



**MINISTRY OF TRANSPORT AND COMMUNICATIONS
DEPARTMENT OF MARINE ADMINISTRATION**

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Directive (23/2016)

National Standard for Emergency Towing Arrangement for Tankers

Applicable to: Ship owners, Recognized Organizations, Shipping Companies, Flag State Surveyors

1. The Department of Marine Administration circulated this directive in the exercise of the power of Section 294(B), paragraph (b) of Myanmar Merchant Shipping Act.
2. Pursuant to the provision of Section 213 (A) of Myanmar Merchant Shipping Act and Regulation 3-4, Chapter II-1 of SOLAS, the Department of Marine Administration shall employ this national standard for emergency towing arrangement for the Myanmar tankers serviced on International Voyages.
3. The purpose of this national standard is to comply with the requirement of Regulation 3-4, Chapter II-1 of SOLAS and MSC.1/Circ.1255 to be used in survey and certification process of Myanmar tankers engaged on International voyages.

Maung Maung Oo
Director General
Department of Marine Administration

NATIONAL STANDARD FOR EMERGENCY TOWING ARRANGEMENTS FOR TANKERS

1 PURPOSE

The purpose of this National Standard is to assist owners/operators in preparing ship-specific emergency towing procedures for ships subject to SOLAS regulation II-1/3-4.

2 APPLICATION

2.1 This Standard is applicable to the emergency towing arrangements that are equipped according to the rules on tankers of 20000 tons deadweight and above, including oil tanks, liquid chemical cargo carriers and liquefied gas carriers.

2.2 Emergency towing arrangements equipped in accordance with **Regulation 3-4, Chapter II-1 of SOLAS and MSC.1/Circ.1255** Guidelines for Owners/Operators on Preparing Emergency Towing Procedures, together with emergency towing procedure manual prepared in accordance therewith, are to be approved by the plan approval department onboard.

3 DRAWINGS AND DOCUMENTATION TO BE SUBMITTED

3.1 When the approval is being applied for, the following drawings and documentation to be submitted are to be submitted to Department of Marine Administration for approval:

- (1) Design calculations (fore part);
- (2) Design calculations (aft part);
- (3) Instructions for use;
- (4) General arrangement plan;
- (5) Fore part arrangement plan;
- (6) Aft part arrangement plan;
- (7) Chafing chain, chain stopper, fairlead, stopper plate, towing line, shackle, retrieving line;
- (8) Bracket, valve block, main axis, base, pneumatic winch, retrieving arrangements;
- (9) Storage box, force-bearing post, socket;
- (10) Test program for approval;
- (11) General information of the manufacturer:
 - a) manufacturer history and current situation;

- b) production history and capacity for relevant products;
- c) information on production and testing equipment (including name, intended service, specifications, capacity, etc.);
- d) quality information (product quality statistics, quality inspection records of the user, etc.);

(12) Quality control documents, warranty certificates, asbestos-free declaration.

4 EMERGENCY TOWING BOOKLET

4.1 The Emergency Towing Booklet (ETB) shall be ship specific and be presented in a clear, concise and ready-to use format (booklet, plan, poster, etc.).

4.2 Ship-specific data shall include but not be limited to:

- 1) ship's name;
- 2) call sign;
- 3) IMO number;
- 4) anchor details (shackle, connection details, weight, type, etc.);
- 5) cable and chain details (lengths, connection details, proof load, etc.);
- 6) height of mooring deck(s) above base;
- 7) draft range; and
- 8) displacement range.

4.3 Comprehensive diagrams and sketches shall be available and include the following:

- 1) assembly and rigging diagrams;
- 2) towing equipment and strong point locations; and
- 3) equipment and strong point capacities and safe working loads (SWLs).

4.4 A copy shall be kept at hand by the owners/operators in order to facilitate the passing on of information to the towage company as early as possible in the emergency. A copy shall also be kept in a common electronic file format, which will allow faster distribution to the concerned parties.

4.5 A minimum of three copies shall be kept on board and located in:

- .1 the bridge;
- .2 a forecastle space; and
- .3 the ship's office or cargo control room.

5 REQUIREMENTS FOR THE ARRANGEMENTS AND COMPONENTS

5.1 General

The emergency towing arrangements shall be so designed as to facilitate salvage and emergency towing operations on tankers primarily to reduce the risk of pollution. The arrangements shall at all times be capable of rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing vessel. **Figure 7(1) shows** arrangements which may be used as reference.

5.2 Towing components

	Forward of ship*	Aft of ship	Strength requirements
Pick-up gear	optional	Yes	---
Towing pennant	optional	Yes	Yes
Chafing gear	Yes	Depending on design	Yes
Fairlead	Yes	Yes	Yes
Strongpoint	Yes	Yes	Yes
Roller pedestal	Yes	Depending on design	---

5.3 Strength of the towing components

5.3.1 Towing components as **specified in 5.2** for strength shall have a working strength of at least 1,000 kN for tankers of 20,000 tonnes deadweight and over but less than 50,000 tonnes deadweight and at least 2,000 kN for tankers of 50,000 tonnes deadweight and over (working strength is defined as one half ultimate strength). The strength shall be sufficient for all relevant angles of towline, i.e. up to 90° from the ship's centreline to port and starboard and 30° vertical downwards.

5.3.2 Other components shall have a working strength sufficient to withstand the load to which such components may be subjected during the towing operation.

5.4 Length of towing pennant

The towing pennant shall have a length of at least twice the lightest seagoing ballast freeboard at the fairlead plus 50 m.

5.5 Location of strongpoint and fairlead

The bow and stern strongpoint and fairleads shall be located so as to facilitate towing from either side of the bow or stern and minimize the stress on the towing system.

5.6 Strongpoint

The inboard end fastening shall be a stopper or bracket or other fitting of equivalent strength. The strongpoint can be designed integral with the fairlead.

5.7 Fairleads

5.7.1 Size

Fairleads shall have an opening large enough to pass the largest portion of the chafing gear, towing pennant or towing line.

5.7.2 Geometry

The fairlead shall give adequate support for the towing pennant during towing operation which means bending 90° to port and to starboard side and 30° vertical downwards. The vending ratio (towing pennant bearing surface diameter to towing pennant diameter) shall be not less than 7 to 1.

5.7.3 Vertical location

The fairlead shall be located as close as possible to the deck and, in any case, in such a position that the chafing chain is approximately parallel to the deck when it is under strain between the strongpoint and the fairlead.

5.8 Chafing chain

Different solutions on design of chafing gear can be used. If a chafing chain is to be used, it shall have the following characteristics:

5.8.1 Type

The chafing chain shall be stud link chain.

5.8.2 Length

The chafing chain shall be long enough to ensure that the towing pennant remains outside the fairlead during the towing operation. A chain extending from the strongpoint to a point at least 3 m beyond the fairlead shall meet this criterion.

5.8.3 Connecting Limits

One end of the chafing chain shall be suitable for connection to the strongpoint. The other end shall be fitted with a standard pear-shaped open link allowing connection to a standard bow shackle.

5.8.4 Stowage

The chafing chain shall be stowed in such a way that it can be rapidly connected to the strongpoint.

5.8.5 Towing Connection

The towing pennant shall have a hard eye-formed termination allowing connection to a standard bow shackle.

6 DEVELOPING PROCEDURES

6.1 Ship-specific procedures shall be identified during the ship's evaluation and entered accordingly in the ETB. The procedures shall include, as a minimum, the following:

- .1 a quick-reference decision matrix that summarizes options under various emergency scenarios, such as weather conditions (mild, severe), availability

of shipboard power (propulsion, on-deck power), imminent danger of grounding, etc.;

