Regulations of 13 January 1986 No. 31 on cranes used on ships in open waters for loading and unloading

Legal basis: Laid down by the Norwegian Maritime Authority on 13 January 1986 under the Act of 9 June 1903 No. 7 relating to Public Control of the Seaworthiness of Ships, etc. Legal basis amended to Act of 16 February 2007 No. 9 relating to Ship Safety and Security (Ship Safety and Security Act) sections 9, 11, 12, 13, 14, 16, 21, 43, 45 and 47, cf. Formal Delegation of 16 February 2007 No. 171 and Formal Delegation of 31 May 2007 No. 590.
EEA references: The EEA Agreement, Annex II, chapter XIX point 1 (Directive 83/189/EC amended by Directive 98/34/EC).
Amendments: Amended by Regulations of 15 April 1986 No. 924, 4 September 1987 No. 863, 12 May 1989 No. 348, 28 January 1997 No. 121, 2 March 1999 No. 398, 11 April 2003 No. 494, 29 June 2007 No. 1006, 18 January 2011 No. 56, 4 July 2007 No. 854 as amended by Regulations of 19 December 2013 No. 1659, 20 December 2017 No. 2379, 26 June 2025 No. 1372.

Section 1 *Definitions*

For the purpose of these Regulations, the following definitions shall apply:

1. *"Company":* Cf. the definition given in section 4 of the Ship Safety and Security Act.
2. *"Loose crane gear":* Chains, shackles, rings, hooks, swivels, drum fasteners, steel plate clips, blocks, loading pallets, wire, rope slings, etc., which are not part of the permanent crane accessories.
3. *"Competent person":* A person qualified to calculate, design/construct, control, test, and certify hoisting gear and cranes with appurtenant equipment to be used on board mobile offshore units. The Norwegian Maritime Authority determines whether a person shall be considered sufficiently qualified to be characterised as a competent person, cf. the regulations currently in force on cargo-handling appliances on ships.
4. *"Thorough examination":* An examination giving a reliable basis for assessing the safety of whatever is examined. If necessary, a thorough examination shall be supplemented with testing and dismantling.
5. *"Recognised classification society":* A classification society with which the Ministry has entered into an agreement pursuant to section 41 of the Ship Safety and Security Act.
6. *"Recognised standard":* Standard issued by NS/BS/ISO/API/CEN/IEC or any other standard or body of rules, as appropriate, which is recognised nationally and/or internationally for a particular sphere of application. The Norwegian Maritime Authority may in each individual case decide which standard is considered to be recognised.
7. *"Certified":*
   a) In respect of equipment and materials: Equipment which satisfies the requirements specified or materials complying with a recognised standard which are certified, approved or type-approved by:
      - a Notified Body;
      - an accredited certifying body;
      - a recognised classification society;
      - other public or private institution recognised by the Norwegian Maritime Authority; or
      - the administration of a country that has ratified the Safety of Life at Sea (SOLAS) Convention.
   b) In respect of the execution of work: Personnel who according to regulatory requirements are required to hold special qualifications for performing specific tasks, and who are certified by:
      - a recognised classification society;
      - an accredited certifying body; or
      - other public or private institution recognised by the Norwegian Maritime Authority.

0 Amended by Regulations of 2 March 1999 No. 398 (in force on 1 September 1999), 11 April 2003 No. 494 (in force on 1 July 2003), 29 June 2007 No. 1006 (in force on 1 July 2007), 18 January 2011 No. 56, 19 December 2013 No. 1659 (in force on 1 January 2014).

Section 2 *Scope of application*

1. The Regulations apply to deck cranes with appurtenant loose gear used on ships in open waters for loading and unloading.

2. Transportable lifting appliances, work winches and similar gear shall be certified in accordance with the Regulations on cargo-handling appliances in ships.

0 Amended by Regulations of 11 April 2003 No. 494 (in force on 1 July 2003), 19 December 2013 No. 1659 (in force on 1 January 2014).

Section 2a *Duties*

The company, master and other persons working on board shall perform their duties in accordance with the Ship Safety and Security Act and the supplementary provisions laid down in these Regulations.

0 Amended by Regulations of 11 April 2003 No. 494 (in force on 1 July 2003), 29 June 2007 No. 1006 (in force on 1 July 2007), 19 December 2013 No. 1659 (in force on 1 January 2014).

Section 3 *Documentation*

The company shall be able to document that the requirements of these Regulations are complied with. Documentation shall be sent to the Norwegian Maritime Authority on request. The contents, scope and type of documents and the time of submission shall be decided by the Norwegian Maritime Authority.

0 Amended by Regulations of 2 March 1999 No. 398 (in force on 1 September 1999), 29 June 2007 No. 1006 (in force on 1 July 2007).

Section 4 *Methods of calculation, construction requirements and materials*

1. *Calculations.*

1.1. In addition to the special requirements laid down in these Regulations, cranes shall be calculated and dimensioned according to a recognised national or international crane standard taking into due account the special conditions (temperature, wind force, dynamic forces, etc.) under which these cranes are to work. In addition, the crane shall be calculated for operation under dynamic conditions, taking into account relative movements that will occur between the crane and the places to and from which the crane lifts and lowers. When, during construction and calculation of cranes, a larger dynamic factor than 1.3 is used, due regard shall be paid to this dynamic load when using standard hooks, blocks, swivels, shackles, wire straps and similar equipment, by calculating the said components for a correspondingly larger safe working load (SWL), but with the crane's SWL stamped on them.

