Winch & deck side equipment's

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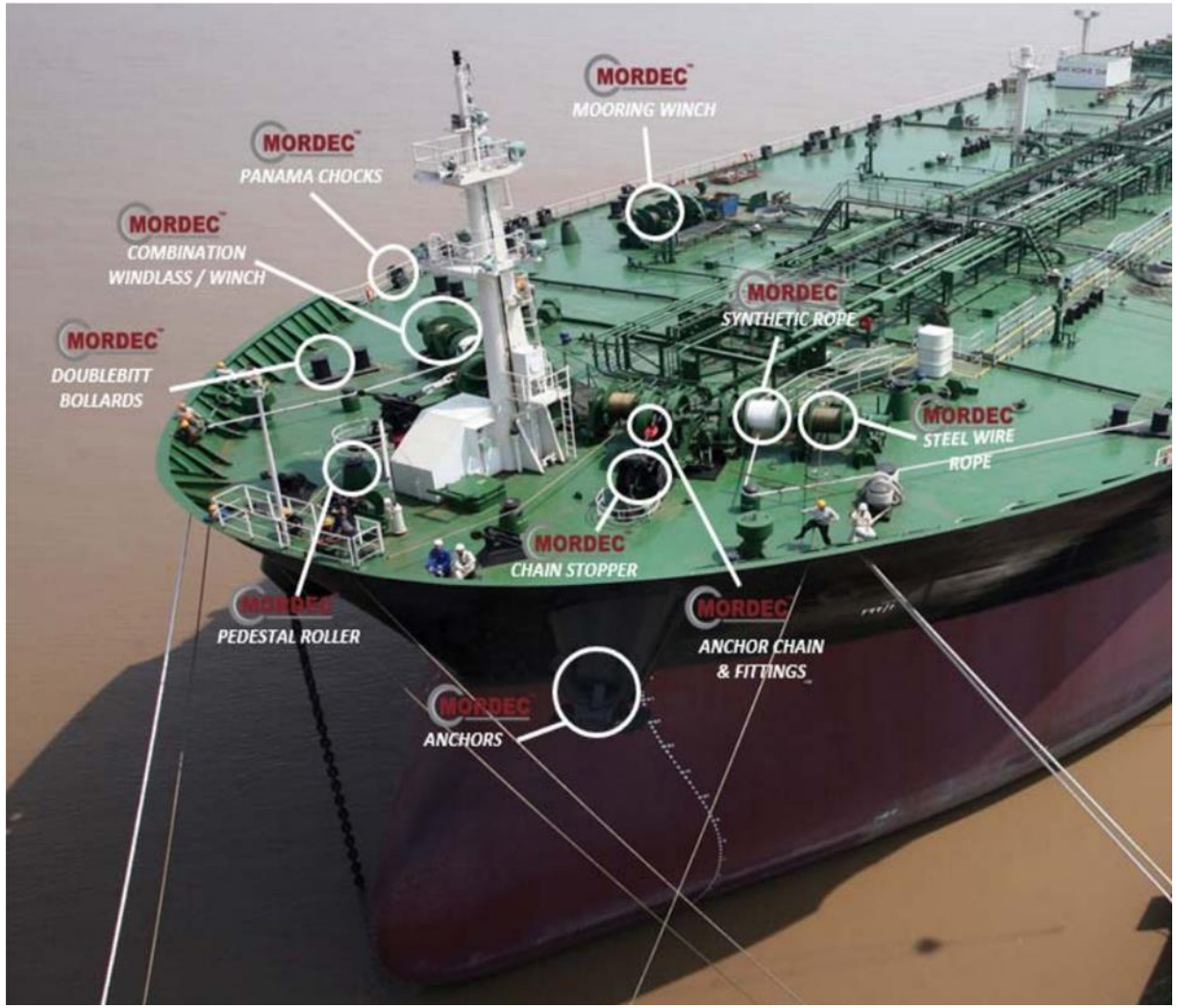
Introduction

- The various items of machinery and equipment found outside of the machinery space of modern cargo ship.
- These include deck machinery such as mooring equipment, anchor handling equipment, cargo handling equipment and hatch covers. Other items include lifeboats and life rafts, emergency equipment, watertight doors, stabilizers and bow thrusters.



Introduction

- The operations of mooring winch, cargo handling and anchor handling all involve controlled pulls or lifts using chain cables, wire or hemp ropes.
- The drive force and control arrangements adopted will influence the operations. Several methods are currently in use, and these will be examined before considering the associated equipment.