- .2 organization of deck crew (personnel distribution, equipment distribution, including radios, safety equipment, etc.);
- .3 organization of tasks (what needs to be done, how it should be done, what is needed for each task, etc.);
- .4 diagrams for assembling and rigging bridles, tow lines, etc., showing possible emergency towing arrangements for both fore and aft. Rigged lines should be lead such that they avoid sharp corners, edges and other points of stress concentration;
- .5 power shortages and dead ship situations, which must be taken into account, especially for the heaving across of heavy towing lines;
- .6 a communications plan for contacting the salvage/towing ship . This plan shall list all information that the ship's master needs to communicate to the salvage/towing ship. This list shall include but not be limited to:
 - .1 damage or seaworthiness;
 - .2 status of ship steering;
 - .3 propulsion;
 - .4 on deck power systems;
 - .5 on-board towing equipment;
 - .6 existing emergency rapid disconnection system;
 - .7 forward and aft towing point locations;
 - .8 equipment, connection points, strong points and safe working loads (SWL);
 - .9 towing equipment dimensions and capacities; and
 - .10 ship particulars;
- .7 evaluation of existing equipment, tools and arrangements on board the ship for possible use in rigging a towing bridle and securing a towline;
- .8 identification of any minor tools or equipment providing significant improvements to the "tow ability" of the ship;
- .9 inventory and location of equipment on board that can be used during an emergency towing situation;
- .10 other preparations (locking rudder and propeller shaft, ballast and trim, etc.);

and

.11 other relevant information (limiting sea states, towing speeds, etc.).

7 READY AVAILABILITY OF TOWING ARRANGEMENTS

7.1 To facilitate approval of such equipment and to ensure rapid deployment, emergency towing arrangements shall comply with the following criteria:

- .1 The aft emergency towing arrangement shall be pre-rigged and be capable of being deployed in a controlled manner in harbour conditions in not more than 15 min.
- .2 The pick-up gear for the aft towing pennant shall be designed at least for manual operation by one person taking into account the absence of power and the potential for adverse environmental conditions that may prevail during such emergency towing operations. The pick-up gear shall be protected against the weather and other adverse conditions that may prevail.
- .3 The forward emergency towing arrangement shall be capable of being deployed in harbour conditions in not more than 1 hr.
- .4 The forward emergency towing arrangement shall be designed at least with a means of securing a towline to the chafing gear using a suitably positioned pedestal troller to facilitate connection of the towing pennant.
- .5 Forward emergency towing arrangements which comply with the requirements for aft emergency towing arrangements may be accepted.
- .6 All emergency towing arrangements shall be clearly marked to facilitate safe and effective use even in darkness and poor visibility.

7.2 All emergency towing components shall be inspected by ship personnel at regular intervals and maintained in good working order.

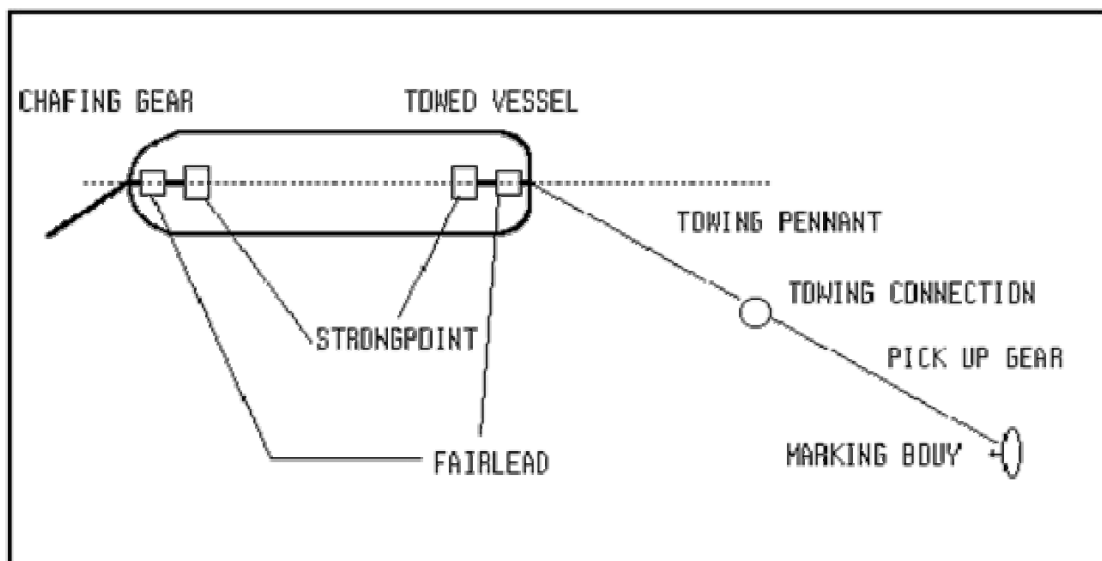


Figure 7(1) – Typical Emergency Towing Arrangements

8 MATERIALS AND COMPONENTS

8.1 Materials and components are to comply with relevant requirements of Recognized Organizations' Rules.

8.2 The chafing chain, chain stopper, fairlead, stopper plate, towing line, shackle, force-bearing post and socket of emergency towing arrangements are to be furnished with Recognized Organizations' marine product certificates or equivalent certification documents.

