NORSOK STANDARD

LIFTING EQUIPMENT OPERATION

R-003
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FOREWORD

NORSOK (The competitive standing of the Norwegian offshore sector) is the industry initiative to add value, reduce cost and lead time and remove unnecessary activities in offshore field developments and operations.

The NORSOK standards are developed by the Norwegian petroleum industry as a part of the NORSOK initiative and are jointly issued by OLF (The Norwegian Oil Industry Association) and TBL (Federation of Norwegian Engineering Industries). NORSOK standards are administered by NTS (Norwegian Technology Standards Institution).

The purpose of this industry standard is to replace the individual oil company specifications for use in future petroleum industry developments and operations, subject to the individual company's review and application.

The NORSOK standards make extensive references to international standards. Where relevant, the contents of this standard will be used to provide input to the international standardisation process. Subject to implementation into international standards, this NORSOK standard will be withdrawn.

Annex A is informative.
Annex B is informative.
Annex C is normative.

INTRODUCTION

The primary purpose of this standard is to provide owners and users of lifting equipment on an offshore installation with a framework and guidance to enable them to operate lifting equipment in a safe and efficient manner. The purpose of this standard is to focus on safe operation of lifting equipment in order to establish, maintain and further develop an adequate level of safety for personnel, the environment and for physical assets during planning and execution of lifting operations.

While preparing this standard, due considerations have been taken to Norwegian statutory regulations, OLF guidelines, international and European standards and to operating companies internal specifications and procedures concerning the safe use of lifting appliances and lifting gear.

Since this NORSOK standard gives information to many user groups special guidelines for the different groups may need to be established.

1 SCOPE

This NORSOK standard establishes requirements and guidelines for safe operation of lifting equipment in the petroleum activities. It covers lifting appliances and lifting gear used in connection with lifting operations offshore. It does not cover drilling hoisting tools on the drill floor or in the drilling derrick specifically designed and used for drilling operations or in the support of such operations, neither does it cover safe use of lifts, trucks and suspended scaffolding. Examples of lifting equipment covered and not covered by this standard are shown in annex A.

Subjects covered include safe systems of work, i.e., management, planning, operation, selection, inspection/examination/testing and maintenance of lifting appliances and lifting gear as applicable as well as the requirements for competence of crane operators, slingers and signalmen.

2 NORMATIVE REFERENCES

The following regulations and standards include provisions which, through reference in this text, constitute provisions of this NORSOK standard. Latest issue of the references shall be used unless otherwise agreed. Other recognised standards may be used provided it can be shown that they meet or exceed the requirements of the regulations and standards referenced below.

When an EN standard or prEN standard has been published covering the same field of application as a referenced ISO standard, the EN or prEN standard shall apply as provisions of this standard.

Regulations:

Directorate for labour Inspection	Order no. 522	The Supply of Machinery (Safety) Regulations
	Order no. 523	Design of Protective Equipment
	Order no. 524	Minimum Health and Safety Requirements for the Use by Workers of Protective Equipment at the Workplace
Norwegian Petroleum Directorate	YA-003	Regulations relating to systematic follow-up of the Working Environment in the Petroleum Activities

EN Standards:

Chain and Components:

EN 818-1	Short Link Chain for Lifting Purposes - Safety Part 1 : General Conditions of Acceptance
EN 818-2	Short Link Chain For Lifting Purposes - Safety Part 2 : Medium Tolerance Chain for Chain Sling - Grade 8

prEN 818-4	Short Link Chain for Lifting Purposes - Safety Part 4 : Chain Slings - Grade 8
prEN 818-6	Short Link Chain for Lifting Purposes - Safety Part 6 : Chain Slings instruction for Use And Maintenance.
prEN 818-7	Short Link Chain for Lifting Purposes - Safety Part 7 : Fine Tolerance Chain for Serial Hoists, Grade T. Types T, DT, DAT)
prEN 1677-1	Components for Slings - Safety. Forged Steel Components, Grade 8.
prEN 12195-1	Load Restraint Assemblies - Safety - Calculation of Forces
prEN 12195-2	Load Restraint Assemblies - Safety - Web Lashing Equipment made of Man-made Fibres

Fibre slings:

pr. EN 1492-1	Textile slings - Safety - Part 1 : Specification for flat woven Webbing-slings made of Man-made fibres.
pr. EN 1492-2	Textile slings - Safety - Part 1 : Specification for Round-slings made of Man-made Fibres.

Others:

pr EN 12937	Safety Of Machinery - Technical Principles and Specifications for Mobility and for Load Lifting.
EN 1050	Safety of Machinery - Risk Assessment.

ISO Standards:

ISO 7752-4	Cranes - Controls - Layout and Characteristics - Part 4: Jib Cranes.
ISO 4302	Cranes - Wind Load Assessment
ISO 8566-1	Cranes - Cabins - Part 1: General
ISO 8566-5	Cranes Cabins - Part 5: Overhead Travelling Cranes
ISO 7752-1	Lifting Appliances - Controls- Layout - Characteristics - General
ISO 10245-1	Cranes - Limiting and Indicating Devices - General
ISO 9942-1	Cranes - Information Labels - General
ISO 4310	Cranes - Test Code and Procedures
ISO 4309	Wire Ropes - Code of Practice for Examination and Discard
ISO/DIS 1461	Hot dip galvanised Coatings on Fabricated Ferrous Products.
ISO 7531	Wire Rope Slings for general Purposes - Characteristics and Specifications.
ISO 2408	Steel Wire Ropes for general Purposes.
ISO 8792	Wire Rope Sling - Safety Criteria and Inspection Procedures for Use.
ISO 8793	Steel Wire Ropes - Ferrule secured Eye Terminations.
ISO/DIS 12482-1	Condition Monitoring - General
ISO/DIS 99277-1	Cranes Inspection - General
ISO 9926-1	Training of Drivers. Part 1 - General

Norwegian Standards:

Personal Protective Equipment against falls from heights:

NS-EN 354	Lanyards
NS-EN 358	Working Positioning System
NS-EN 360	Retractable type Fall Arresters
NS-EN 361	Full Body Harness

NS-EN 365	General Requirements for Instruction for Use and Marking
NS-EN 813	Sit harness

Others:

NS-1850	Eyebolts
NS-1851	Eyenuts
NS-EN 292-1	Safety Of Machinery - Basic Concepts - General Principles for Design Part 1
NS-EN 292-2	Safety Of Machinery - Basic Concepts - General Principles for Design Part 2

NORSOK Standard:

R-002	Lifting Equipment

DNV:

DNV CN 2.7-1	Offshore Freight Containers - Design and Certification
DNV CN 2.7-2	Offshore Service Containers - Design and Certification

US Federal Specifications:

RR-C-271 C	Shackles. Type IV, Class 6
FF-T-79-B	Turnbuckles

OLF Guideline:

022:	Recommended Guidelines for Safety Requirements of Hired Equipment

ILO:

152	Convention concerning Occupational Safety

3 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

Terms and phrases within the scope of this standard not defined herein shall be regarded as defined in the regulations and international codes and standards referred to in this document.

Check
A visual and functional assessment (not a test) of the condition of the crane without dismantling.

Competent checker
Means a person in an enterprise of competence who has sufficient theoretical knowledge, practical experience and understanding of the lifting equipment required to carry out the function satisfactorily.

Competent person
Means a person in an enterprise of competence who has sufficient theoretical knowledge and practical experience to understand the lifting equipment design, its function, to perform calculations, examinations and testing as required and to issue a certificate of application and other certificates prescribed by the authorities.

Detachable lifting equipment
Removable below hook equipment for lifting appliances providing a link between the lifting appliance and the load being lifted and are detachable and easy to separate from the lifting appliance without disassembly. Examples of detachable lifting equipment are shown in annex A.

Dangerous goods
Goods classified and labelled according to the IMDG code.

Enterprise of competence
Unit within the operating companies organisation, another company or institution with adequate competence (theoretical knowledge and practical experience) to understand the design, calculations and operation of lifting equipment and with the ability to carry out the necessary examinations and tests and issue the prescribed certificates.