1.2. Cranes used for loading and discharging of supply ships shall be so constructed that the crane, if exposed to destructive overload, will fail in such a way as to minimise the risk of injuries of personnel and damage of materials. The crane operator's cabin with supporting structures and escape route(s) shall be so arranged and constructed as not to fall overboard by destructive overload of the crane, and also so as to protect the crane operator in the best possible way.

1.3. The standard according to which the crane has been calculated shall be stated in the Crane Manual. The most highly stressed components of the crane shall be listed in the Crane Manual together with a representative selection of loading conditions, so that appropriate inspection and non-destructive testing shall be carried out if overload or damage should be suspected.

How the manufacturer designed the crane, within the total crane load and moment spectrum, to comply with the requirement in subsection 1.2. above, shall be documented in the Crane Manual.

2. *Construction requirements.*

2.1. Cranes shall be calculated for operation at maximum capacity with a list of at least 5°, and simultaneously for a constant wind speed of at least 25 m/sec. In the wind load calculations, a hanging cargo corresponding to a 10 feet (3 m) standard container shall be assumed. For special cranes, other representative cargo shall be assumed.

2.2. With the boom in stowed position, cranes shall be calculated for a list of minimum 35° and a period in seconds of:

T = 0.8 x B/square root of GM

B = breadth of ship in metres

GM = metacentric height in metres of the loading conditions in question.

Unless more favourable motion characteristics are documented, all cranes which in stowed position are exposed to wind shall, in addition, be calculated for a constant wind speed of 50 m/sec.

2.3. Cranes used for loading and discharging supply ships shall, as a minimum requirement, in calm weather (significant wave height = 0) be capable of lifting 15 tonnes 32 metres away from the side of the ship, measured along the centre line of the supply ship in moored position. In the case of emergency operations they shall additionally be capable of lifting on board a load of at least 2.5 tonnes from a 25 m radius at a constant wind speed of minimum 30 m/sec and with a list of 10° in the most adverse direction with an appurtenant dynamic load resulting from lifting this load from the deck of a supply ship.

2.4. The crane shall as a minimum be constructed for operation at a daily average temperature from +55°C to -10°C. The design temperature shall not be put higher than -10° based on the lowest daily average temperature. A competent person shall be able to confirm these requirements.

2.5. The hoisting and lowering speed of a whip hoist with a load of 5 tonnes shall be minimum 100 m/min. A lower hoisting and lowering speed is nevertheless accepted if the speed is so high that a load may be lifted clear of the next wave crest with a margin, even if the lifting is begun at the most unfavourable time, i.e. in a trough of the waves. The maximum wave height which the crane can handle becomes one of the crane's operational limitations and shall be stated in the operation manual.

2.6. In determining the dimension of the crane foundation, including the pedestal and slewing ring with bolts, the design load used shall be 1.3[2] times the design load used for other parts of the crane and at least 2 times the greatest permitted working load for which the crane is designed and for which its dimensions are determined.[1]

2.7. The Crane Manual mentioned in section 8 shall contain all construction requirements and limitations on the use of the crane as well as a description of normal and emergency operations, confirmed by a competent person.

3. *Materials.*

3.1. Only materials certified by a recognised classification society shall be used in important strength components (e.g. crane boom, A-frame, pedestal, etc.). Grades of steel shall be carefully selected, taking into account fatigue, the importance of the construction, the design temperature, the thickness of the material and weldability. For all other constructions, the material shall be adapted to its intended use under marine environmental conditions.

3.2. The Crane Manual shall contain a general arrangement drawing, giving information on the type of the materials used in all the strength components of the crane, and on any material with a design temperature limitation above -10°C, confirmed by a competent person.

3.3. Certified wire rope[1] shall comply with a recognised standard, be adapted to the diameter of sheaves and drums and have a breaking load of not less than the maximum tension in the rope, with regard to Safe Working Load (SWL),[2] multiplied by a factor obtained from the following table:

Safe Working Load (SWL)[2] on the crane hook	**Factor**
Up to 10 metric tonnes (all ropes used in single part)	5.0
Above 10 metric tonnes, but not exceeding 25 tonnes	5.0 -((SWL - 10)/30
Above 25 metric tonnes, but not exceeding 60 tonnes	4.5 -((SWL - 25)/70
Above 60 metric tonnes	4.0

1 For wire rope for lifting straps, cf. section 6 item 3.

2 SWL = Safe Working Load on the crane hook

For wire ropes used in connection with hooks with an SWL of 20 metric tonnes and above, a factor down to 4 is accepted if the influence of all motions (cf. section 4 paragraph 1.1.) is calculated and the SWL of the crane hook, in each individual case, is reduced for the effect of this motion. Necessary information shall then be incorporated in the Crane Manual.

As an alternative to the above table, wire ropes may be dimensioned according to a recognised standard when dynamic load has been taken into consideration.

