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Mooring and unmooring

This ARBO chapter is part of the Health and Safety Index for the shipping industry.

It is intended to help employers to comply with the requirements of health and safety legislation. It may be used as a checklist by employees.

It contains the necessary measures to be taken in order to safely carry out certain work-related activities.

Compliance with these regulations, or alternative regulations offering an equivalent level of protection, is essential.

This chapter contains health and safety regulations to ensure safe mooring and unmooring procedures.

Employees' checklist

- Always use an adequate number of crew when mooring/unmooring
- Make each other aware of unsafe situations
- Familiarise yourself with the equipment used in order to be able to spot any wear and tear at an early stage
- Provide supervision at stem and stern whilst mooring/unmooring
- Has the mooring plan been discussed?
- Use well-working communication equipment
- Do not carry out more than one aspect of the job at any one time (like manning winch and handling ropes)

This chapter contains the measures that must be taken to ensure the safe mooring and unmooring and to minimise potential hazards.

PPE to be used



Various factors in mooring/unmooring vessels:

In order to safely moor/unmoor seagoing ships, a number of factors will have to be taken into consideration. In addition, equipment, experience and on-board organisation are vital in ensuring smooth mooring/unmooring:

- ✿ Availability of sufficient (experienced) crew
- ✿ Mutual supervision
- ✿ Preparation
- ✿ Communication
- ✿ Sound division of labour and appropriate supervision
- ✿ Maintenance of all equipment

Be vigilant

In many instances accidents do not happen because of the complicated nature of a manoeuvre, but rather because of lack of care and attention whilst carrying out a (simple) job:

- ✿ You have a legal obligation to point out unsafe routines and/or incorrect usage of protective equipment to the people you work with.



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Organisation and safety

- ✓ Communication equipment has been tested and agreement has been reached on the division of labour; the crew has been briefed on the mooring plan.
- ✓ All supervising officers are familiar with the nature of the equipment used. Experience and vigilance are vital in the prevention of accidents

Supervising officers shall have a working knowledge of:

- The characteristics of the ropes, springs and warps used
 - The ropes' breaking strength
 - The criteria for condemning ropes, springs and warps
 - Operating winches
 - Communication
 - Holding power brake band
 - Winches' self tensioning properties
 - Winches' heavingpower
 - The mooring plan
 - The location of capstans and hawsoles and the correct handling of mooring ropes along them
 - The work to be carried out
 - The snap-back zones (see schedule of danger zones)
- ✓ Supervision over and operation of winches and capstans should be in the hands of experienced crew.
 - ✓ Officers in charge should have an overall picture of the situation at all times
 - ✓ Preparation of the work space is vital to safety at work.
 - ✓ Work should only be carried out by authorised persons.

