



STEERING GEAR

Purpose:

The e-learning module is designed for theoretical training of ratings as able seafarer deck in accordance with Chapter II of the STCW Convention in the part concerning the use of steering gear.

The ELM is included in the "*Able seaman*" library.

What is an e-learning module?

E-learning module is the electronic textbook on one or more sections. Theoretical materials can be accompanied by drawings, diagrams, photos, animations and videos. There is a test for assessment of knowledge gained at the end of each section.

Contents:

- Purpose. Steering gear components
- Active rudders, steering nozzles, thrusters
- Operation of the steering gear. Handling the steering gear

Target groups

Deck - Support

Ship types

Generic



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Regulations

Table A-II/4 STCW Code

Competence:


Steer the ship and comply with helm orders in the English language



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Section 1. Purpose. Steering gear components

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Steering gear is intended to change the direction of the ship or keep her on the given course.

In the latter case, the task of the steering gear is to resist external forces, such as wind or current, which can cause the ship to deviate.



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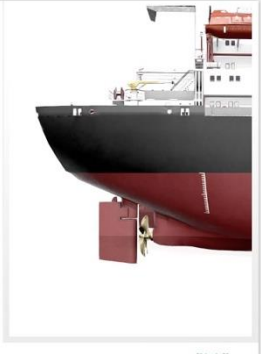
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Section 1. Purpose. Steering gear components

The rudder blade, when turned to any side, perceives pressure of the water flow at a certain speed of the ship and changes her course.

On displacement ships with a single-shaft propulsion system, the rudder is mounted directly behind the propeller.

At this, the following main shapes and types of rudders are currently used.



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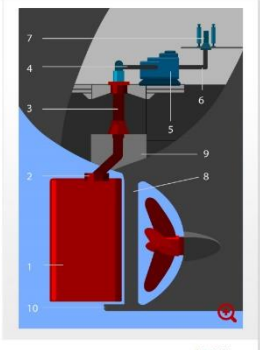
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Section 1. Purpose. Steering gear components

The main components of any steering gear are:

- rudder blade (rudder);
- rudder stock connecting the rudder blade with the steering gear;
- tiller that transmits force from the steering pump to the operating element;
- steering pump that creates force to turn the rudder blade;
- control drive connecting the steering pump with the steering column.



1 – rudder blade; 2 – flange coupling; 3 – rudder stock; 4 – tiller; 5 – steering pump; 6 – steering drive; 7 – steering wheel; 8 – rudderpost; 9 – rudder trunk; 10 – keel heel shoes.

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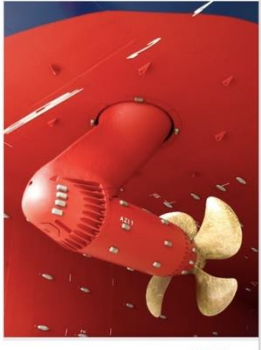
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Section 2. Active rudders, steering nozzles, thrusters

Azipod advantages:

- ✓ fuel consumption is reduced by 10–20 %;
- ✓ vibration of the ship's hull is reduced;
- ✓ due to the fact that the diameter of the propeller is smaller, the effect of cavitation is reduced;
- ✓ there is no propeller resonance effect.



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Section 3. Operation of the steering gear. Handling the steering gear

The steering gear room must always be locked. The keys to it are stored in the chart room and in the engine room in specially designated permanent places, the emergency key is at the entrance to the steering gear room in a locked cabinet with a glass door.

Two independently operating communication lines shall be installed between the navigation bridge and the steering gear room.

Upon arrival to the port and at the end of mooring, the rudder is put midships, the power to the steering pump is turned off, the steering gear is inspected and, if everything is found in due order, the steering gear room is closed with combination lock.

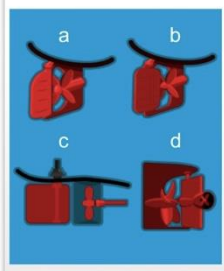


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Test case



Question text:
Specify the type of the rudder shown in the figure under the letter a)?

Choose the correct answer

- Fixed nozzle rudder.
- Active rudder.
- Unbalanced rudder.
- Balanced rudder.

Attempt: 1

COMMENT

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