Examination
Verification that the crane can safely continue in service including a functional test of all safety devices i.e. limiting, indicating equipment, brakes, clutches etc. to verify that they operate within the required tolerances. An examination is more thorough than an inspection.

Fixed load attachment points
Fixed load attachment points are padeyes, lifting beams, foundation for winches, "buckets" for wireline cranes and beams for use of beam clamps.

Inspection
Looking at the crane for defects and checking the operation of the controls, limiting and indicating devices without loading the crane. This is much more than a casual glance but does not normally require any part of the crane to be dismantled.

Lifting appliance
Machine or appliance used for the purpose of lifting goods and materials, or in special cases personnel. Examples of lifting appliances are given in Annex A.

Lifting components
Lifting components are elements not attached to the lifting appliance and placed between the lifting appliance and the load or on the load in order to attach it.

Lifting equipment
The term lifting equipment is used in this standard as a common expression for lifting appliances, lifting gear and lifting components used together or separately.
Examples of lifting equipment are given in Annex A.

Lifting gear
Lifting gear means chain, shackles, rings, hooks, swivels, drum fasteners, steel plate clips, blocks, loading pallets and chain, wire or rope slings etc. which do not form parts of the permanent arrangement to the lifting appliance. Examples of lifting gear are given in Annex A.

Man over board boat
Boat which is launched by dedicated davits or by an offshore crane for rapid rescue of personnel.

Offshore crane
Slewing crane permanently mounted on an offshore installation, primarily intended for materials handling to and from supply vessels.

Note: Offshore cranes are cranes used on fixed platforms, Floating Production System (FPS), drilling rigs, floating crane vessels, service vessels (supply boat, diving vessel) etc. where the load, the crane or both are subjected to dynamic stresses imposed from environmental impact caused by a combination of sea and wind forces.

Offshore container
Transport unit for more than one trip for transport of goods or equipment, which shall be handled in open sea - to/from; - installation and ship.
The unit includes equipment for lifting, handling, filling, emptying, cooling and heating.

Note: Offshore containers are categorised in to two types :

1. Offshore freight containers
a. Freight containers for dangerous goods
b. Freight containers for non-dangerous goods not covered by the IMDG-code.

2. Offshore service containers
Offshore containers produced and equipped for a special use, mainly for temporary installation.

Other lifting appliances
Lifting appliances used internally on an installation or ship which are not to be regarded as an offshore crane.

Periodical control
Means a control carried out at fixed intervals by an enterprise of competence using a competent person or on his behalf by a competent checker to perform the work.

Note: The period should normally not be longer than 12 month, but the enterprise of competence can justify a shorter or longer period depending on use and the operational environment.

Periodical inspection
Means a thorough inspection or an examination carried out by an enterprise of competence in order to verify that the state of the lifting equipment is according to statutory regulations and the manufacturers requirements.

Rigging store
An area or areas where lifting gear and portable appliances are stored and a current record of issue and receipts are held.

Safe Working Load
SWL is the maximum load that a sling or lifting accessory is certified to sustain in general service.

Note: SWL is normally used by ILO and will apply on all floating and other mobile installations and ships not covered by EEA (EØS)-regulations.

Single/multi-legged sling
Slings manufactured in galvanised steel wire, steel chain or fibre slings produced according to EN/prEN or ISO standards.

Special items of lifting attachment
Items of lifting accessory which are used exclusively and infrequently for a specific function and are placed between the hook and the load being raised, designed to increase the number of load fastening points as may be required by its geometrical shape and weight.

Tackle block ("Tackles")
Lifting equipment consisting of at least one pulley in a frame, with a fastening point for a cord, cable or chain that can be fastened to a fixed point or to a mowing point to the load. When used in pairs they are called "tackles".

Test
Specific operation of the crane with or without a defined load in order to establish whether the crane is fit for use.

Test load
A specified load which the lifting equipment shall withstand within the manufacturer's specified limit without showing permanent deformation or other defects and prove that the design, the materials and the fabrication is according to specification and statutory requirements.

Temporary lifting equipment
Lifting equipment which will be on an installation less than one year.

Transient lifting equipment
Lifting equipment which goes back and forth between the installation and the onshore supply base.

Sufficient competence
Sufficient competence means a verified qualified practical and theoretical knowledge relating to the relevant lifting equipment and for the performance of the relevant control. The requirement stipulated by statutory regulations and in syllabuses issued by the Ministry of Education and Research. depending on type of lifting equipment shall apply.

Sufficient qualification
Sufficient qualification means a verified and documented practical and theoretical knowledge for the relevant lifting equipment according to the requirements stipulated in syllabuses issued by the Ministry of Education and Research.

Working Load Limit
WLL is the maximum load that a sling or lifting accessory is certified to sustain in general service.
Note: WLL is used in all new EN standards.

3.2 Abbreviations

BOP	Blow Out Prewenter
BUK	Bransjeutvalget for Kranopplæring (Trade Committee on Lifting Appliance Training)
IMDG (Code)	International Maritime Dangerous Goods (Code)
MOB	Man over board boat
ILO	International Labour Organisation
PPE	Personal Protective Equipment.
SAM	Systematisk oppfølging av arbeidsmiljøet (Systematic follow-up of the working environment)
SJA	Safe Job Analysis
SPM	Single Point Mooring
SWL	Safe Working Load
WLL	Working Load Limit.

4 MANAGEMENT OF LIFTING OPERATIONS

4.1 Safe system of work

A safe system of work shall be established. The system shall be followed for every lifting operation whether it be for an individual lift or a group or repetitive or routine operations. The sensitivities and limitations of the lifting equipment, the WLL/SWL, duties and operational performance shall be duly considered and understood by all personnel participating in the planning and execution of lifting operations.

The safe system of work should include the following:

a) Planning of the operation.
b) Selection, provision and use of suitable detachable lifting accessories.
c) Maintenance, examination and where necessary testing of the lifting equipment.
d) The provision of suitably trained and competent personnel who are aware of their relevant responsibilities and those of other personnel involved in lifting operations.
e) Adequate supervision by suitably trained and competent personnel having the necessary experience and authority.
f) Ensuring that all necessary test certificates, certificate of application, declaration of conformity and other documents are on the installation, if needed.
g) All statutory requirements are observed.
h) All hazardous and restricted areas have been identified.
i) Emergency procedures are in place in respect of damage or impairment to the lifting equipment during lifting operations and for safe recovery of the equipment to a holding station on the installation.
j) Unauthorised movement or use is prevented at all times.
k) Any preparatory work at the location of the lifting operation.
l) A single language communication system is understood by all parties involved in a lifting operation.
m) The safety of personnel not involved in the lifting operation is ensured.
n) An adverse weather policy is in place.

o) An effective system for storage and use of spare parts is provided.
p) Safety briefing of personnel participating in lifting operations.
q) Advice of turning loads with special attention to centre of gravity, stability and loading direction of the lifting points.
r) Requirements for use and inspection of transit lifting equipment.

4.2 Control of the lifting operations

To ensure effective implementation of the safe system of work, a responsible person should be appointed to control the lifting operations. The appointment of a responsible person does not remove any legal responsibility from installation manager, owner or company acting as operator of the installation. The responsible person may have other duties and need not be employee by the employing organisation.

The responsible person shall have adequate training and experience and be competent in administrating duties relating to safe lifting operations including the use, maintenance, repair and renewal of lifting equipment and safety equipment and the instruction of, and allocation of responsibilities to, all personnel involved with or in the vicinity of the lifting activity.

4.3 Contractual considerations

The employing organisation have the duty to satisfy themselves that a contractor has the necessary competence to carry out lifting operations in accordance with the statutory requirements and the requirements of this standard.

4.4 Planning of the lifting operation

All lifting operations shall be planned to ensure that they are carried out safely and that all foreseeable risks have been taken into account. Planning shall be carried out by personnel who have the appropriate expertise and have been appointed for this purpose.

In the case of repetitive or routine operations, this planning may only be necessary in the first instance, with periodic reviews to ensure that no critical factors have been changed.

4.5 Selection, responsibilities and minimum requirements for personnel

Safe operation of lifting equipment depends on the selection of suitable personnel who have been proven competent to carry out the required duties.