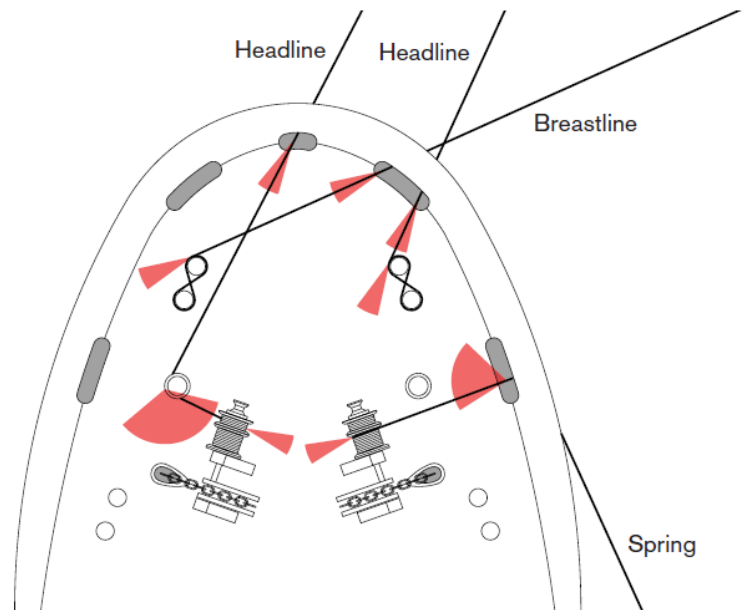
Equipment



- ✓ All tools and equipment used should be inspected and maintained regularly.
- ✓ All of the mooring gears movable parts should be current.
- ✓ The surfaces of all hawsoles, fairleads, cable guides, bollards and warping ends should be kept clean and in good working order
- ✓ Ropes and warps should be in good condition and should have been inspected

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By being familiar with the danger zones on deck, crew members will become aware of the potential hazards present.



Marked zones: snap-back zones.



- ✓ Care, control and maintenance are of prime importance, however, always be aware that ropes may snap at any time.
- ✓ Lay-out and equipment –and therefore the mooring plan too– are different on every ship. For that reason make sure to study a ship's lay-out on boarding.
- ✓ The operational direction will have been clearly marked, both on the drum and the handle
- ✗ Unclear workspaces increase the risk of accidents.

Mooring and unmooring



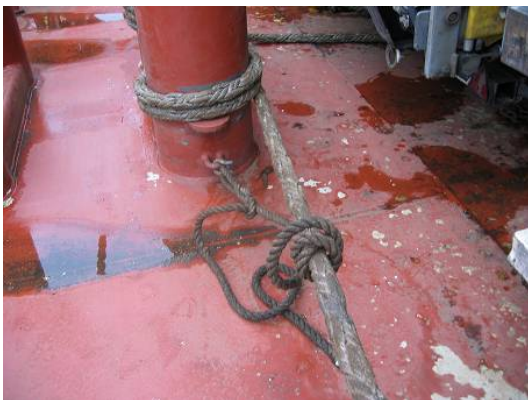
- ✓ An adequate number of experienced crew will be available
- ✓ Whilst moored, regular checks should be carried out to ensure that the vessel is still alongside safely (“mooring rounds”)
- ✓ Crew will take into account the effects of:
 - The wind
 - The current
 - Suction from passing ships
 - Waves and swell
 - The tide
 - The ships movements as a result of cargo operations
- ✓ Always maintain a safe distance from warping ends/drums to prevent becoming trapped. (keep hands and fingers free)

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- ✓ Sound communication between ship and shore (and tug if and when applicable) is of the essence
- ✓ Wear stout protective gloves to ensure a strong grip as rope burns and steel cables have burrs
- ✓ Be vigilant of observers whilst mooring and unmooring: ropes may snap at any time

- ✗ Do not ever lay ropes and warps around sharp corners. When using a winch, the angle to the hawsole should be as large as possible.
- ✗ Do not ever stand close to taut ropes or warps and stay clear of the snap-back zone.
- ✗ As much as possible, stand behind the warping end when handling ropes; avoid the side of the taut rope.
- ✗ Do not ever stand inside a bend or loop of any rope or warp.
- ✗ Stay clear of moving parts.
- ✗ Beware of heaving lines being thrown aboard from tugs or shore