3.4. Hydraulic, pneumatic and electrical systems.

3.4.1. Each main pressure system shall be equipped with an overpressure safety valve. The valve shall be adjusted and sealed under the supervision of a competent person. If, during inspection, the seal is found to be broken, a complete control as described in section 11 paragraph 1 will be required.

3.4.2. It shall be possible to install a control manometer for all pressure systems affecting the crane operation.

3.4.3. Positioning of tubes and hoses.

Tubes and hoses shall be so placed as to be protected against heat, pinching, vibrations or any other adverse influences. They shall be readily accessible for inspection and replacement. The hoses shall be used in such a way that the operator would not be injured if a hose should burst.

3.4.4. Pneumatic control systems shall be equipped with effective dehumidifying devices to ensure satisfactory operation down to -10°C. Limitations of the system shall be stated in the Crane Manual.

3.4.5. Pressure systems shall be constructed according to a recognised national or international standard. The standard used shall be stated in the Crane Manual and be confirmed by a competent person.

3.4.6. Electrical systems for the crane and its equipment shall comply with a recognised national or international standard for the zone on board where the crane is positioned with respect to area classification. The standard used shall be stated in the Crane Manual and be confirmed by a competent person.

3.4.7. All hydraulic, pneumatic and electrical systems shall be so constructed that failure in any of them will not result in a situation that cannot be controlled.

3.4.8. The Crane Manual shall contain a diagram of pressure systems and electrical systems.

3.4.9. Diesel-driven units operated on open deck shall be fitted with water-cooled exhaust manifolds and exhaust pipes as well as with effective spark arresters. Precautions shall be taken to conduct the exhaust gas to a suitable safe place.

4. *Workmanship.*

4.1. All welding of strength components shall be carried out by a certified welder, holding a Certificate for the type of weld in question. The welding procedures shall be approved by a competent person doing the initial certification of the crane. The procedures shall also include preparations for welding and repair of welded parts, and shall be included in the Crane Manual.

4.2. All important welds shall be tested by a non-destructive method, at the guidance and supervision of a competent person.

4.3. Radiographs shall meet the requirements of Mark 4 (blue) according to "II W Collection of Reference Radiographs of Welds", but scattered porosity according to Mark 3 (green) may be accepted by a competent person.

4.4. A complete test report on the result of such testing, confirmed by a competent person, shall be attached to the Crane Manual, cf. section 8.

4.5. Sheaves/fairleads for wire ropes, load hooks and hook blocks, thimbles, etc. shall be in compliance with a recognised standard.

5. *Winches.*

5.1. The whip hoist winch on cranes used for loading and unloading supply ships shall be equipped with an emergency release system which after emergency release sustains a constant tension in the wire rope (hook load) of approximately 1.5 tonnes or a minimum of 10% of the greatest permitted rope tension. The emergency release system shall work under all conditions, including power failure, and at least 3 times in rapid succession. The emergency release switch or handle shall be effectively secured against inadvertent use, and the winch shall automatically, with a soft characteristic, return to normal hoisting, braking or holding conditions when the emergency release is disconnected. The emergency release system shall put out of action any limit switches that will stop the whip hoist winch from unwinding completely.

5.2. The whip hoist winch on cranes used for loading and unloading supply ships shall be capable of paying out the wire rope at a rate of 2.5 m/sec without overloading the crane by more than 10% of the calculated load (calculated load = SWL x design dynamic factor) if the hook should accidentally be hooked on to the supply ship and the control handle is in hoisting or in neutral position.

5.3. Cranes with winches capable of hoisting considerably more than they are certified for, may be required fitted with a safety device which, at a predetermined overload, prevents the crane from hoisting or stops it in such a way that it will only be possible to move the crane to a better position (lower the load or hoist the boom).

5.4. Drums shall be of such a size that maximum three layers of wire rope may be wound on them, unless it can be documented that further winding up may take place without causing any excess wear and tear. The drum shall be so constructed that the rope cannot climb off the drum flanges. The flange height shall be 2.5 wire rope diameters higher than the uppermost wire rope layer of a fully wound drum. However, if another kind of protection has been provided to prevent the wire rope from climbing over the drum flanges, it is accepted that this height may be reduced. Drums without grooves shall not have a fleet angle exceeding 3°. For grooved drums the angle shall not exceed 5°.

5.5. The ratio between the drum diameter and the wire rope diameter shall be the greatest possible and not less than 18:1.

5.6. The capacity of the main hoist drum shall be such that at least 3 turns of wire rope are left on the drum with the hook at normal transit draught or at the lowest astronomical tide with the boom in the highest operable position.

5.7. The capacity of the whip hoist drum shall be such that 4 turns of wire rope are left on the drum with the hook at normal transit draught or at the lowest astronomical tide with the boom in the highest operable position.

5.8. The capacity of the drum for the boom hoist shall be such that at least 3 turns of wire rope are left on the drum with the boom in the most adverse position, including stowed position.

5.9. The crane shall be so constructed that the crane operator cannot permit free fall for any load (see subparagraph 5.1 above).

5.10. All brakes shall be so arranged that they will automatically apply their full braking force as rapidly as possible in case of power failure or failure in the control system, without any critical shock loads occurring. This braking force shall be strong enough to stop and hold the SWL of the crane hooks under all conditions.