4.5.1 Training of operators

The installation manager shall ensure that all personnel involved with lifting operations or with the maintenance of lifting equipment are medically fit and adequately trained to approved levels appropriate to their tasks and responsibilities.

Training as crane operator may take place at the individual company or at upper secondary schools and shall be in accordance with applicable syllabuses issued by Ministry of Education and Research and to the requirements of ISO 9926-1. The requirements to a crane operator's training are considered complied with when the training has been carried out in accordance with the syllabuses with regard to the specific crane types and the manufacturers special instructions for safe use of the crane in question. Documentation for training shall be available.

Personnel under training should only undertake duties in keeping with their current level of assessment by the responsible person and then only under supervision of a suitable and qualified person.

4.5.1.1 Operators of offshore cranes

In addition training courses for more in depth knowledge of the specific type of offshore cranes should be required The training should include technical rudiments of design, its particular sensitivities and limitations including effects of dynamic loading, crane stiffness effects, protection and safety systems and failure sequence of structural and mechanical elements.

As recognised standard for training of an operator of offshore cranes, reference is made to the syllabus for operators of offshore crane, F-2689, approved by the Ministry of Education and Research.

As documentation for the required practical experience and theoretical knowledge, application shall be made to BUK concerning issuance of a crane operator's licence. Operators holding an operators licence issued by a another national authority must equally apply to BUK for approval and recognition of the licence.

4.5.1.2 Operators of other lifting appliances

As recognised standard for training of an operator of other lifting appliances than offshore cranes, reference is made to the syllabuses for the specific types of lifting appliances, approved by the Ministry of Education and Research.

Power operated lifting appliances (overhead travelling cranes, wireline masts, gantry cranes, winches etc.) installed in areas or modules where use may cause danger to life, health and/or physical assets, should only be operated by personnel with operators licence issued by BUK or equally trained and documented according to syllabuses developed by the operating company which are based on manufacturers recommendation, operating company’s own experience and official syllabuses of the most comparable crane type.

Other lifting appliances (manual e.g.) and simple power driven goods winches and hoists should only be operated by personal having a qualified training as slinger or signalman with an additional general training for overhead travelling cranes.

Personnel using work position systems and operators of winces for personnel shall as a minimum be trained as signalmen and have a working knowledge of requirement of safe system of work stipulated by this standard

Operators of wireline cranes shall be given adequately theoretical and practical training according to internal requirements and manufacturers recommendations.

Operators of temporarily installed mobile cranes shall have a valid operators licence for mobile cranes issued by BUK and be given training on health,-safety-, and environmental requirements for the specific installation.

Operators of pipehandling cranes/machines shall be given adequately theoretical and practical training on safe operations as stipulated by the manufacturer and internal requirements specific to the installation.

Operators of davits shall be trained according to manufacturers recommendations and the operating company's internal procedures. Personal operating sea rescuing boat shall at least be trained as signalmen and have a working knowledge of the requirement for safe system of work as stipulated by this standard.

4.5.1.3 Slingers and signalmen

Qualifications for slingers and signalmen on the installation and on the onshore supply base, shall be in accordance with recognised standards.

Slingers and signalmen on the supply vessel should be trained according to the same standard.

The slinger and signalman shall be properly trained in inspection, safe use and storage of lifting equipment and signalling systems (visual and radio communications) and be assessed according to requirements of syllabus F-2702, approved by the Ministry of Education and Research .

4.5.2 Duties and requirements of personnel

4.5.2.1 Crane operator

The crane operator shall be responsible for correct operation of the crane and crane pendants are in good working order and in accordance with the manufacturers instructions and within the safe system of work stipulated by this standard.

The crane operator is responsible for seeing to that the crane is properly maintained according to a pre-planned maintenance program based on the manufacturers instructions. Any doubt as to the safety of an operation, the crane operator has authority to stop it, and he can refuse to handle a load until safe conditions have been restored.

If the crane operator is physically or mentally unfit, he shall not engage in crane operations.

4.5.2.2 Signalman

The signalman shall be responsible for relaying signals from the slinger to the crane operator and for the initiating and directing the safe movement of the crane and the hook load. Signals should be standardised and according to Annex C of this standard.

Prior to commencement of a lifting operation the signalman shall satisfy himself that loads may be safely handled. The signalman shall remain in visual or radio contact with the crane operator at all times and with the slinger at initial and at the final phases of the lift as appropriate.

If the responsibility of directing the load changes during a lifting operation, both the crane operator and the slinger shall be duly notified of the identity of the new person in charge of signalling.

4.5.2.3 Slinger

The slinger shall be responsible for attaching and detaching slings to and from loads or to and from the crane hook or lifting attachments and for informing the signalman when connections are suitable for using the crane.

5 SAFE USE OF LIFTING EQUIPMENT

5.1 Requirements for documentation and marking

5.1.1 Requirements after 1995-04-08

The following requirements for marking and documentation shall apply for lifting equipment on fixed installations taken into service after 1995-04-08. Use of lifting equipment shall be according to requirements stipulated by NPD in their SAM-regulation.

5.1.1.1 Declaration of conformity

All lifting equipment shall be supported with a declaration of conformity according to Regulation 522.

5.1.1.2 Certificate of Application (Bruksattest)

All lifting equipment shall be supported by a certificate of application. Examination shall be carried out by an enterprise of competence and a certificate of application shall be issued upon completion.

5.1.1.3 CE mark

All lifting equipment shall be CE marked according to Regulation 522. The use of lifting equipment without CE-mark is prohibited on the installation. In addition requirement for marking according to 5.2.1.2 underneath apply.

5.1.2 Before 1995-04-08

The following requirements for marking and documentation shall apply for lifting equipment on fixed installations taken into service before 1995-04-08. The same requirements apply to lifting equipment on floating and other mobile installations regardless of when taken into service.

5.1.2.1 Documentation

A crane manual shall be prepared for each crane and shall be kept on the installation. The crane manual shall contain information concerning operation, assembling, dismantling and transportation Inspections, examinations, repair and alterations shall be entered into a control book. The control book and certificates shall be kept available for national authorities.

5.1.2.2 Marking and signposting

Lifting appliances shall be marked with a number and with WLL (SWL). Cranes with variable booms shall be marked with WLL (SWL) at two or more boom positions, including the extreme boom position.

Lifting appliances shall have permanent and easily legible signs with specifications containing:

- Necessary information for safe operation of the lifting appliance.
- Manufacture and date of production
- Supplier

The crane boom shall be marked with a boom number and the maximum workload at the minimum boom angle. The angle shall be marked on the boom.

Sheave blocks and lifting accessories shall be marked with the maximum permissible working load for which they have been designed. Multiple sheave blocks shall be marked with the maximum working load to which the suspension ring can be subjected to and for the which the blocks shall be designed.

Lifting accessories shall be marked with the maximum permissible working load to which the can be subjected to during operation. Load hooks shall be marked with an identification number which shall be shown on the test certificate.

5.2 Testing

5.2.1 Testing of lifting equipment taken into service after 1995-04-08

Testing of lifting equipment taken into service after 1995-04-08 shall be in accordance with requirements in prEN 12937 or NORSOK R-002 where there are no relevant EN-standard or ISO-standard available for the generic type of lifting equipment.

5.2.2 Testing of lifting equipment taken in to service before 1995-04-08

Testing of lifting equipment taken in to service before 1995-04-08 shall be in accordance with requirements stipulated in the ILO Convention 152. For proof of competence, requirements in prEN 12937 or NORSOK R-002 should be applied where there are no relevant EN-standard or ISO-standard available for the generic type of lifting equipment.

5.3 Instruction manuals

5.3.1 Instruction manuals for all lifting equipment taken in to service after 1995-04-08

All lifting equipment taken in to service after 1995-04-08 shall be supported with instruction manuals according to Regulation 522.

5.3.2 Instruction manuals for all lifting equipment taken in to service before 1995-04-08

All lifting equipment taken in to service before 1995-04-08 shall be supported with instruction manuals according requirements in 5.1.2.1 above.

5.4 Records

All records for lifting equipment shall be kept as long as the equipment is in service and be readably available for the responsible person and other relevant personnel upon request.