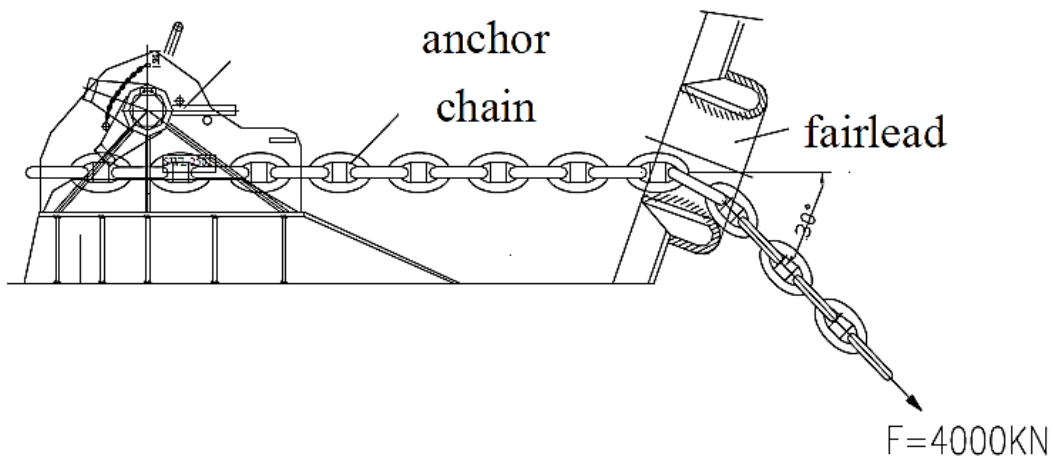
9 TYPE TEST

9.1 Test method (I)

9.1.1 Fore part emergency towing arrangements:

- a) A test load equal to 2 times safe working load, 2000Kn (for ships of 20000-50000 tons deadweight or 4000Kn (for ships of >50000 tons deadweight), is to be applied to the anchor cable along two directions at 90° angle to the left side and left side of the fairlead respectively and at 30° angle vertically downward at the same time, and the test load is to be maintained for 5 minutes.
- b) Various parts are to be examined and free from permanent destructive deformation after the test.

As shown in the diagrams below Figure 9(1):