5.11. The brakes shall be constructed in such a way that it, within the shortest possible time, will be possible to lower and stop the full hook capacity manually under full control in case of power failure or failure in the control system.

5.12. Large cranes shall have an emergency power system which is independent of the main power system.

5.13. If braking moment and motor moment can be applied simultaneously and in the same direction, this shall be included in the calculations.

5.14. All braking systems shall be described in the Crane Manual with information on how braking devices shall be controlled and adjusted and how they shall be operated in the event of power failure.

6. *Wire rope attachment to the drum.*

6.1. For the whip hoist, the wire rope attachment to the drum shall be so constructed as to be released or to break before the boom breaks when in its lowest permitted position.

6.2. The wire rope attachment for the boom hoist shall be capable of withstanding at least the breaking load of the boom hoist wire rope.

6.3. All wire rope attachments shall be easy to inspect and tighten up.

7. *Sheaves/fairleads for wire rope.*

7.1. The ratio between the diameter of the sheaves and the diameter of the wire rope shall be the greatest possible and not less than 18:1.

7.2. All sheaves and blocks shall be so arranged that the wire rope cannot run off the sheave, and shall be secured to avoid that persons may be injured.

8. *Load hooks and hook blocks.*

8.1. The load hook shall be so designed that the load carrying slings cannot fall out, and so as to prevent it from being inadvertently hooked on to any obstructions.

8.2. The ratio between the diameter of the hook block sheaves and the diameter of the wire rope shall be the greatest possible and not less than 16:1.

8.3. The whip hoist on cranes used for loading and unloading supply ships shall be provided with a forerunner of wire or fibre rope of sufficient length and breaking load.

8.4. Hook and strength components in swivels shall be made of material grade RST 42-2 (killed) NS 12132 or equivalent material, welding on the hooks is not permitted.

8.5. Hook blocks shall be fitted with protective plates and be easy to handle from both sides.

9. *Wire rope.*

9.1. Wire rope with non-rotating properties shall be used on the whip hoist.

9.2. The dimensions, length and construction of the wire rope used for the crane shall be given in the Crane Manual.

10. *Wire rope clamps and wire rope locks.*

10.1. Properly designed wedge sleeves or self-locking wedge sockets with one wire rope clamp shall preferably be used for wire rope connections. Where wire rope clamps are used, mutual distance between the clamps shall be at least 6 times the wire rope diameter, the free length of the wire rope shall be at least 5 times the wire rope diameter, and the end shall be prevented from unravelling. Only wire rope clamps with two gripping areas shall be used. The U bolt type is not permitted. The number of clamps in relation to the wire rope diameter shall be in accordance with the maker’s specifications and never less than three.

11. *Operator's cabin.*

11.1. Cranes used for loading and unloading supply ships, shall be fitted with an operator’s cabin. Cabins shall be of adequate size, and shall give the operator an unobstructed all-round view at any boom position.

11.2. The operator’s cabin shall be solid and shall provide protection against falling objects. It shall be made of non-combustible material and have an interior free height of at least two metres.

11.3. The windows shall be of a solid construction, and of tempered or laminated safety glass. It shall be possible to clean the windows in a safe manner, preferably from the inside. Cranes shall have motorised windscreen wipers. The operator’s cabin shall be heated and ventilated. The noise level in the cabin shall not exceed 80 dB(A).

11.4. Engine exhaust gas shall be conducted away in such a manner as not to inconvenience the operator.

11.5. Operating controls, seats, windows and other installations shall be designed according to ergonomic principles.

12. *Operating position.*

12.1. For cranes having no operator’s cabin, the general operating position shall be secured and fitted with necessary railing. If the crane is operated from a portable control box, the cable shall be long enough to enable the operator to choose a safe working position that gives the operator the best possible general view.

13. *Access to and exit from the crane.*

13.1. The crane shall be provided with safe means of access to the operator's cabin, to the engine room, and to every location where inspection, repair or maintenance work will be required.

13.2. By fixed means of access it shall be possible to enter or leave the crane in any position. If practicable, fixed access shall be arranged for inspection and control of all important parts such as swing circle bearing, brakes, safety valves, sheaves, wire ropes etc.

13.3. An operator's cabin and operating positions shall be so located that the operator can make a quick escape if the crane, or part of it, should collapse as a result of unforeseen overloading or any other form of failure.

13.4. Ladders, railings, etc. shall comply with the requirements of the regulations currently in force.[3]

13.5. There shall be a clear passage of at least 600 mm between the fixed and movable parts of the crane regularly frequented by persons. Wherever necessary, guards shall be provided to protect persons against movable parts and hot surfaces.

14. *Securing of the crane in stowed position.*

Stowing and securing of the crane shall not take more than 20 minutes. The method shall be described in the Crane Manual.

15. *Control handles.*

15.1. Control handles shall move in the same direction as the load movement or the crane movement. All handles shall be clearly marked and lit to show their respective functions. The marking shall be legible and durable, preferably in symbols.

15.2. Hand controls and pedals shall be within easy reach of the operator's position. The force required to operate the crane shall be less than 5 kg for hand controls and less than 10 kg for pedals.

15.3. Control handles shall automatically return to neutral position when released, and shall remain there until activated by the operator.

15.4. Provisions shall be made to ensure that no control handle, adjusting button or similar can inadvertently be activated.