5.5 Safe use

1. When planning lifting operations, due considerations to safety requirements stipulated in EN 1050, NS-EN 292 part 1 and 2 and pr EN 12937 shall be made. A prerequisite is that a procedure is drawn up which ensures the safety of the lifting operation. Based on the complexity of the lifting operation and the hazards involved, a Safe Job Analysis (SJA) should be carried out and approved prior to commencement of the lifting operation.
2. The lifting operation should be temporarily stopped when signalling is unclear and at radio brake downs, at other conditions where the safety of the operation is in danger and in adverse weather conditions when the wind-speed and significant wave height is reaching 80 % of the design limit. Continuous operation should only take place at the crane operators discretion after preparation and approval of a SJA.

3. The operator of a lifting appliance shall respond only to operating signals from the appointed signal man, but the operator shall obey a signal for emergency stop at anytime, regardless of who gives it.
4. Any person using lifting equipment shall be trained in operation of the equipment in question and have a working knowledge of its capabilities and the hazards which might arise during use.
5. A lifting appliance should normally only be used for vertical lowering and lifting of loads and always within the manufacturers specified intended use. If an out-of-plane lifting operation is planned, due considerations of work angels, reaction forces shall be given. A SJA should be developed.
6. Prior to daily operations of lifting equipment, the operator shall satisfy himself on the safe use by testing and ensure that all functions and safety equipment and protective functions are in a satisfactory condition by a pre-check. A lifting appliance shall never be taken into operation if any safety systems or parts thereof are out of order. After completion of a lifting operation a post-check shall be carried out.
7. In all lifting operations care should be taken to ensure that the load imposed on the lifting equipment or on part of any item does not exceed WLL/SWL. Care shall be taken to ensure that during all stages of a lifting operation, the load remains in a stable condition.
8. Before the commencement of a lifting operation, the area of where the load is to be lifted shall be secured.
9. The travelling route of the load on the way to the lay-down area shall be planned and any obstructions shall be cleared prior to lifting. Movement of loads above running machinery and pressurised equipment should be avoided. Loads shall never travel above personnel.
10. While handling loads, the operator should as a rule not start crane movement until the signal man or the complete load is within his range of vision. For particular lifting operations where it is not possible to comply with the above provision, use of radio communication via VHF or UHF radio can be permitted.
11. If there is a temporary warning sign on a switch or on starting controls for lifting appliance machinery, the operator shall not operate the switch or start the machinery until the sign has been removed by a responsible person.
12. Before the commencement of any lift, all restrictions shall be removed from the load such that the hook is directly above the load in order to minimise skew loads as the weight is taken.
13. The operator of the lifting appliance shall not leave the operating cabin/place (if fitted) if there is a load suspended in the hook.
14. Limit switches shall not be used as stopping devices during normal operation of the crane.
15. The weight of the load shall be determined and proper lifting equipment selected.
16. The lifting equipment shall only be used for the specific purpose of which it is designed and should not be adapted for any other purpose without the consent of the manufacturer and an enterprise of competence.
17. A suitable container or basket shall be used for mass transportation of loose material, to ensure that the material cannot fall down during loading/discharging operations.
18. Before landing any load checks should be made to ensure that the lay-down area is adequately sized and capable of taking the weight of the load.
19. When lifting long loads the use of a tag line should be evaluated to control the load once hanging free in the air.

6 INSPECTION, EXAMINATION AND TESTING

6.1 General

Prior to first time use on the installation, fixed lifting equipment shall be inspected and examined by an enterprise of competence using competent persons to verify that the lifting equipment is properly mounted and prepared before taking into use. These requirements are in addition to any testing undertaken by the manufacturer at the manufacturers site.

During operation the enterprise of competence shall check if the lifting equipment is properly minded and maintained and document safe use.

Pending on the type of lifting equipment, exposure of environmental effects and operational modes, all lifting equipment shall be periodically inspected by an enterprise of competence using competent persons and competent checkers.

The results of inspections and examinations should be recorded with details of any corrective actions to overcome any defects prior to returning the lifting equipment to service. All documentation verifying the safe use of lifting equipment shall be readily available to the responsible person and other relevant personnel upon request

Inspection and examination shall also be performed by the enterprise of competence when lifting equipment is resold or taken back into use after long periods of inactivity or idleness, e.g., unit lay-up, stacking and after major modifications and repair.

Lifting equipment which have been subjected to a substantial overload causing permanent damage or has been mounted on a new workplace or location shall be assessed by an enterprise of competence to verify correct mounting and continuous safe use.

Transit lifting equipment and lifting equipment on hired equipment shall be inspected for compliance with statutory requirements and safe use at the onshore supply base before shipment offshore. Before the load is lifted by an offshore crane, transit lifting equipment shall be pre-checked by the slinger onboard the supply vessel.

6.2 Regular inspection includes:

- Operational checks by the crane operator - prior to use of the lifting equipment
- Frequent inspection - daily to monthly intervals inclusive of operational checks.
- Inspection - monthly and up including other frequent schedules.

Regular inspections should be according to ISO/DIS 99277-1.

6.3 Periodical control includes:

Routine assessment by an enterprise of competence of critical elements of the lifting equipment, scheduled adjustments and possible overhaul and maintenance of the equipment. The periodical control should include all regular inspection schedules and relevant statutory requirements and be in line with the recommendation of the manufacturer.

The control should be carried out according to manufacturers recommendation at least every 12th month or more often depending on the operational mode and environmental factors. The control

may be extended to a longer period when justified by the enterprise of competence. The control may also be shorter than 12 month due to environmental conditions.

6.4 Inspection of lifting equipment not in regular use includes:

Lifting equipment which have been out of operation for the last six month and where use may lead to danger for the health and safety shall be controlled by an enterprise of competence before taken into use.

6.5 Inspection at end of design life

When lifting equipment approaches the design constraints a special assessment by an enterprise of competence has to be made according to ISO/DIS 12482-1 before the lifting equipment are accepted for continuos use.

7 SAFE USE OF LIFTING APPLIANCES

7.1 General

Use, maintenance, storing, check, inspection, examination of lifting appliances shall be according to the manufacturers instruction and standards for safe use of lifting appliances referred to in this clause.

When lifting from the deck of the installation or a supply vessel all sea fastening and restraint must be released such that the lift is accomplished safely with the minimum amount of slew and shock loading.

In addition to the general requirements for safe use of lifting equipment, lifting appliances shall be used and operated in accordance with the following standards:

ISO/DIS 12482-1	Condition monitoring, general
ISO 4310	Cranes - test code and procedures
ISO 4309	Wire ropes - code of practice for examination and discard
ISO 9927-1	Cranes - inspections - general.
ISO 4302	Cranes - wind load assessment.
ISO 8566-1	Cranes - cabins - part 1: general.
ISO 7752-1	Lifting appliances-controls-layout and characteristics-general.
ISO 10245-1	Cranes - limiting and indicating devices - general
ISO 9942-1	Cranes - information labels - general
ISO 8566-1	Cranes - Cabins - part 1: General.
ISO 7752-1	Lifting appliances-Controls-Layout and Characteristics-General.
ISO 10245-1	Cranes - Limiting and indicating devices - General
ISO 9942-1	Cranes - Information labels - General
NORSOK R-002	Lifting equipment

7.2 Offshore cranes

1. Offshore cranes shall only be used by personnel particularly trained and certified for the operation as stipulated in section 4.5.1.1 of this standard.

2. Goods lifted from and to an offshore installation shall lifted by gear designed for offshore dynamic conditions preferably in a basket or a container. In cases where goods is not lifted in baskets or containers all aspects of the operation shall be assessed by a competent person or responsible person on the installation. Special precautions shall be taken as for weather limitations, safety briefs, issue of a SJA etc.
3. The main hoist arrangement on offshore cranes should only be used if the lifting and lowering speed exceeds the heaving movements of the supply vessel.
4. Bulk hoses shall not be lifted when stressed. When lifting bulk hoses two signalmen should preferably be used unless the hoses are connected to a hydraulic drum.
5. The free space on the deck of the supply vessel when leaving shore shall at least be 20% of the total loading/storage area.
6. Offshore cranes may be used for handling of MOB if the crane, the crane pendant and the boat has been designed for the application. Generally this will require means to safely limit the vertical hook speed and the use of a shock absorbing crane pendant. An operational procedure shall be developed based on a SJA for use of offshore cranes in MOB-mode.