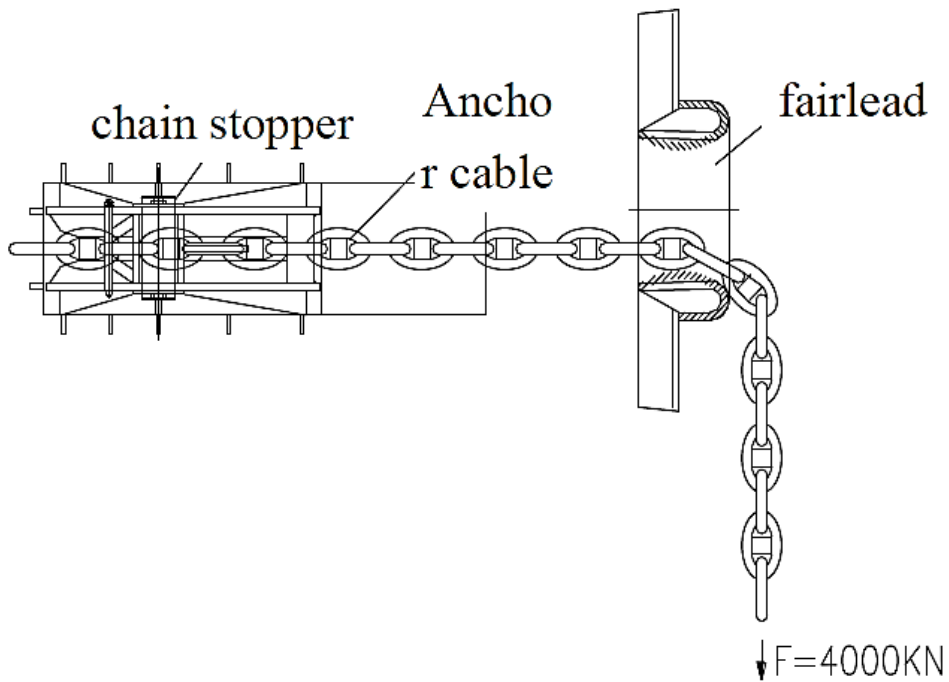


Figure 9(1) Schematic of Fore part emergency towing arrangements

9.1.2 Aft part emergency towing arrangements:

- a) A test load equal to 2 times safe working load, 2000Kn (for ships of 20000-50000 tons deadweight) or 4000Kn (for ships of >50000 tons deadweight), is to be applied to the wire rope along the direction at 90° angle to the left-right direction of the fairlead and along the two directions at 30° angle vertically downward, and the test load is to be maintained 5 five minutes.
- b) Various parts are to be examined and free from permanent destructive deformation after the test.

As shown in the diagrams below Figure 9(2):

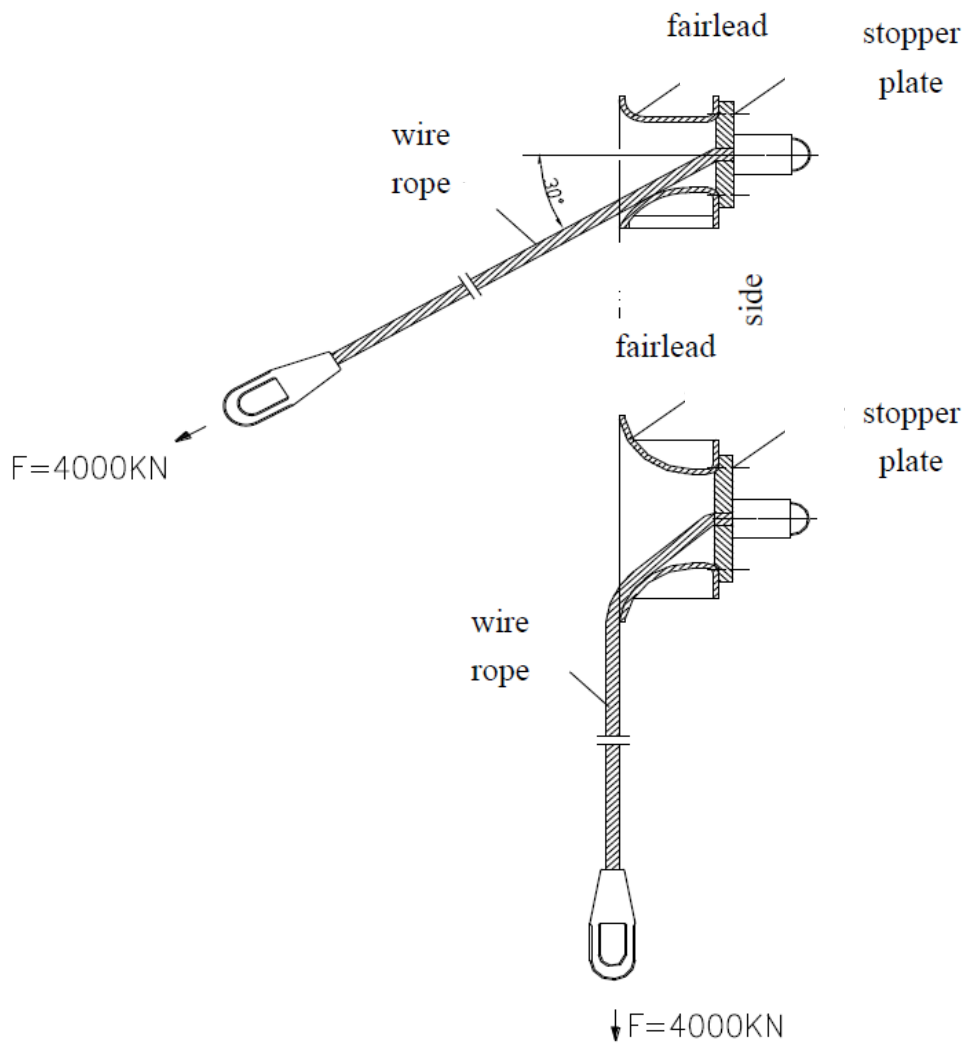


Figure 9(2) Schematic of Aft part emergency towing arrangements

9.2 Test method (II)

9.2.1 Fore part emergency towing arrangements:

a) Test of chain stopper

- (i) The chain stopper is to be fixed onto the test bench. A test load equal to 2 times safe working load (2000Kkn or 4000Kkn) is to be applied to the chain stopper and maintained for 5 minutes.
- (ii) Various parts are to be examined and free from permanent destructive deformation after the test.