0 Amended by Regulations of 28 January 1997 No. 121 (in force on 1 January 1998), 2 March 1999 (in force on 1 September 1999), 11 April 2003 No. 494 (in force on 1 July 2003), 19 December 2013 No. 1659 (in force on 1 January 2014).

1 Laid down on 4 September 1987.

2 Amended on 28 January 1997.

3 Cf. Regulations of 4 September 1987 No. 856 on the construction of mobile offshore units and Regulations of 4 September 1987 No. 859 protective, environmental, and safety measures on mobile offshore units.

Section 5 *Special safety equipment*

1. *Limit switches.*

1.1. Limit switches shall be provided where there are limitations of the movement of the crane, of any part of the crane, or of the hooks. Limit switches shall be so arranged that a warning signal will automatically be given in case of failure of the power supply.

1.2. Limit switches shall be positioned in such a way that no damage or danger will occur, even if the crane should be stopped by these switches from full speed and with full load.

1.3. Only the limit switch for the lowest position of the boom is permitted with a manually operated "override" system if such a system is necessary for stowage of the crane boom. In such cases, a warning signal shall be arranged at the control panel of the crane, stating when limit switch is blocked. A sign shall then be posted, stating that no blocking up of the limit switch will be permitted with load in the hook.

1.4. It shall be possible to illuminate the crane and its operational area, so that the crane operator, during dark hours, will be able to see when the crane, boom or hook is approaching an area where limit switches will stop the movement.

1.5. If there is one crane movement that may cause the crane to override a limit switch for another movement (e.g. boom/hook movement), the first switch shall be coupled to both movements.

2. *Load moment indicator.*

2.1. A load and moment indicator shall be fitted on all cranes with a hoisting capacity of 5 metric tonnes and above, where there is a limitation of the load moment.

2.2. The indicator shall be fitted with an audible and visual alarm system in the operator's cabin. The alarm system shall be activated when the actual load moment is between 90 and 98% of the permitted load moment.

2.3. When the actual load moment is between 101 and 110% of permitted load moment, an audible alarm outside the operator's cabin shall be automatically activated to warn personnel working on deck.

2.4. A crane which has been exposed to a load moment exceeding 110% of the permitted load moment (including maximum calculated addition for dynamic load), shall be thoroughly examined by a competent person before it is again taken into use.

3. *Load indicator.*

3.1. A load indicator shall be fitted on all cranes with a hoisting capacity of 5 metric tonnes and above, and where the hoisting motors of the crane are so powerful, or are arranged in such a way, that a load exceeding the SWL of the crane can be lifted. This is not a requirement if the crane is fitted with a load moment indicator on the same hook.

3.2. The indicator shall be fitted with an audible and a visual alarm system in the operator's cabin. Both alarm systems shall be activated when the actual load is between 90 and 98% of the permitted load.

3.3. When the actual load is between 101 and 110% of the permitted load, an audible alarm outside the operator's cabin shall be automatically activated to warn personnel working on deck.

4. *Slack wire stopper.*

Cranes with an SWL of 5 metric tonnes and above used for loading and unloading supply ships, shall be equipped with a "slack wire stopper" which will automatically stop the lowering if the wire rope should be paid out too quickly from the drum. If the crane operator has an unobstructed view of the drums, this safety device may be omitted.

5. *Boom lift safety device.*

Boom lift shall be arranged in such a way that if the hoist wire should accidentally be loaded at an angle outwards from the vertical (e.g. owing to cargo on barge/supply ship drifting away from the crane), and this will overload the boom hoist, the hoist winch shall automatically be paid out until it is working within its design limit.

6. *Boom stalling.*

The crane shall be so constructed that the boom will not stall.

7. *Crane boom stopper.*

The crane shall be fitted with a crane boom stopper to prevent it from going over the top vertical position when working within the design criteria.

8. *Boom sideways loading.*

A slewing mechanism or equivalent shall be provided on the turning motor of the crane to prevent overloading if the crane should be loaded with a sideways load exceeding the design load.

9. *Emergency stop switches and emergency release system.*

9.1. An emergency stop or shut down switch shall be provided close to the operator's seat. When this emergency stop switch is activated, all brakes shall immediately be fully engaged.

9.2. On electrically operated cranes, the emergency stop switch shall switch off the main power supply (all phases).

9.3. Emergency stop switches shall be protected against inadvertent use.

9.4. As for emergency release of the whip hoist, see section 4 subparagraph 5.1.

10. *Warning signals.*

At the operating position, all cranes shall have a manually operated sound signal device to warn of danger. The signal shall be clearly different from all other kinds of sound signals used on board. Cranes running on rails or conveyor belts on deck shall be fitted with an alarm signal activated a little before the commencement of crane movement.

11. *Communication system.*

The operator's cabin on cranes used for loading or unloading supply ships shall be equipped with a communication system, enabling the crane operator to keep in continuous contact with the supply ship and the signaller on deck. The system shall be so arranged that the crane operator can communicate without using their hands.

12. *Fire extinguishers.*

There shall be at least one readily accessible fire extinguisher inside or in the immediate vicinity of the crane operator's cabin. For large cranes, additional extinguishers or a fixed extinguishing installation is required.