7.3 Overhead travelling cranes/gantry cranes

Maintenance, storing, check, inspection, examination of overhead travelling cranes shall be according to the manufacturer's instruction and general standards for safe use of lifting appliances referred to in subclause 7.1 and the following standards:

ISO 8566-5 Cranes - Cabins - part 5 : Overhead travelling cranes
ISO 10245-5 Cranes - Limiting and indicating devices - Overhead travelling cranes.

The overhead travelling crane shall only be used by personnel particularly trained and certified for the operation of other lifting appliances as stipulated in section 4.5.1.2 of this standard.

When operating an overhead travelling crane with two speeds, operation should always start in creep speed to ensure the stability and security of the load before hoisting/travelling at normal speed.

7.4 Wireline cranes/masts

1. The wireline crane/mast shall only be used by personnel particularly trained and certified for the operation of other lifting appliances as stipulated in section 4.5.1.2 of this standard.
2. When moving the wireline crane movement shall be approved by the manager in charge of production operations on the installation.
3. When the wireline crane is supporting the riser during wireline operations, the crane controls shall be marked: "Do not operate, the wireline crane/mast is attached to the riser".
4. If the wireline crane/mast is used for the transportation of personnel, a man-rider winch shall be fitted which meets statutory requirements and the requirements of NORSOK standard R-002 and operational requirements of this standard.
5. Overhead travelling cranes shall be mechanically or electrically locked off if wireline cranes are operated above these.

7.5 SPM mounted offshore crane (maritimised lorry loading crane)

The SPM mounted offshore cranes shall only be used by personnel particularly trained and at least certified for the operation of such cranes according to 4.5.1.2 of this standard, but a full offshore crane operators licence should not be required.

7.6 Winches and Hoists

Winches and hoists shall only be used by personnel particularly trained and certified for the operation of other lifting appliances as stipulated in section 4.5.1.2 of this standard.

When spooling wire rope from a wooden drum onto the winch drum, reverse bending must be avoided.

7.6.1 Personnel winches

1. To ensure prudent operations when lifting persons only winches particularly designed for transfer of personnel shall be used. Transfer of personnel by means of a lifting appliance (winch or by a wireline crane/mast) on the drill floor and the cellar deck shall consequently as a rule take place using such a winch.
2. It is assumed that transfer of personnel by means of a lifting appliance is done only in cases where relocation or a work operation is not possible or expedient in any other way, and that the lifting operation can be carried out safely. Transfer by personnel winch is voluntarily.
3. If work operations require two or more persons to use a riding belt at the same time, a goods winch may be used for lifting one or several of these persons. Such a solution presupposes, however, that these work operations have been subjected to a safe job analysis as well as a job safety clearance.
4. When winches are used for access to work locations that are inaccessible, procedures for this should be drawn up.
5. Unobstructed view from operating position to the person who is transported should be achieved.
6. If unobstructed view from the operating position to the person being transported cannot be achieved, the person transported should also have access to an emergency stop device. A signalman may if applicable be used.
7. Mobile work platforms are regarded as lifting equipment and shall be subjected to safety requirements equivalent to those applicable to other personnel transportation equipment.
8. The emergency stop shall at all times be in a working condition on both the remote control unit and on the winch control unit.

7.6.2 Goods winches

1. When using the goods winch the operator should always consider the line pull as the line pull on most goods winches is based on half drum performance. Hence the line pull decreases as the drum fills up.
2. When operating the winch the operator should be positioned behind the winch to ensure control of the spooling and the lifting operation at the same time.
3. The operator of the winch shall control proper spooling such that the wire rope will not be spooled in "piles" in the drum and that kinks are created during spooling.
4. The operator shall never use his hands to guide the wire rope onto the drum.
5. The emergency stop shall at all times be in a working condition on both the remote control unit and on the winch control unit.

7.7 Tackles

Tackles shall only be used by personnel particularly trained and certified for the operation of other lifting appliances as stipulated in section 4.5.1.2 of this standard.

Only tackles with a WLL/SWL suitable for the load to be lifted shall be utilised. Should the weight of the load be unknown, a calculation should be carried out to determine the weight. A 10% addition for error should generally be made.

Prior to use due considerations should be made to minimum headroom and the height of lift required for the lifting operation.

Tackles should always be supported in a structure approved for lifting purposed by an enterprise of competence. If not, a safe job analysis is required prior to commencement of the lifting operation.

Lifting from pipes, valves, brackets and staircases should be prohibited.

7.8 Beam trolleys (permanently mounted)

Beam trolleys shall only be used by personnel particularly trained and certified for the operation of other lifting appliances as stipulated in section 4.5.1.2.

Beam trolleys and beam clamps should not be used on any beam other than those designed, tested and marked as a runway beam, with the exception that they may be used on a beam forming part of a structure where specific design checks for this purpose have been made and end stops or suitable means of preventing the trolley from running off the beam when fitted.

7.9 Fixed load attachment points

Before a lifting appliance is taken into use for the first time at a fixed load attachment point, a certificate of application the total arrangement including the fixed load attachment point shall be issued by an enterprise of competence.

The lifting appliance in this case may consist of a spesific or a range of typical lifting equipment that can be used.

The lifting appliance used on a fixed load attachment point should normally be dismounted after use. Limitations of use of the fixed load attachment point shall be stated in the certificate of application and be readable on the load attachment point itself or by other means be informed to the user.

Information for remounting shall be given in the certificate of application.

Load testing of, or periodic inspection of fixed load attachment points is not required if not deemed necessary by the enterprise of competence, but a post-use and pre-use check of the loading point shall be carried out.

7.10 Temporary cranes

Maintenance, storing, check, inspection, examination of temporary cranes shall be according to the manufacturer's instruction and general standards for safe use of lifting appliances referred to in this standard.

Temporary cranes shall only be used by personnel particularly trained and certified for the operation of other lifting appliances as stipulated in section 4.5.1.2. Temporary cranes shall satisfy the requirements of OLF Guideline 022.

7.11 BOP transporters

Maintenance, storing, check, inspection, examination of BOP transport shall be according to the manufacturer's instructions and general standards for safe use of lifting equipment referred to in this standard.

BOP transporters should only be used by personnel particularly trained and certified for the operation of other lifting appliances as stipulated in section 4.5.1.2, but shall as a minimum meet the requirements for slingers as stipulated in section 4.5.1.3

8 SAFE USE OF LIFTING GEAR

8.1 General

All lifting gear shall be used in accordance with the manufacturer’s instructions and standards listed in clause 2 "Normative references". In additions the following requirements for safe use apply:

1. A distinction should be made between lifting gear intended for operations between installation and vessel (offshore lifting gear) and lifting gear used for internal lifting operations on the installation.
2. Use, maintenance, storing, check, inspection, examination of baskets shall be according to the manufacturer's instruction and the following requirements.
3. Periodical control and load testing shall be carried out by an enterprise of competence.
4. Lifting gear shall not be used for any load exceeding the permissible working load of the appliance. When multi-leg slings or chains are used, the angle of the legs shall be taken into consideration.
5. Lifting gear shall be protected against the weather during storage. The rigging store should be divided into marked areas for the different types of gear and load classes. A table indicating WLL for each type and size of lifting gear used on the installation shall be located in the rigging store.
6. Slings with accessories and detachable lifting accessories shall, when in use, be inspected prior to use with regard to possible overloading, wear or damage. Defective slings shall be marked and be removed from the installation.
7. The load shall be attached to the hook by means of slings or other suitable lifting gear. Suitable protection shall be provided between the sling and any sharp surfaces on the load to be lifted.
8. A lifting appliance shall not be used for transport of personnel, except in special cases as described in this standard.
9. Separate components e.g. connection rings, hooks, need not be individually marked with CE-mark. Eyebolts and shackles shall be marked with CE.
10. Lifting gear shall only be used by personnel particularly trained and certified as stipulated in section 4.5.1.

8.2 Baskets

Manufacturer's certificate, certificate of application and declaration of conformity, shall be issued prior to operation.