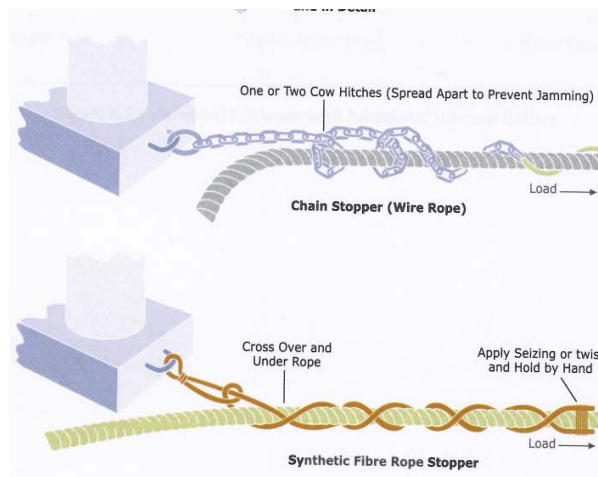
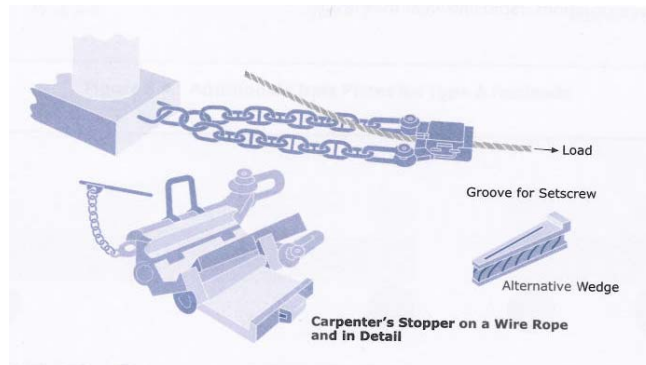
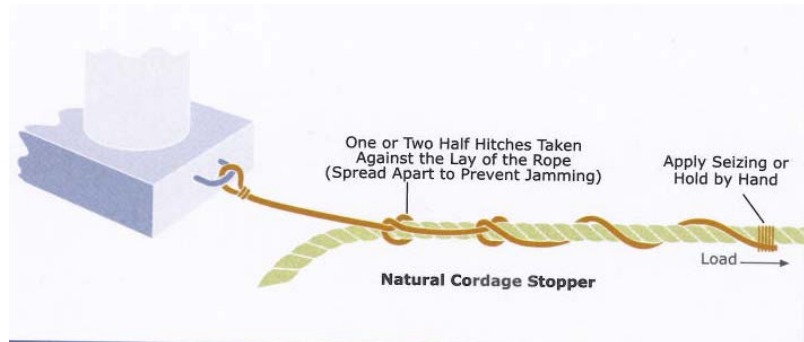


Stopping and belaying ropes

- ✓ For preference, do not just belay a rope by using figures-of-eight: instead first hitch it twice around the lower side of the bollard (see picture)
- ✓ Using a winch to handle ropes and warps should never be done by one single person.
- ✓ Level out stress on ropes as much as possible
- ✓ Be aware of the different elasticity of the various materials
- ✗ Do not leave stoppers attached to rope after use (see picture)

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Some options for stopping ropes



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- ✗ Avoid too many turns on the drum (picture)
- ✗ Steel cables must not be belayed on top of ropes.
- ✗ When using 'split drum' never allow a double layer on the working part to avoid fouling and/or trapping/damaging ropes.

Steel cables

- ✓ Steel cables must be stopped with chain stoppers which should run in the opposite direction to that of the cable in question.
- ✓ Steel cables must not kink whilst being ran out or heaved up
- ✓ Only special shackles should be used to connect steel cables to ropes (e.g. Tonsberg)
- ✗ Beware of burrs: use stout leather gloves.

Physical strain

- ✓ When using mooring gear, the availability of sufficient manpower to reduce physical strain is vital
- ✗ Avoid manual pulling on ropes as much as possible to avoid straining – and possibly injuring – the back.

Storage

- ✓ After use, ropes should be stored clear of the deck (picture)



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Further information / documentation used

- ✓ Arbeidsomstandighedenbesluit en beleidsregels
(Netherlands' Labour Conditions Decree and Policy Rules)
- ✓ "Dat is juist / Safety first"
- ✓ IMCASF P&I publications Jan 2009 Mooring incidents
- ✓ Effective Mooring (OCIMF)
- ✓ Mooring Equipment guidelines Sec edition 1997 OCIMF
- ✓ MCA Code of Safe Working Practice for Merchant Seamen