13. *Description of safety devices.*

All safety devices shall be clearly described in the Crane Manual.

0 Amended by Regulations of 11 April 2003 No. 494 (in force on 1 July 2003), 26 June 2025 No. 1372.

Section 6 ***Loose crane gear***

1. Gear such as rings, shackles, chain and swivels shall be designed, constructed and certified in accordance with a recognised standard.

2. Loose crane gear shall be of a steel grade not needing heat treatment.

3. Lifting slings.

3.1. Forerunners and lifting slings of wire rope used for hoisting and lowering of loads of less than 10 tonnes shall have a safety factor of at least 6. For loads of 10 tonnes and upwards forerunners, lifting slings, rings, hooks and other loose gear shall have at least the same safety factor as appurtenant wire rope (cf. section 4 subparagraph 3.3).

3.2. For well-defined loads of 100 tonnes and upwards, the part of the sling that is most highly stressed shall have a safety factor of at least 3.

3.3. All wire rope slings shall be made of certified wire rope.

3.4. Rope slings shall be made of certified natural or synthetic fibre rope of the best quality and with the breaking load known. The safety factor against breaking shall be at least 7.

0 Amended by Regulation of 11 April 2003 No. 494 (in force on 1 July 2003).

Section 7 ***Installation of cranes***

1. Cranes shall be so erected or positioned that they will not be exposed to extreme heat, or to acid, or to especially corrosive atmospheres.

2. Wherever possible, cranes shall be positioned in such a way that operations with hanging loads over high pressure systems will be reduced to a minimum.

3. The crane foundations shall be approved by a recognised classification society.

0 Amended by Regulations of 11 April 2003 No. 494 (in force on 1 July 2003), 19 December 2013 No. 1659 (in force on 1 January 2014).

Section 8 *Crane Manual*

For each crane, a Crane Manual shall be drawn up and kept on board. As a minimum requirement, this manual shall contain complete information on the design and construction standard, operation, erection and dismantling, as well as all limitations during normal and emergency operations, such as safe working load (SWL), safe working moment (SWM) under static and dynamic stresses, maximum wind force, maximum heel, design temperatures and brakes. All safety devices shall be explained, and there shall be diagrams for electrical, hydraulic and pneumatic equipment as well as rules for maintenance and inspection. Information on the most highly stressed components, material control, welding inspection and certification shall also be included. The communication system between crane operator, supply ship and deck shall be explained, and so shall all other items previously referred to in these Regulations.

Section 9 *Signs*

Cranes shall have legible signs with the following specifications:

a) necessary signs for safe operation of the crane;

b) manufacturer, date of production, production number and type;

c) supplier;

d) safe working loads at two different radii.

Section 10 *Special tools*

Special tools necessary to carry out the maintenance work required in the Crane Manual, shall be kept on board the ship which the crane in question belongs to.

0 Amended by Regulations of 11 April 2003 No. 494 (in force on 1 July 2003), 19 December 2013 No. 1659 (in force on 1 January 2014).

Section 11 *Testing, examination and certification*

1. *Cranes.*

1.1. Test loads.

1.1.1. After a crane has been installed on board and later at least every 5 years, it shall be examined and tested by a competent person according to the following guidelines, laid down by the ILO:

Safe Working Load, SWL	***Test load***
Up to 20 tonnes	1.25 x SWL
From 20 to 50 tonnes	SWL + 5 tonnes
Above 50 tonnes	1.1 x SWL

1.1.2. For testing as mentioned above, all loose crane gear such as shackles, chains, hooks, swivels and sheaves, etc. shall be tested and certified in accordance with subparagraph 2.1. below.

1.1.3. The load-testing of a new crane shall always be carried out by means of loose scales. These shall be hoisted, lowered and swung at full speed, and the crane arm radius shall be varied. Braking of the mentioned movements shall be tested. The test shall comprise all crane movements that might occur in practice.

1.1.4. If it is no possible to use loose scales, a spring weight or a hydraulic jack shall be used. Several tests shall then be carried out, with the crane turned in different directions and at different boom angles. If a spring weight or a hydraulic weight is used, it shall be reliable and accurate.

1.1.5. If limitations of pump pressure should make it impossible to hoist overload by means of hydraulic cranes as mentioned in subparagraph 1.1., it is sufficient to hoist the greatest possible load.

1.2. Examination.

Before and after the load test, the crane with accessories shall be thoroughly examined by a competent person. Dismantling may be required.

1.3. Certificates.

After the crane has been tested and thoroughly examined with a satisfactory result by a competent person, a Certificate shall be issued. (ILO Form No. 2). The original Test Certificate (ILO Form No. 2) shall be filed on board together with the cargo gear register (control book).

1.4. Alterations, etc.

If the crane has been reconstructed, considerably altered or repaired, it shall be retested and re-examined by a competent person in accordance with the test loads defined subparagraph 1.1. above, and the result of the examination and alterations, if any, shall be entered in the existing Certificate, or a new Certificate shall be issued.