8.2.1 Personnel work baskets and transfer baskets

8.2.1.1 Use of personnel basket

When transferring personnel between an installation and a vessel by means of an offshore crane and a personnel basket, the following standard is recommended as basis for setting up a procedure.

8.2.1.1.1 General precautions

1. The installation manager may after careful consideration allow transfer by means of personnel basket in each specific case where this for special reasons is necessary or reasonable. Transfer shall take place on a voluntary basis in consultation with the appointed personnel representatives.
2. Transfer of personnel between installation and vessel shall only take place when there is good visibility and adequate illumination, and only when the weather conditions permit a safe transfer, unless transfer is necessary with regard to the safety of the personnel or the installation.
3. Instructions shall be drawn up for transfer operations, including rescue instructions in the event of accident during transfer.
4. Personnel basket shall be designed for a maximum of 4 persons, and shall be clearly marked accordingly. It shall furthermore be designed so that it can serve as a temporary raft for the number of persons it is designed to accommodate.
5. The personnel basket shall be kept in good condition. It shall be tested every 6 months with a test load twice the maximum workload. The result of the test shall be entered in the records.
6. The personnel basket shall be stowed together with the life jackets in a separate storage room where it will not be subjected to damage of a mechanical or chemical nature.
7. The crane to be used shall have valid certificate of application and shall be in good technical condition.
8. To ensure that the crane hook does not damage anyone using the personnel basket, a suitable loop/sling shall be used.
9. The crane operator shall have at least one years experience as offshore crane operator

8.2.1.1.2 Operational precautions

1. Prior to use basket shall be thoroughly examined by the responsible person.
2. The personnel basket shall be equipped with life jackets for the number of persons it is used for.
3. The installation manager or a person appointed by the installation manager shall be in charge of the transfer.
4. Before starting the transfer operation, the starting and landing area for the personnel basket shall be clear to ensure that there is sufficient space for a safe operation.
5. The master of the vessel, the crane operator and the person in charge of the transfer operation shall be in direct radio contact with each other from a time before the personnel basket is hoisted until the transfer-operation is completed.
6. During the transfer a standby vessel shall be located in the immediate vicinity of the installation. The standby vessel's MOB boat shall be ready for use. The presence or assistance of catchers, signal men, spotters and helpers shall be ensured.
7. If the persons to be transferred have not previously been transferred by means of a personnel basket, they shall be accompanied by a person who is well familiar with its use.
8. During transfer the persons transferred shall stand on the ring outside the ropes on the personnel basket, and both hands shall be free to grip on to the ropes. Life jacket or lifesaving suit shall be used during the transfer.

9. Lifting and lowering of the personnel basket shall take place over open water, and the vessel shall be prepared to stop the propellers during the transfer.
10. Use of personnel basket shall be entered into the records.
11. Yearly control

8.2.1.2 Use of work basket

During work operations involving the transfer of personnel with a lifting appliance and a work basket, the following procedure should be utilised:

1. When transfer of personnel must be carried out, there must be consensus between the safety delegate, the installation manager, the crane operator and the safety manager to the effect that the operation can be carried out safely.
2. Work from a work basket is to be voluntary.
3. The crane operator shall have at least one year's practical experience as a crane operator.
4. Lifting appliance and work basket shall be checked before use.
5. Safety belt should be used during work from a work basket.
6. The permissible payload of the lifting appliance should be at least twice the weight of the basket with payload.
7. Life jacket shall be worn during work operations over the sea, and standby vessel shall be notified.
8. Transfer should not take place in strong wind or otherwise under difficult conditions.
9. During transfer of personnel, all unnecessary noise in the crane operator's cabin should be avoided, and the crane operator's complete attention shall be concentrated on the operation.
10. The crane operator shall have eye contact with the signalman, who in turn shall have eye contact with the work basket.
11. One of the persons in the basket shall be in radio contact with the crane operator and the signalman
12. When orders are given, all movements should in advance be indicated in meters, e.g.: “Heave two metres”, “lower two metres”, etc. In addition, a person in the basket should repeat continuously: “Heave, heave” or “lower, lower” until the person orders “stop”. If the crane operator does not hear anything, he is to stop.

8.3 Chain slings

General

Only chains of grade 80 quality, according to EN 818 shall be used on an offshore installation.

The following Certification/documentation shall be available:
1. Manufacturers certificate for components according to EN 818-1
2. Manufacturers certificate for sling(s) according to prEN 818-4.

Marking shall be as follows:
1. Components according to EN 818-1
2. Manufacturers certificate for sling(s) according to prEN 818-4

Use of chain, chain sling and components shall be in accordance with the appropriate part(s) of EN 818-6.

When using shortening clutches, the chain shall always be correctly seated in the clutch prior to taking the strain. Always ensure that the chain is free from twist before loading and secure redundant legs back in the master link to avoid snagging when travelling the load.

Maintenance, storing, check, inspection, examination of chain sling shall be according to prEN 818-6

Records shall be according to prEN 818-6.

8.4 Wire rope slings

The following certification/documentation shall be available:
1) Manufacturer's certificate for components according to ISO 7531 and ISO 2408.
2) Manufacturer's certificate for sling(s) according to ISO 7531.

Marking shall be according to Regulation 522.

Maintenance, storing, check, inspection, examination and use of wire slings shall be in accordance with:
ISO 7531 Wire rope slings for general purposes - Characteristics and specifications.
ISO 8793 Steel wire ropes - ferrule-secured eye terminations.
ISO 8794 Steel wire ropes - spliced eye teminations.
ISO 8792 Wire rope sling - Safety criteria and inspection procedures for use.

8.5 Fibre slings

The following certification/documentation shall be available:
Manufacturer's certificate in according to prEN 1492 part 1 and 2 and certificate of application

Marking shall be according to prEN 1492 part 1 and 2.

Use, maintenance, storing, check, inspection, examination of fibre sling shall be according to prEN 1492 part 1 and 2. Fibre slings to be used should be: Round sling, Web sling, Fibre rope sling, One trip textile lifting sling.

Fibre slings should not be engaged in lifting operations between supply vessel and installation. However, if utilisation of other lifting gear or lifting attachments is deemed unsafe or may damage the load, fibre slings could be used, but such use will normally require a SJA approved by the installation manager or a responsible person authorised by him.

8.6 Shackles

The following certification/documentation shall be available:
Manufacturers certificate and certificate of application.

Use, maintenance, storing, check, inspection, examination of shackles shall be according to the manufacturers instruction, to US fed. spec. RR-C-271 C type IV

Shackles shall be selected to suit the load being lifted allowing for the increase in forces due to sling angles. When shackles are used in padeyes only shackles corresponding to the WLL of the padeye shall be used. Always centre the load on the shackle pin to avoid angular pulls against the leg of the shackle.

Only shackles with double locking (i.e. nut and cotter pin or screwed connection with cotter pin) shall be used for lifting of loads and persons. Other types and designs of shackles may be used for securing static loads.

8.7 Eyebolts and eyenuts

The following certification/documentation shall be available:
Manufacturer's certificate and certificate of application shall be available and according to EN 818-1

Use, maintenance, storing, check, inspection, examination of eyebolts and eyenuts shall be according to the manufacturer's instruction, NS 1850, NS 1851, prEN 1677.

When using eyebolts and eyenuts due considerations shall be made to the weight of the load being lifted, the number of eyebolts/eyenuts sharing the load and whether or not an inclined loading will be affected.

Eyebolts should always be screwed down so tight that the collar is in full contact with the surface. Washers should be used to avoid skew loads on the eyebolt.

8.8 Wire clamps

The following certification/documentation shall be available:
Manufacturer's certificate and certificate of application.

Use, maintenance, storing, check, inspection, examination of wire clamps shall be according to the manufacturers instruction.

Wire clamps shall be of a approved type with two gripping areas. U-bolts are not allowed. When wire rope clamps are used, the free length of the wire rope shall be at least 5 times the wire ropes diameter, and it shall be ensured that the end is prevented from spinning loose. Number of clamps shall not be less than 3.

8.9 Beam clamps and beam trolleys

General

Beam clamps and beam trolleys should not be used on any beam other than those designed, tested and marked as a runway beam, with the exception that they may be used on a beam forming part of a structure where specific design checks for this purpose have been made and end stops or suitable means of preventing the beam trolley from running from off the beam when fitted.