As shown in the diagram below Figure 9(3):

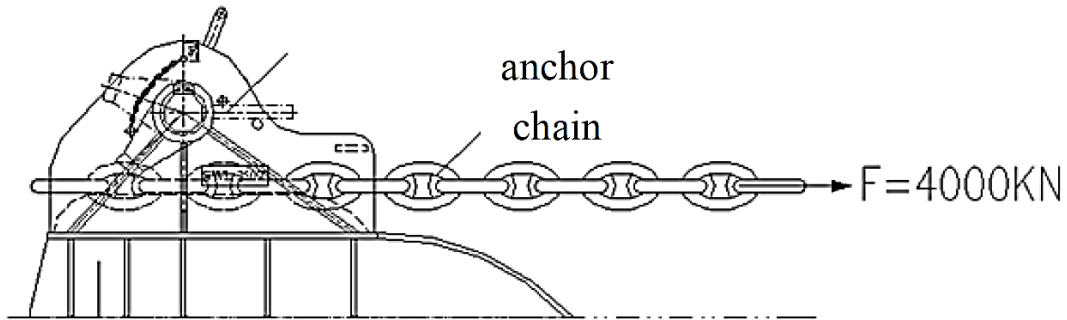


Figure 9(3) Schematic of Chain Stopper Test

b) Test of fairlead and anchor cable

- (i) The anchor cable is to be fed through the fairlead and a test load equal to 2 times safe working load (2000Kn or 4000Kn) is to be applied to the anchor cable along two directions, namely, at 90° angle to the left side of the fairlead and at 30° angle vertically downward at the same time, and at 90° angle to the right side of the fairlead and at 30° angle vertically downward at the same time, and the test load is to be maintained for 5 minutes.
- (ii) Various parts are to be examined and free from permanent destructive deformation after the test.

As shown in the diagram below Figure 9(4):

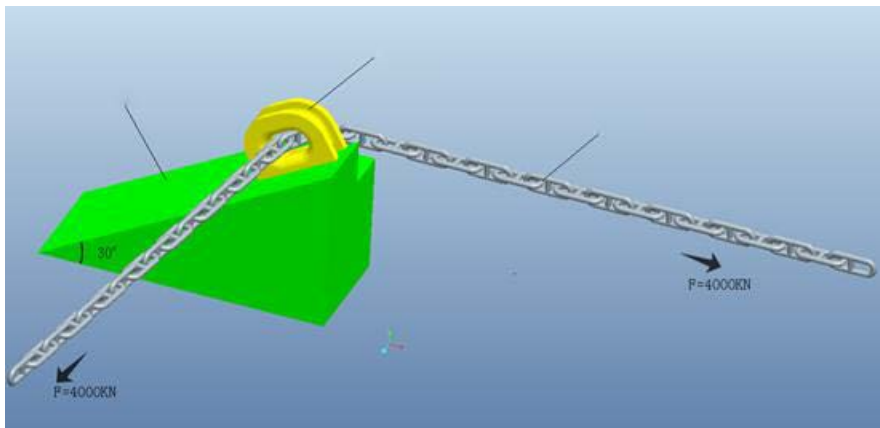


Figure 9(4) Schematic of fairlead and anchor chain test

9.2.2 Aft part emergency towing arrangements:

a) Test of stopper plate and wire rope thimble

- (i) The wire rope is to be fed through the fairlead and the wire rope thimble is to be in close contact with the stopper plate. Then a test load equal to 2 times safe working load (2000Kn or 4000Kn) is to be

applied to the wire rope along two directions, namely, at 90° angle to the left side of the fairlead and at 30° angle vertically downward at the same time, and at 90° angle to the right side of the fairlead and at 30° angle vertically downward at the same time, and the test load is to be maintained for 5 minutes.

