

MOORING LINES LED WITH EXCESSIVE WRAP ANGLES

A STRAIGHT LEAD IS A SAFE LEAD.



- RISQ 3.2 – 10.6 – Are mooring lines correctly deployed and tender?
- RISQ 3.2 – 10.16 – Are the pedestal fairleads, roller fairleads and other rollers free of grooving, well-greased and free to turn?
- PSC Deficiency Code 02140 – Towing and Mooring Equipment
- SOLAS Chapter II-1, Regulation 3-8 – Towing and mooring equipment
- OCIMF MEG4 – Mooring Equipment Guidelines, 4th Edition

FINDING

During an onboard pre-vetting (RISQ 3.2) preparation with the vessel alongside, the PAS Auditor observed that the mooring lines from the aft stern winches had not been led in line with MEG4 guidance. The lines were routed around a sharp wrap angle exceeding 150 degrees, passing over three pedestal rollers and an additional fairlead before being led ashore. In addition, two rollers on the poop deck and two on the forward deck were found seized and not free to turn. With so many changes of direction, and some rollers acting as fixed contact points, the lines were exposed to excessive friction and chafing, uneven load sharing and an increased risk of sudden parting under load.

ROOT CAUSE

Inadequate mooring planning: no deck-specific mooring arrangement had been prepared showing the preferred leads for each winch, so lines were routed through whatever rollers were convenient on the day.

Lack of awareness of MEG4 principles: the mooring team was not familiar with the guidance that lines should be led as directly as possible, with the minimum number of contact points and changes of direction.

Lack of preventive maintenance: pedestal and roller fairleads were not greased and turned regularly under the Planned Maintenance System, allowing them to seize.

Insufficient senior officer supervision: the officer in charge of the aft station did not check the line leads after the vessel was made fast, and the arrangement was not reviewed during the deck rounds.

IMPORTANCE

Each time a mooring line bends sharply around a roller or fairlead, its effective breaking strength is reduced and wear is concentrated at the contact point. Seized rollers make this worse, turning into fixed bits that generate heat and abrasion. Lines led in this way do not share the load evenly with the rest of the moorings, so a single line can become overloaded and part without warning. Every change of direction also widens and complicates the snap-back zone, putting more of the deck crew at risk. Mooring operations remain one of the most common causes of serious injury and fatality on board, and defective mooring arrangements are regularly recorded during PSC and vetting inspections. Such findings are classified as high risk and ISM-related.

LESSONS LEARNED

- Prepare a mooring arrangement plan for each mooring station, showing the preferred lead from each winch to shore via the minimum number of rollers and fairleads, and display it at the station.
- After making fast, have the officer in charge verify that every line is led as directly as possible, avoids sharp wrap angles and does not chafe on fixed structure, and record this in the mooring checklist.
- Include all pedestal fairleads, roller fairleads and panama chocks in the Planned Maintenance System for regular greasing and turning, and overhaul any roller that is not free to turn before the next mooring operation.
- Deliver an onboard briefing on MEG4 safe line routing and snap-back zones before each mooring operation, and require superintendents to verify mooring leads and roller condition during onboard visits.
- Circulate this case across the fleet and reinforce, through onboard training, that a mooring line led around sharp angles and seized rollers is a weakened line, one that can part without warning and turn a routine mooring operation into a fatal accident.