The following certification/documentation shall be available:
Manufacturers certificate and certificate of application.

Use, maintenance, storing, check, inspection, examination of beam clamps shall be according to the manufacturers instruction and to NORSOK R-002 Lifting equipment.

8.10 Turnbuckles

General

Turnbuckles shall always have the threaded shank protruding into the body to ensure that the load is distributed over the correct length of the threaded shank.

When turnbuckles are left under load for any length of time, they should be visually checked on a daily basis to ensure that they are still secure.

The following certification/documentation shall be available:
Manufacturer's certificate and certificate of application.

Use, maintenance, storing, check, inspection, examination of turnbuckles shall be according to the manufacturers instruction, US Federal specification FT-T-79-B

8.11 Snatch blocks and sheave blocks

General
The snatch block shall be such that the side plate securing bolt cannot be fully withdrawn.

The following certification/documentation shall be available:
Manufacturer's certificate and certificate of application.

Use, maintenance, storing, check, inspection, examination of snatch blocks shall be according to the manufacturers recommendation.

When attaching a snatch block to the supporting structure the operator shall ensure that all split pins, locking and secure pins are in place and that the side plate locking pin is replaced.

The operator must ensure that the support structure is of adequate strength to support the resultant loading and that the block is correctly aligned with the lead rope to prevent the rope abrading on the cheek/side plates.

Before use of single sheave blocks, considerations should be made concerning the total resultant forces acting on the supporting structure, which is the load plus the line pull eventual friction forces which varies between 4% and 8% of the weight to be lifted depending on the use of bearings or bushings in the sheave.

If the rope is plain ended the wire shall be terminated by means of an open wedge socket after reeving.

8.12 Plate clamps

The following certification/documentation shall be available:
Manufacturer's certificate and certificate of application.

Use, maintenance, storing, check, inspection, examination of plate clamps shall be according to the manufacturers instruction.

Lifting operations involving use of plate clamps shall not be carried out between supply vessel and platform, and should not be carried out above critical and pressurised equipment.

Note: As an alternative to plate clamps, holes should be drilled in the plates where possible, enabling use of shackles or the plates should be transported in suitable baskets.

8.13 Offshore containers

The following certification/documentation shall be available:
Manufacturer's certificate. Certificate from approved classification society. Declaration of conformity for fixed lifting set. All offshore freight containers for dangerous goods shall be certified by a classification society approved by the certifying authority.

Use, maintenance, storing, check, inspection, examination of offshore containers shall be according to the manufacturer's instruction, statutory regulations and to the rules issued by classification societies approved for certification of offshore freight and service containers.

1. Before using a container a pre-check shall be carried out to confirm the container and lifting set fit and safe for use.
2. Precautions shall be made when opening doors in case of loose objects falling out.
3. The lifting set should always be hung alongside the container in order to prevent working on the top of the container.
4. A safety net should normally be utilised inside the container.
5. All loose equipment shall be properly lashed both in open and closed containers.
6. Containers should not be stacked when on the supply vessel.
7. When handling containers in "blind" areas, two signalmen should be used. Additional help should be evaluated by the crane operator.
8. Open containers shall not be filled such that parts of the load are protruding from the container.

8.14 Lashings

Maintenance, storing, check, inspection, examination of lashing shall be according to the manufacturers instruction and for load restraint assemblies the following applies:
Calculation of force: prEN 12195-1.
Web lashing equipment made of man made fibre: prEN 12195-2

8.15 Personal protective equipment against fall from heights

8.15.1 General requirements

All PPE shall be produced and delivered in accordance with Regulation 523.
PPE shall be used and maintained as specified by the producer and be used in accordance with Regulation 524.

Declaration of Conformity
PPE supplied shall be supported with a declaration of conformity according to Regulation 523 if requested by the user.

CE mark
PPE shall be CE marked according to Regulation 523.

Instruction manuals for use and maintenance
The supplier shall deliver instructions for use and maintenance according to Regulation 522 and NS-EN 365.

Records
All records for PPE shall be kept as long as the equipment is in service.

8.15.2 Body harness

Use, maintenance, check, inspection, and examination of body harness shall be according to NS-EN 361 and NS-EN 365.

8.15.3 Work positioning system (work position belts and lines)

Use, maintenance, check, inspection, and examination shall be according to NS-EN 358 and NS-EN 365.

8.15.4 Lanyards for fall form heights

Use, maintenance, check, inspection, and examination of lanyards shall be according to NS-EN 354 and NS-EN 365.

8.15.5 Fall arrest blocks

Use, maintenance, check, inspection, and examination of fall arrestor blocks shall be according to NS-EN 360 and NS-EN 365.

8.15.6 Sit harness

Use, maintenance, check, inspection, and examination shall be according to NS-EN 813 and NS-EN 365.

ANNEX A: EXAMPLES OF LIFTING APPLIANCE AND LIFTING GEAR (INFORMATIVE)

A1 LIFTING EQUIPMENT COVERED BY THIS STANDARD:

Lifting appliances

Cranes - All types
Lifting Davits
Personnel Winches
Lifeboat Davits
Trolleys
Overhead Runway Beams
Tackles - All Types
Goods Winches
BOP transporters

Lifting gear

Spreader Beams
Blocks
Containers for Cargo and Service Baskets
Work Baskets
Waste Skips
Eye Bolts/Eye Nuts
Girder Clamps
Hooks
Wedge sockets
Links
Pendants
Shackles
Slings - Fibre/Chain/Wire
Slings - Single/Multi-Leg
Snatches/Pulley Blocks
Swivels
Rings
Turnbuckles
Web Belts
Beam Clamps
Swivels

A2 LIFTING EQUIPMENT NOT COVERED BY THIS STANDARD:

Crown Blocks
Block-to-Hook Adapter
Drilling Hook
Elevator Link
Swivel Bail Adapters
Spider
Kelly Spinner
Heave Compensators
Hoist Draw Work
Dead Line Anchor
Travelling Blocks
Link Adapter
Tubing Hook
Misc. Drill Pipe Elevators
Swivel
Deadline Anchor
Rotary Table
Rotary Slips
Top Drive

A3 EXAMPLES OF DETACHABLE LIFTING EQUIPMENT:

Typical detachable lifting equipment standardised by CEN are:

Clamps
Grabs
Grab buckets
Vacuum lifters
Lifting magnets
C-hooks
Lifting forks
Lifting beams

ANNEX B: EXAMPLE OF DECLARATION OF CONFORMITY AND CERTIFICATE OF APPLICATION FOR LIFTING GEAR (INFORMATIVE)

Supplier

SAMSVARSERKLÆRING OG BRUKSATTEST FOR LØFTEREDSKAP

SAMSVARSERKLÆRING I HENHOLD TIL FORSKRIFT OM TEKNISKE INNRETNINGER OG UTSTYR 522 (89/392, 91/368, 93/68 EOF)
EU - DECLARATION OF CONFORMITY CERTIFICATE OF CONFORMITY AND CERTIFICATE OF APPLICATION
DECLARATION OF CONFORMITY AS STIPULATED BY THE SUPPLY OF MACHINERY REGULATION 522 (89/392, 91/368, 93/68 EOF)

Norsk:	*English:*
Vi bekrefter hermed at følgende utstyr oppfyller de grunnleggende kravene til helse og sikkerhet ifølge EU's retningslinje(r) med hensyn til design og produksjon. Denne bekreftelsen bortfaller hvis utstyret endres på noen måte uten at vi konsulteres på forhånd.	We herewith declare that the following indicated equipment meets the fundamental health and safety requirement concerning the EU - guide line(s), due to their design and manufacture. In case of an uncoordinated modification of the equipment, without consultation with us, this declaration automatically expires.

