Background to the regulation and its legal basis

The new regulation entitled 'Hull and equipment of ships' will replace the Regulation on the Hull Structures of Ships issued by the Finnish Transport Safety Agency on 27 February 2014 (TRAFI/9321/03.04.01.00/2013). The legal basis continues to be the Act on the Technical Safety and Safe Operation of Ships (1686/2009) (hereinafter also 'the Act'), but the new regulation includes structural and substantive updates to bring it into line with current legislation and the requirements of official activities.

Pursuant to section 23, subsection 1, section 48, subsection 3, section 49, subsection 3, section 50, subsection 3, section 51, subsection 3, section 51a, subsection 4 and section 77, subsection 2 of the Act, the Finnish Transport and Communications Agency is authorised to issue further technical provisions

- to ensure compliance with the general safety requirements and an adequate level of ship safety, including regarding the structure and equipment of ships;
- concerning surveys of fishing vessels that do not fall within the scope of the Fishing Vessel Directive;
- concerning the making of markings on ships, the position and manner of markings, and the size of markings; and
- regarding the timing and content of the initial, renewal, annual, intermediate and periodical surveys
    - for passenger ships engaged on domestic voyages other than ships covered by the Non-SOLAS Directive;
    - for cargo ships and barges engaged on domestic voyages and cargo ships not covered by the SOLAS Convention engaged on international voyages;
    - for special purpose ships, traditional ships and workboats; and
    - for ships carrying industrial personnel.

Objective of the regulation

The aim of the regulation is to update the technical regulation on the hull and equipment of ships, aligning it with current legislation, current survey practices and other technical regulations. The regulation will replace the 2014 Regulation on the Hull Structures of Ships and clarify the regulatory framework by rearranging the requirements more consistently.

The guidelines for hull and equipment inspections, which will be issued in conjunction with the regulation, will also support its practical application and promote the consistent implementation of survey operations.

Drafting of the regulation

The regulation has been prepared by the officials of the Finnish Transport and Communications Agency.

Feedback

Feedback will be supplemented after the consultation procedure.

Amendments and assessment of the effects of the regulation

The revised regulation includes both structural and substantive updates that aim to clarify the structure of the requirements and align them with current legislation, official practices and other technical regulations. The structure of the regulation has been revised so that the requirements are clearly structured in sections regarding the initial survey, alterations, maintenance, ship markings, ship documents and winter navigation. This will facilitate the use of the regulation and improve the ability of both surveyors and operators to apply the requirements consistently.

The most significant substantive changes include the revision of the definition of a ship subject to an initial survey by abandoning the concept of a new vessel determined

based on the year of construction, the clarification of the requirements concerning alterations, and the clarification of the obligations regarding the monitoring of the condition of the hull. Material- and hull-specific maintenance requirements have also been added to the regulation; these are in line with current survey practices and complement the general safety requirements laid down in the Act on the Technical Safety and Safe Operation of Ships. For winter navigation, the requirements have been aligned with the regulations on ice classes and the dimensioning levels regarding winter navigation specified in the regulation on the technical requirements for workboats ('the Workboat Regulation'), and the previous special requirements based on length and power figures have been abandoned.

The changes are not expected to have a significant financial impact on operators, as the requirements are largely in line with established practices, and the new regulation will also reduce the administrative burden in some respects, including through the plan-based procedures for inspecting propeller shafts. On the whole, the effects of the changes are expected to improve the clarity and predictability of regulation and to harmonise the technical inspection activities concerning ships.

In connection with the adoption of the regulation, guidelines for hull and equipment inspections on ships will be issued, which will support the application of the regulation in practice and reduce the need for case-by-case interpretation.

Detailed rationale

1. General

1.1 Scope

The content of section *1.1 Application* of the current Regulation would be replaced by clearer provisions concerning the scope of application. The scope would largely correspond to that of the current Regulation, but clarifications would be made, particularly with regard to individual sections.

The regulation would apply to ships falling within the scope of other vessels referred to in section 23 of the Act on the Technical Safety and Safe Operation of Ships (1686/2009). In addition, individual sections of the regulation would be applied as follows:

- section 6.1 would apply to all vessels falling within the scope of section 77 of the Act; and
- section 8 would apply to all vessels falling within the scope of section 52 of the Act.

These clarifications would ensure that the scope of application is in line with the scope of the Act and the internal structure of the regulation.

1.2 Definitions

The definitions would be refined to reflect the terminology used in the regulation. The aim is to ensure that the terms used in the regulation are consistent and in line with the Act on the Technical Safety and Safe Operation of Ships.

2. General requirements

The new regulation would include general requirements aimed at specifying the content of the general safety requirements laid down in section 5 of the Act on the Technical Safety and Safe Operation of Ships in terms of the hull and equipment. The general requirements provide the basis for the detailed technical requirements set out in the regulation.