Deck Machinery

1. Deck Mooring Winch

- Mooring winch is a mechanical device used for securing a ship to the landing place.
- An equipment with various barrels used for pulling ropes or cables, mooring winches play an important role in berthing the ship ashore.
- The barrels, also known as winch drums, are used for hauling in or letting out the wires or ropes, which will help in fastening the ship to the berth.

Deck Machinery

1. Deck Mooring Winch

- Mooring winches assembly comes in various arrangements with different number of barrels, depending on the requirement of the ship.
- The main parts of mooring winch includes a winch barrel or a drum, a warp end and a driving motor. Modern mooring winches comprises of elaborate designs with various gear assemblies, which can be electric, pneumatic or hydraulic driven.

Deck Machinery

2. Windlass Winch

- A windlass is a machine used on ships that is used to let-out and heave-up equipment such as a ship's anchor or a fishing trawl.
- On some ships, it may be located in a specific room called the windlass room.
- An anchor windlass is a machine that restrains and manipulates the anchor chain on a boat, allowing the anchor to be raised and lowered by means of chain cable.
- A notched wheel engages the links of the chain or the rope.

WINDLASS

LOAD / SPEED: 149KN x 9m/min

CHAIN / ROPE / CAPACITY: 56mm (U3)/

Deck Machinery

2. Windlass Winch

- A trawl windlass is a similar machine that restrains or manipulates the trawl on a commercial fishing vessel.
- The trawl is a sort of big fishing net that is wound on the windlass.
- The fishermen either let-out the trawl or heave-up the trawl during fishing operations.
- A brake is provided for additional control.
- The windlass is usually powered by an electric or hydraulic motor operating via a gear train.

Deck Machinery

2. Windlass Winch

- Technically speaking, the term “windlass” refers only to horizontal winches.
- Vertical designs are correctly called capstans. Horizontal windlasses make use of an integral gearbox and motor assembly, all typically located above-deck, with a horizontal shaft through the unit and wheels for chain and/or rope on either side.
- Vertical capstans use a vertical shaft, with the motor and gearbox situated below the winch unit (usually below decks).

Handling Deck machineries: safety precautions

- The operation of mooring a vessel has traditionally required the attendance of a large number of deck crew front and behind.
- Supervision of the moorings was also necessary to maintain correct tension through changes due to the tides and the loading or unloading of cargo.
- The installation of constant tension mooring winches, which maintain tension in ropes through any rise and fall, has removed the need for constant attendance and equipment is available for tying up which is designed for operation by as few as two men.

Handling Deck machineries: safety precautions

- Large container ships may have four mooring winches on the after deck; each of the seif-tensioning type with its own rope drum. Controls are duplicated and are situated at each side of the vessel, giving a clear view of the operation.
- Mooring ropes are paid out directly from the drums as they are hauled by the heaving lines from the quay. With the loop in place on the bollard, the capstan is set on auto-tension after slack is taken up and the ship is correctly moored.
- A common arrangement forward is for two similar winches plus rope drums for auto-tensioning on each windlass.

Handling Deck machineries: safety precautions

- The introduction of steel hatch covers not only speeded up the operation of opening and closing the covers but also reduced the number of personnel required for the task. Rolling and folding covers may be operated by a pull wire or hydraulically.
- Covers for large container ships may be lifted bodily by crane and there are now hatch coverless container ships in service.
- Cargo handling may be by winches and derricks or cranes. Some geared bulk carriers have overhead cranes arranged to travel on rails.

Handling Deck machineries: safety precautions

- Most deck machinery is idle during much of its life while the ship is at sea.
- In port, cargo equipment will be in use for one or more days but the machinery for anchoring and mooring is used for a very limited time.
- Deck machinery with a restricted and intermittent duty may be designed with drives with a rating limited from 30 minutes to one hour.
- Despite long periods of idleness, often in severe weather conditions, machinery must operate immediately, when required.
- Cooling vents, open when machinery is working, must be closed for the sea passage.

Handling Deck machineries: safety precautions

- It is essential that deck machinery should require minimum maintenance. Totally enclosed equipment with oil bath lubrication for gears and bearings is now standard but maintenance cannot be completely eliminated and routine checking and greasing should be carried out on a planned basis.
- There are many instances where remote or centralized control is of great advantage, for example, the facility for letting go anchors from the bridge under emergency conditions; the use of shipside controllers with mooring winches; or the central control positions required for the multi-winch slewing derrick system.

Thank You