Til / *To*	Sert. nr. / *Cert. no.*	
	Kunde ref. / *Buyers ref.*	
	Ordre nr. / *Order no.*	
	Arbeidsordre / *Works order no.*	

Leverandørens navn og adresse (dersom det er forskjellig fra ovenstående) : *Manufacturer's Name and Address (if different from above) :*

Merker / Serie nr. *Identification Marks and/or Serial No.*	Utstyrstype *Name / type of Equipment*	Antall *Quantity*	Nasjonal standard og/eller tegning nr. og spesifikasjon *Nationally applied standard and/or Drawing No. specifications*	Testattest nr. *Batch No. Test Cert. No.*	Test-rapport nr. *Test Report No.*	Støste tillatt arbeid-last **WLL**
						.

Bemerkninger, viktig informasjon eller avvik etc. Eventuelt navn og adresse til godkjenningsinstitusjon. Relevante EN retningslinjer og EU typesert. nr.
Remarks, major concessions, deviations, etc. If applicable, Name and Address of Approved Body. Relevant EU - Guideline(s) an EU type certificate no.

Norsk:	*English:*
Brekrefter at utstyr som beskrevet ovenfor har blitt inspisert, testet og dersom ikke noe annet er bestemt ovenfor, er i overensstemmelse med inneholdet i kontrakten eller ordren. Kvalitetskontrollen er utført i overensstemmelse med vår kvalitetssikring	*Certified that the equipment detailed hereon, have been inspected, tested and unless otherwise stated above, conform in all respects with the requirements of the contract or order. The quality control arrangements adopted in respect of these supplies have complied with our quality control system.*

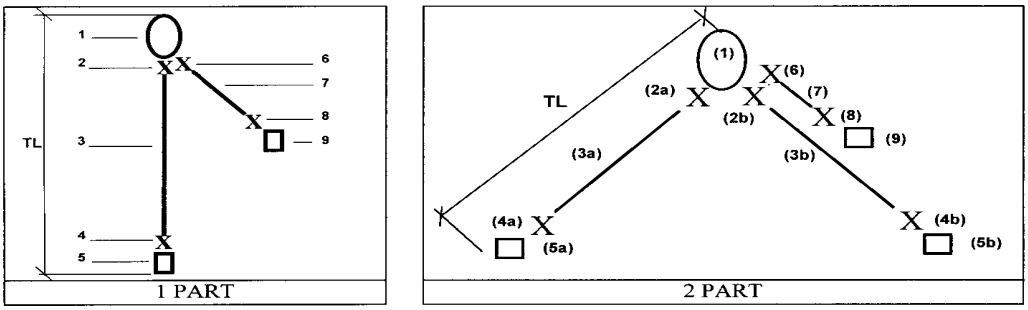
Sted / *place. :* Dato /*date :*

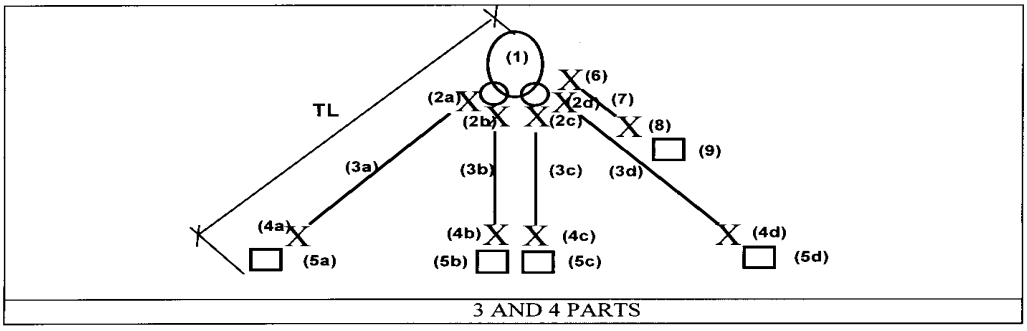
Sign. : Stilling/*position :*

For leverandør / For and on behalf of (supplier)

Form :Løft 497 © LSC Lifting & Safety Consult . Telephone 333 59 530

ANNEX B: EXAMPLE OF DECLARATION OF CONFORMITY AND CERTIFICATE OF APPLICATION FOR LIFTING GEAR (Cont.)





POS.	NO.	TYPE OF COMPONENT	MARKING
TL	TOTAL LENGTH inner, upper point of loading to inner, lower point of loading		

Date	Examination	Performed by	Remarks

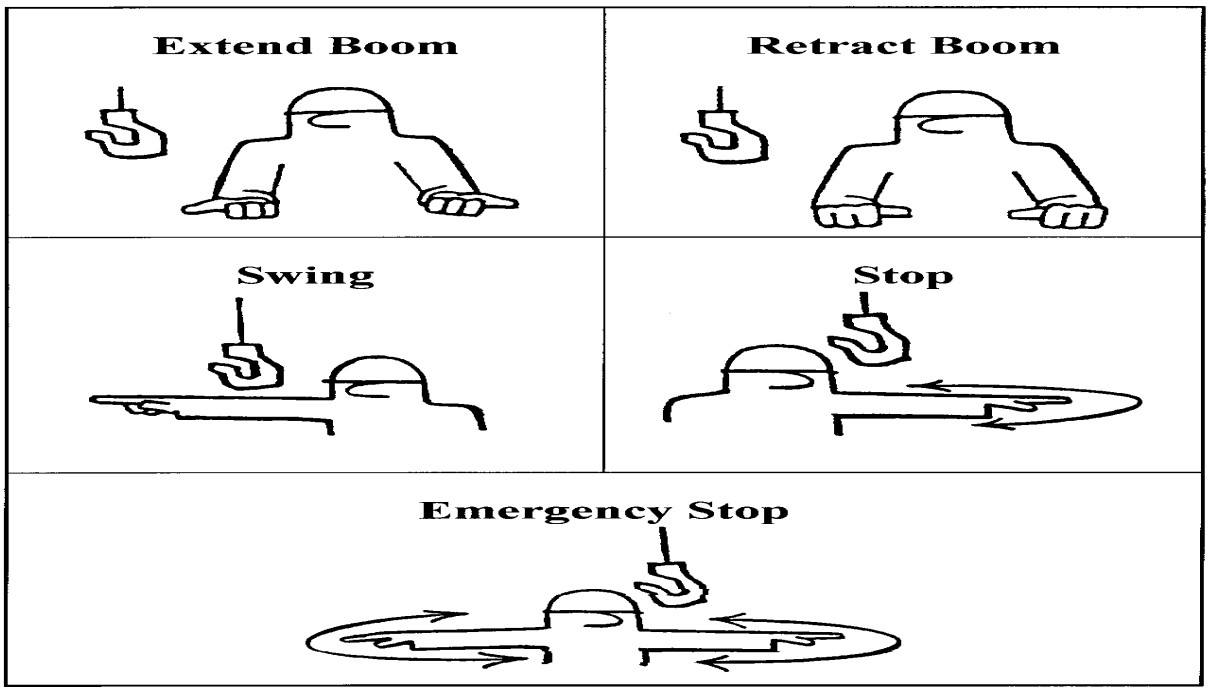
Form :Løft 497

ANNEX C: SIGNALS AND COMMUNICATION FOR SAFE USE OF CRANES (NORMATIVE)

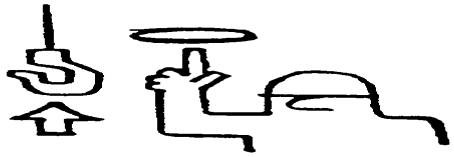
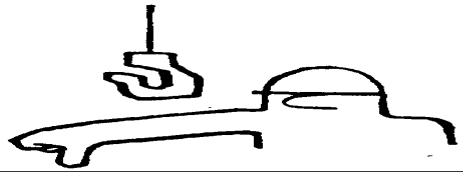
The following rules shall apply when directing loads during a lifting operation:

Hand Signals	Radio Signals
• Learn the signals. • Be placed in the right position. • Check that the load is hooked correctly. • Give the signals clearly.	• Learn correct use of radio. • Test the radio communication before starting a lifting operation. • Speak clear and slowly. • Use continuous radio connection during the lifting operation when the load is out of sight of the crane operator. • Avoid unnecessary use of the radio.

The following hand signals shall be used during lifting operations:



ANNEX C: SIGNALS AND COMMUNICATION FOR SAFE USE OF CRANES (Cont.)

Hoist 	**Lower** 
Raise Boom 	**Lower Boom** 
Use Main Hoist 	**Use Aux. Hoist**