The section would also stipulate that, for classified ships, the rules of a recognised classification society would be applied in place of the requirements set out in sections 3 to 5 of the Finnish Transport and Communications Agency's regulation.

3. Requirements for ships subject to an initial survey

This section would set out the requirements for ships subject to an initial survey. Such ships would refer to ships which, pursuant to sections 48 to 50 of the Act on the Technical Safety and Safe Operation of Ships, are subject to an initial survey before being put into service as Finnish ships. Such a ship may be a new vessel built in Finland or abroad, a vessel previously built but undergoing an initial survey for commercial shipping, or a vessel imported to Finland from abroad. The scope of the section would differ from that of the existing Regulation, in which the definition of a new ship is based on the year of construction. This definition would be abandoned, as any alterations made to previously registered ships would be subject to the requirements set out in section 4 of the new regulation.

Section 3 would provide for several options for demonstrating the compliance of ships subject to an initial survey. One option would be to apply the classification rules issued by a recognised classification society. These rules would refer to up-to-date requirements drawn up by classification societies for the design, dimensioning and quality control of ships according to the intended use and trading areas of ships. However, compliance with the rules would not mean that ships should be built under the supervision of a classification society, or that ships should be classified. Furthermore, compliance with the rules would not mean that the materials, components or methods used in the manufacture of ships should be specifically approved by a classification society. Ships would be approved based on the rules of only one classification society. The responsibility for demonstrating compliance with the technical requirements corresponding to the classification society’s rules would lie with the operator applying for the initial survey.

As an alternative to complying with a classification society’s rules, ships of less than 24 metres in length would have the opportunity to demonstrate compliance with the requirements of the Workboat Regulation.

Ships imported into Finland from the European Union or the European Economic Area would be approved in terms of their structures and equipment once the competent authority had approved their hull and equipment for commercial use corresponding to, or exceeding the requirements of, the ship’s intended use and trading area in the country of import. This would correspond to the content of the final paragraph of section 4 of the current Regulation.

The options for demonstrating the conformity of the hull and equipment of a ship subject to an initial survey would be described in more detail in Annex 1.

The structure of a ship built in accordance with rules other than those approved in the Regulation could, if necessary, be approved under an exemption granted in accordance with section 23 of the Act.

The requirements of this section would replace the various technical requirements for ships set out in sections 2.1 to 2.6, 3.1 to 3.3 and 4 of the current Regulation.

4. Changes to ships

The requirements concerning changes to ships would mainly correspond to the provisions of section 3.5 of the current Regulation. Alterations would mean changes to the components and equipment falling within the scope of this regulation.

Under section 56 of the Act on the Technical Safety and Safe Operation of Ships, the consent of the Finnish Transport and Communications Agency should be sought for any alterations. This consent would refer to written approval granted based on plans drawn up for alterations. The Finnish Transport and Communications Agency would specify the type of plans for alterations to be submitted on a case-by-case basis.

Significant repairs, alterations or modifications would refer at least to changes to a ship's deckhouse, main dimensions or intended use, as well as to other alterations of a comparable extent in terms of the ship's hull and equipment.

5. Maintenance of ships
5.1 General requirements

This section would lay down more specific requirements for the maintenance of ships. Compliance with the more specific requirements set out in the section would not exempt operators from fulfilling general maintenance obligations. The purpose is to emphasise that, while the section lays down more detailed requirements for the maintenance of the hull and equipment, these do not cover all the obligations related to the maintenance of ships. All parts of the hull and equipment of ships should still be maintained in a manner equivalent to the general safety requirements under section 5 of the Act on the Technical Safety and Safe Operation of Ships.

Repairs to ships should be at least in accordance with the performance of the original structure or equipment. For example, for components, this would mean that the strength of replacement components should be at least equivalent to that of the original components. Good shipbuilding practice should be followed when repairing ships' structures and equipment.

5.2 Hull
5.2.1 Steel and aluminium hulls
5.2.1.1 Corrosion

The corrosion and wear allowances for the hull would be regulated similarly to section 5.1 of the current Regulation. For reasons of clarity and readability, the alternative corrosion limits that would apply when individual limit values defined for a ship at the design stage are not available would be moved to Annex 2.

The reduction values based on bending resistance would be abandoned. Their control has proven challenging in practice, and the limit values for scantling reduction can be expected to reflect the reduction in bending resistance with sufficient accuracy. In addition, the limit value for the decrease in bending resistance in the hull beam is mostly relevant in longer vessels, which typically do not fall within the scope of this regulation.