2. *Crane accessories (permanent and loose gear).*

2.1. Test loads.

Before it is first taken into use, or after it has been lengthened, deformed, altered or repaired, every item of loose crane gear and permanent crane accessories shall be tested with the following test loads:

Component	**Safe Working Load (SWL[1])**	**Test loads**
Chain, ring, hook, shackle, swivel, multiple sheave block, etc.	Up to and including 25 tonnes	2 x SWL
	Up to and including 30 tonnes	55 tonnes
	Up to and including 35 tonnes	65 tonnes
	Up to and including 40 tonnes	70 tonnes
	Up to and including 45 tonnes	75 tonnes
	Up to and including 50 tonnes	85 tonnes
	Up to and including 55 tonnes	90 tonnes
	Up to and including 60 tonnes	95 tonnes
	Up to and including 65 tonnes	100 tonnes
	Up to and including 70 tonnes	110 tonnes
	Up to and including 75 tonnes	115 tonnes
	Up to and including 80 tonnes	120 tonnes
	Up to and including 85 tonnes	125 tonnes
	Up to and including 90 tonnes	130 tonnes
	Up to and including 95 tonnes	135 tonnes
	Up to and including 100 tonnes	145 tonnes
	Up to and including 110 tonnes	155 tonnes
	Up to and including 120 tonnes	165 tonnes
	Up to and including 130 tonnes	175 tonnes
	Up to and including 140 tonnes	190 tonnes
	Up to and including 150 tonnes	200 tonnes
	Up to and including 160 tonnes	215 tonnes
	Up to and including 170 tonnes	230 tonnes
	Up to and including 180 tonnes	240 tonnes
	Above 180 tonnes	1.33 x SWL
Single sheave block[2]		4 x SWL[5]
Single sheave block with becket[2]		6 x SWL[5]
Steel wire rope[3]		Breaking load
Yoke or similar[4]		2.0 x SWL

1 For multiple sheave blocks, safe working load (SWL) is equal to resultant load in the head fitting is permitted. Cf. also section 12 subparagraph 2.

2 For single sheave block with or without becket, the test load may be reduced in accordance with the above table when the resultant load in the head fitting exceeds 25 tonnes.

3 Every length and dimension produced shall be tested. If there is no possibility of testing a complete piece, threads or parts may be tested till breakage and the strength be calculated.

4 Yokes and similar with a safe working load (SWL) of more than 20 tonnes, may be tested together with the cargo handling gear.

5 SWL = the maximum permitted load in the wire rope when the sheave is used as single loading block without becket.

2.2. *Examination.*

After having been tested, the components shall be thoroughly examined.

2.3. *Certificates.*

2.3.1. Loose crane gear and permanent crane accessories shall have a Certificate (ILO Forms Nos. 3 and 4). The original Test Certificate (ILO Forms Nos. 3 and 4) shall be filed on board together with the control book. The Norwegian Maritime Authority may request a copy of this Certificate.

3. *Annual thorough inspection.*

3.1. Cranes shall undergo a thorough inspection at least every 12 months by a competent person, or more frequently if required by the manufacturer or the Norwegian Maritime Authority.

3.2. The annual thorough inspection shall comprise control and function testing of the crane as well as visual control of elongation, wear and tear, corrosion, cracking and formation of fractures, etc. This inspection shall be carried out in such a way that it, as far as possible, will give reliable knowledge of the safety of the examined components.

4. *Control book and Certificate.*

The results of initial testing, tests and examinations every 5 years as well as the annual inspections and all kinds of tests and examinations after repairs or alterations of the crane or hoisting gear, shall be entered in the control book (ILO Form No. 1). The entry shall be written by the competent person who carried out the inspection and the examination. Control book and Certificate shall both be kept on board. The control book and Certificates shall be available to the surveyor.

5. *Survey and approval.*

5.1. Before a crane or crane gear is first taken into use, and later every 5 years, a competent person shall have checked constructions and calculations, carried out testing and examination of strength, quality of materials, workmanship and structural design as well as certification in connection with this, in compliance with the requirements of these Regulations.

5.2. In addition, every crane shall undergo a thorough annual inspection by a competent person, cf. subparagraph 3.

0 Amended by Regulations of 11 April 2003 No. 494 (in force on 1 July 2003), 29 June 2007 No. 1006 (in force on 1 July 2007), 20 December 2017 No. 2379 (in force on 1 January 2018), 26 June 2025 No. 1372.

Section 12 *Marking*

1. *Cranes.*

Cranes shall be marked with crane number and maximum permitted safe working load (SWL). Cranes with an adjustable boom shall be marked with maximum permitted safe working load at two or more boom positions, including extreme boom positions.

2. *Blocks.*

2.1. Safe working load (SWL) for a single sheave block is equal to the wire load in (i.e. half the force on the suspension link) when the block is used as a single loading block. For a single sheave block with becket, SWL is also equal to the wire load, which in this case is one third of the force on the suspension link. In both cases the block shall be marked with SWL = the wire load as single loading block without becket.

2.2. For a multiple sheave block, SWL is equal to the force on the suspension link, and equal to the SWL with which the block shall be marked.

2.3. In addition, blocks shall be marked with an identification number or mark, corresponding to the identification number or mark in the Certificate.

3. *Permanent crane accessories.*

Loose parts such as shackles, swivels, etc. shall be marked with the maximum permitted safe working load, and an identification number corresponding to the identification number in the Certificate.

