	<p>HEALTH, SAFETY, ENVIRONMENT AND QUALITY MANAGEMENT SYSTEM</p> <p>72.0 MOORING LINES</p> <p>ON THE JOB TRAINING</p>	<p>OJT : 072</p> <p>Page 1 of 3</p> <p>Date: 07-Nov-25</p> <p>Rev : 10.1</p> <p>Appr: DPA</p>
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VESSEL : _____

DATE : _____

TRAINING : Ship Design Minimum Breaking Load (Ship Design MBL)

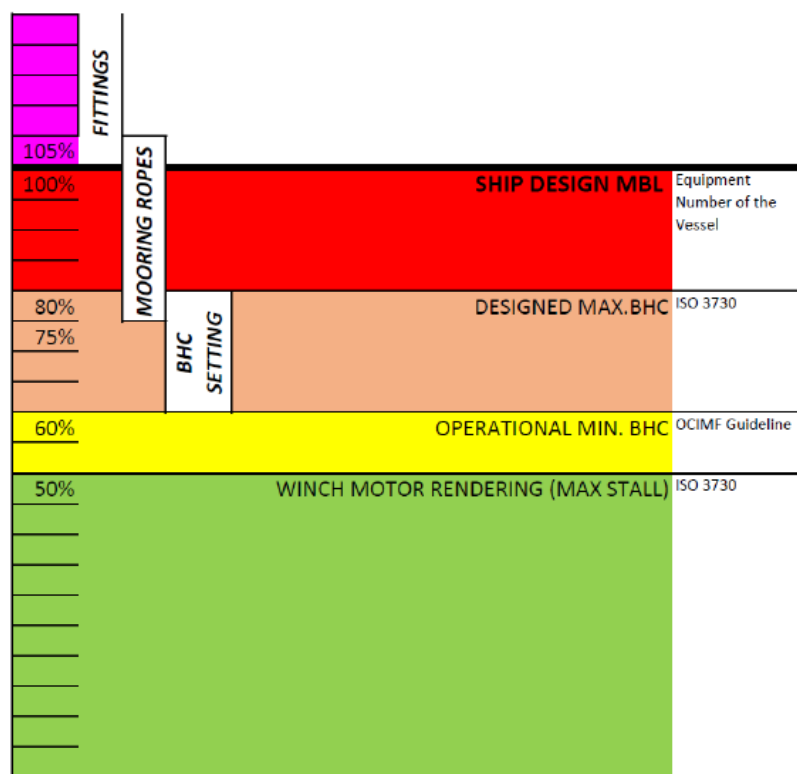
- Each vessel at the design stage is assigned an “EN” (Equipment Number) by Class. The EN sets a ship design MBL which then determines minimum requirements for Brake Holding Capacity, Mooring Rope MBL and the Minimum Number of Mooring Ropes. The mooring winches are equipped with mooring lines of a MBL roughly equal to the ship design MBL.
- The ship design MBL for the assigned EN of your vessel is available in the documents uploaded in the CFM certificate module under Cert. Code number 232. Mooring ropes MBL range for each ship is provided against EN in the mooring details document.

232	Ship Design MBL & mooring details	Mooring
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- Mooring ropes MBL is also called Line Design Break Force (LDBF). The Line Design Break Force (LDBF) of mooring lines fitted on board should be at least 100-105% of the ship design MBL. E.g. if ship design MBL is 481kN, the mooring ropes MBL(LDBF) should be within 481kN to 505kN.

S.N.	VESSEL NAME	IMO Number	Equipment Number (EN)	Ship design MBL (kN)	Mooring lines Breaking load (MBL) (kN) Min/Max
1	IVS ORCHARD	9528029	2380	481	481 - 505

- Ship’s mooring fittings mooring winches, brake holding capacity, fairleads, bollards, and pedestal rollers are designed based on the ship design MBL. As a rule, MBL of the mooring ropes (LDBF) should not exceed the SWL of the mooring fittings.
- All fairleads, chocks and bollards should have the SWL marked.
- When placing the order for new ropes it is important that mooring ropes MBL range is provided in the requisition along with the other specifications. Indicate the material of the ropes on board.
- The table below demonstrates the relationship between ship design MBL and Mooring Lines and Fittings and Operational Values as per OCIMF.



Mooring Ropes Material

1. If two parallel lines of different stiffness are used, the stiffer line will always take a greater portion of the load. This is because both lines must stretch an equal amount to ensure an even weight distribution of forces in each line and if not achieved, the stiffer line assumes a greater portion of the load. The stiffness of the mooring line primarily depends on the following factors: Material type, construction and length.
2. Hence to minimise the occurrence of line failures and risks of injury or loss of life from a resulting snapback, lines of the same lead should be made of the same material/rope type.
As an example, if a vessel runs four headlines, all four lines must be constructed with the same material/rope type.
3. Mooring lines of the same size and material should be used for all leads. If this is not possible, all lines in the same service, i.e., breast lines, spring lines, etc. should be the same size and type.

Chafe Protection

1. Mooring lines are susceptible to mechanical damage from exposure to contact surfaces while under tension. The fairleads, pedestal rollers and bollards should be kept clean, smooth and rust free by regular inspection and maintenance. Pedestal rollers and roller fairleads should be kept free to rotate.

2. The mooring lines especially spring lines may meet the sharp edge of the fish plate after led from the fairlead which may damage and cut the rope, chafe protection may reduce the damage.
3. At exposed berths which are open to sea and swell, chafe protection can help to reduce the effect of abrasion.
4. In hot climates, the temperature of fairleads, pedestal rollers and winches may exceed 70 deg C. The high temperature will conduct heat to lines in contact with them and can affect the performance of mooring lines. Chafe protection mitigates most of the risk associated with this type of local temperature increase.
5. Chafe protection can be prepared on board using canvass and discarded fire hoses.

Examples of chafe protection



Above has been read and understood.

CO: _____

2O: _____

3O: _____

X2O/X3O _____

D/C _____

Verified by: Master _____

Feedback: