m
Offshore Cranes are installed
upon a Salvage and Wreck
Removal vessel



Offshore Fixed Boom Crane

- Drive system: Electro Hydraulic Power Pack
- Automatic overload protection system (AOPS)
- Manual overload protection system (MOPS)
- Certification: International Class Societies



SWL
40T



HEAVE COMP.
Yes



OUTREACH
35 METRES

CRANES



Knuckle Jib
Bespoke Design

Example



SWL
100T



HEAVE COMP.
Yes



OUTREACH
Customer spec.



Knuckle Jib
Bespoke Design

Example



SWL
50T



HEAVE COMP.
Yes



OUTREACH
Customer spec.



Fixed boom crane
Bespoke Design

Example



SWL
100T



HEAVE COMP.
Yes



OUTREACH
Customer spec.



Dieseldriven Offshore Crane with wire luffing
Bespoke Design

Example



SWL
50T



HEAVE COMP.
No



OUTREACH
60 Metres



Telescopic Jib
Bespoke Design

Example



SWL
20T



HEAVE COMP.
No



OUTREACH
25 METRES



Telescopic Jib
Bespoke Design

Example



SWL
5T



HEAVE COMP.
No, but constant tension



OUTREACH
40 METRES

JACK-UP

New innovative Jack-Up system for vessels offering offshore wind installations.

SH Group along with owner and partners has developed and produced this innovative Jack-Up system. A control system and new form of shock absorbers that reduces the impact from the jacking. It is the front runner for a new type of custom-designed vessels. These vessels, do small but many different operations and therefore they need to be flexible operating in varying sea beds and environments in water depths up to 45 m.



JACK-UP

Production of more than 430-meter long racks and repair work of tubes.



The 2.3-metre thick and 54-metre long legs and racks are made of hightensile steel which requires special treatment and handling. They are welded approximately eight times in the full length on each side of each individual rack. When the racks are welded to the rig legs, they are heated to 120°C. The detailed work around heating the tubes demands experience and the right competences. The four 160-tonnes legs belongs to a jack-up rig

WIND INDUSTRY

SH Group specializes in design, engineering and production of equipment and handling systems for global players in the wind industry

Proven Track record supplying to the wind industry

- Electrical rack and pinion Jack Up system
- Static blade test equipment
- Fatigue blade tests equipment
- Installation/helping tools, production side
- Tower guide system
- Sea fastening
- Tower gripper
- Tower stabilizer brackets
- Lifting Yokes
- Tag wire winches
- Equipment exchange winches
- Boat landing
- Gangways
- On site annual inspections



? 450 Ton Nacelle Lift Yoke

WIND INDUSTRY



? Tower stabilizer brackets



? 715 Ton Tower Gripper



? Main Bearing exchange tool



? HV Cable exchange system



ABOUT SH GROUP

SH Group's activity comprises sales, marketing, development and design as well as production, installation and servicing of hydraulic, electric and mechanical constructions for the offshore, marine and industrial sectors.

SH Group and its subbrands Sepro™, NorCrane™ and Xervo™ provides a wide range of high-end technology solutions and services within customized deck equipment solutions, systems for subsea handling operations and lifeboat solutions approved for SOLAS and NORSOK.

Founded in 1974, SH Group currently employ about 250 employees at the headquarters in Svendborg and its service departments in Esbjerg and Lindø, Denmark. SH Group is present with sales Offices in Stavanger, Norway, Houston, U.S.A., Singapore and TianJin, China.

For further information and references, please visit www.shgroup.dk

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