4. *Hoisting gear.*

Hoisting gear shall be marked with maximum permitted safe working load (SWL) in numbers or letters, and with an identification number corresponding to the identification number in the Certificate. This marking shall be done on the gear itself, or on a plate or ring made of a lasting material and securely fastened to the gear. Wire slings shall be marked with a label indicating SWL at 0° for single slings and at 90° spread for other slings. Alternatively it is accepted that information on this is posted in readily visible places. The slings shall be easily identified by means of the posted information.

5. All marking shall be carried out in such a way as to be easily legible and durable.

0 Amended by Regulation of 11 April 2003 No. 494 (in force on 1 July 2003).

Section 13 ***Qualification requirements for crane handling***

1. General.

A crane operator shall be at least 20 years of age, and his or her health, hearing and eyesight shall be good. A crane operator shall have successfully passed a recognised practical and theoretical training course concerning cranes and hoisting gear. A crane operator shall be given the necessary instructions concerning crane operation and crane maintenance, as well as necessary instruction in the regulations currently in force.

2. Daily operation – special precautions.

2.1. If the crane operator should temporarily be physically or psychically unfit, they shall not operate cranes.

2.2. The crane operator shall not be preoccupied with anything that might disturb him while operating the crane.

2.3. During load-handling, the crane operator shall not start the crane before the signaller gives a signal or the operator has an unobstructed view of the whole load.

2.4. The crane operator shall only comply with the signals given by the designated signaller. They shall at any time respond to a request for emergency stop, no matter from what source the request might come.

2.5. The crane operator is responsible for all crane-handling, and also for the crane-handling being carried out in a safe and reliable way. If there are any doubts concerning safety, the crane operator shall have authority to stop the crane and may refuse to handle loads till load-handling may be carried out in a safe and reliable way.

2.6. Every day before the crane is taken into use, the crane operator shall carry out all the necessary movements with the crane, and also carry out such maintenance work as is necessary to ensure that the crane functions satisfactorily. The operator shall make sure that all safety devices are in their right places and are functioning properly, and also that the wire ropes are in a reliable condition.

2.7. Cranes shall not be used if any of the limit switches or other safety equipment should be defective.

2.8. No hoisting gear shall be used for cargo exceeding the gear's maximum permitted working load, SWL. Whenever several wire slings or chains are used, due regard shall be paid to mutual angles. The crane operator shall be informed of the correct weight of the loads to be hoist.

2.9. Equipment shall be protected against the weather. The storage shall be divided into certain marked areas for the various types of equipment and groups of hoisting gear of similar capacity. The crane operator shall keep the storage space in order. When in use, slings with fasteners and fittings shall be

inspected daily to ascertain whether they have suffered any overloading, excessive wear and tear, or damage. Slings found to be defective, shall not be used. A chart giving maximum permitted working loads, SWL, for all types and sizes of equipment used on the installation, shall be posted in the storage space.

2.10. The load shall be attached to the hook by means of slings or other devices. Adequate protection shall be provided between the sling and sharp surfaces on the load hoisted.

2.11. Cranes shall only be used for vertical hoisting and lowering of cargo.

2.12. Limit switches shall not be used to stop the crane during normal use.

2.13. The crane operator shall not leave the operator's cabin while load is hanging in the hook.

2.14. A suitable container or basket shall be used for transportation of smaller cargo.

2.15. The main hoisting arrangement on cranes used for loading and unloading supply ships, shall be used only when the hoisting and lowering speed substantially exceeds the ship's vertical movements.

0 Amended by Regulations of 11 April 2003 No. 494 (in force on 1 July 2003), 26 June 2025 No. 1372.

Section 14 *Exemptions*

The Norwegian Maritime Authority may, in individual cases and upon written application, deviate from the requirements of these Regulations. There must be special reasons that make the deviations necessary and they must be justifiable in terms of safety. If the requirements of the coastal state and the requirements of these regulations are irreconcilable, the Norwegian Maritime Authority may deviate from the requirements insofar as safety considerations allow. Deviations must not contravene international agreements to which Norway has acceded.

0 Amended by Regulation of 11 April 2003 No. 494 (in force on 1 July 2003).

Section 14 A *Mutual acceptance*

Where the Regulations require that particular fittings, materials, equipment or devices or type of equipment etc. be procured or found on a vessel, or that some specific measure be taken or the construction or design safety specific requirements, the Norwegian Maritime Authority shall permit that other appurtenances, materials, devices or types of such are installed or found on the vessel or that other measures are taken on board or that the vessel is built or designed in another way.

The Norwegian Maritime Authority shall accept this provided that: it is documented by testing or other means that the appurtenances, materials, equipment or devices or types of such, or the arrangement, construction or design is at least as effective as specified by the requirements of the Regulations.

The Norwegian Maritime Authority shall accept the results of tests performed by recognised testing institutions, including testing institutions in other EEA countries. Such acceptance will be given on condition that the tests give an appropriate and satisfactory guarantee of a technical, professional, and independent nature.

0 Added by Regulation of 2 March 1999 No. 398 (in force on 1 September 1999).

Section 15 *Entry into force*

These Regulations enter into force on 15 February 1986.

0 Amended by Regulation of 29 June 2007 No. 1006 (in force on 1 July 2007, formerly section 16).