- (ii) Various parts are to be examined and free from permanent destructive deformation after the test.

As shown in the diagram below Figure 9(5):

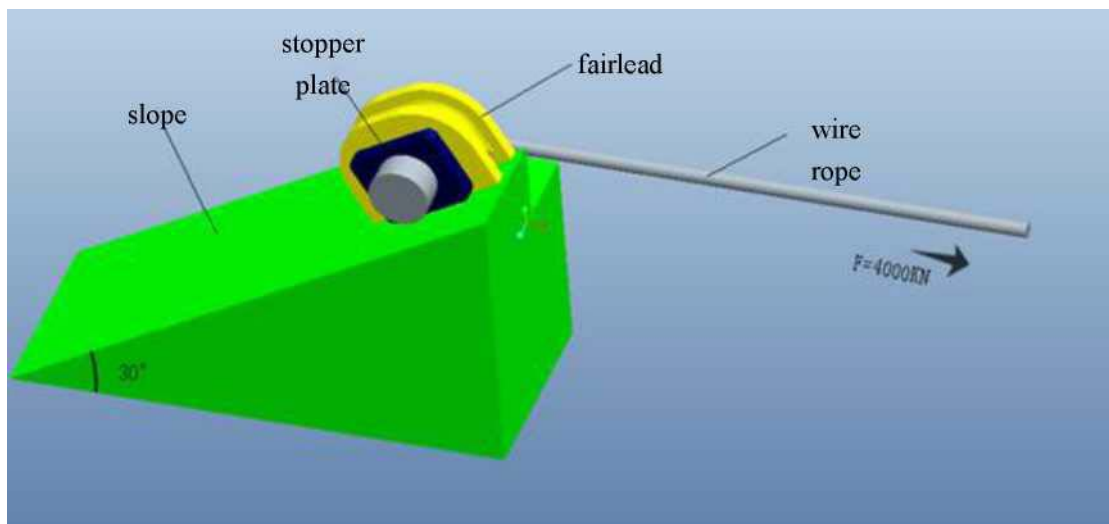


Figure 9(5) Schematic of Stopper Plate and Wire Rope Clip Test

b) Test of wire rope and fairlead

- (i) The wire rope is to be fed through the fairlead and a test load equal to 2 times safe working load (2000Kn or 4000Kn) is to be applied to the wire rope along two directions, namely, at 90° angle to the left side of the fairlead and at 30° angle vertically downward at the same time, and at 90° angle to the right side of the fairlead and at 30° angle vertically downward at the same time, and the test load is to be maintained for 5 minutes.
- (ii) Various parts are to be examined and free from permanent destructive deformation after the test.
- (iii) Where it is not possible to test the entire piece of wire rope at one time, the wire rope may be tested section by section following step 1.

As shown in the diagram below Figure 9(6):

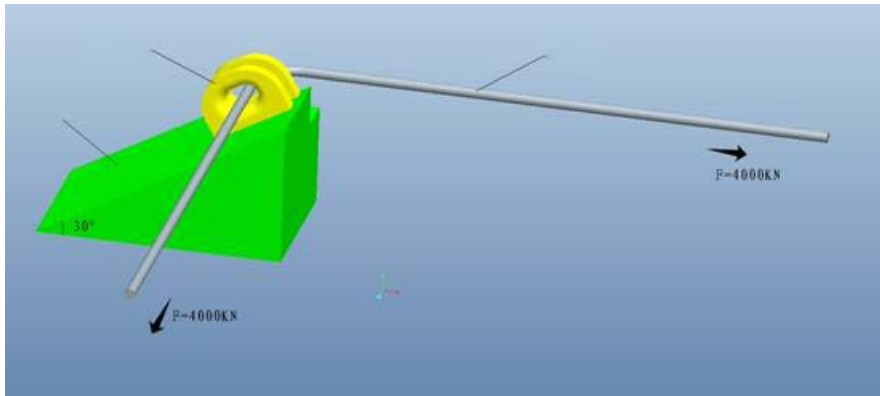


Figure 9(6) Schematic of Wire Rope and Fairlead Test