A requirement to measure the thickness of the hull plates would be added to the regulation, and this should be done in connection with the renewal survey carried out at the end of each five-year period for ships that are at least 15 years old. The measurement would not be required at the end of two five-year periods following the construction of a ship. The regulation would be in line with the current survey practice, and the inclusion of the measurement obligation would clarify when the measurement is required and allow for measurements to be carried out by operators other than surveyors. In such cases, a report of the measurement results must be submitted during a survey, which is in line with the current procedure.

The regulation would also include a new requirement according to which fixed ballast must be arranged on ships in such a way that the condition of the hull can be monitored. If the condition of the hull cannot be assessed with sufficient accuracy with the fixed ballast in place, the ballast must be removed for the renewal survey carried out at the end of a five-year period. Suitable arrangements for monitoring the condition of the hull with fixed ballast installed are described in more detail in the hull inspection guidelines.

5.2.1.2 Deformations

A requirement stipulating that no significant permanent deformations are permitted in structures would be added to the regulation. This requirement would be in line with current survey practices and is intended to clarify the maximum permissible level of deformation.

In the case of the shell plating, the distance between the girders divided by 12 could be considered to be the limit for permissible deformation. For example, if the distance between the girders was 600 millimetres, the maximum permissible deformation would be approximately 50 millimetres. This would mean the movement of the panelling in the normal direction. The limit would be applied at the surveyor's discretion, particularly in areas in which there is a risk of structural instability. Such structures include, in particular, the deck and bottom structures of longer vessels, which are subjected to high loads from the ship's beams. In areas subject to local loads, such as the bow and stern of a ship, greater deformations than this might also be accepted at the surveyor's discretion.

The same criterion could also be applied, at the surveyor's discretion, to other hull plates, although larger deformations could also be considered acceptable in them. On the other hand, the regulation would not stipulate specific limit values for significant deformations in the stiffeners in hull structures, as they are highly case-specific and require the surveyor's professional judgement. Deformations in beams, web frames and girders would be viewed more critically than displacements in hull plates.

The assessment and approval of deformations would be set out in more detail in the hull inspection guidelines.

5.2.1.3 Fractures

A requirement stipulating that no fractures are permitted in structures would be added to the regulation. This would be in line with current survey practices, whereby all detected fractures must be repaired. No acceptance limit would be set for fractures, meaning that any detected fracture would have to be repaired. The purpose of the addition is to clarify the requirements applied in survey operations and to harmonise the assessment practice applied.

5.2.1.4 Repairs

The regulation would specify the requirements for carrying out structural repairs. Repairs should comply with good shipbuilding practice and the requirements of Part B of Recommendation 47 of the International Association of Classification Societies (IACS). However, the requirement would not mean that the materials, welders or methods used for repairs should be specifically approved or classified by a classification society; rather, the technical level of repairs should correspond to the level required by the IACS Recommendation.

5.2.2 Wooden hulls

Requirements concerning wooden-hull ships would be added to the regulation. The aim is to clarify the specific requirements for the maintenance and repair of wooden-hull vessels and to harmonise survey practices.

To ensure that appropriate methods and good building practices are applied to wooden hulls, the structural and repair techniques outlined in the Viaporin Telakka association's handbook for repairing wooden ships (Puulaivan korjaajan käsikirja, ISBN 978-952-93-8596-6) may be cited as an example. However, such a reference would not make the contents of the manual binding; rather, it would indicate a standard of good practice that could be used as a benchmark during surveys.

5.2.3 Composite hulls

Approval criteria for the structures of composite-hull ships would be added to the regulation. 'Composite' means any material structure consisting of a matrix reinforced by a fibre structure, including glass fibre or carbon fibre reinforced plastics. Ferrocement structures with a fibre content of steel and a matrix of cement or concrete may also be regarded as composite materials.

Delamination and fibre fractures are typical examples of severe damage to composite materials, and they can lead to a sudden loss of load-bearing capacity without any detectable warning signs. Similarly, severe matrix fractures may progress under load and impair structural properties or cause wider damage. On the other hand, minor fractures in the matrix – which may arise as a result of material fatigue, for example – and damage confined to the surface layer would generally be acceptable.

5.3 Rudder

The regulation would include a new requirement that the rudder bearing clearances must be measured and documented when measuring the clearance of the propeller shaft. This requirement would be in line with current survey practices and would ensure that the operational condition of the rudder and propeller shaft is assessed at the same time. The documentation of these measurements would improve the reliability of surveys and facilitate the monitoring of the maintenance history of ships.

5.4 Propeller shaft

A requirement to measure and document the bearing clearance of the propeller shaft would be added to the regulation. The clearance should be measured every five years, preferably in conjunction with the renewal survey carried out at the end of each five-year period. The requirement would clarify current inspection practices and ensure that the condition of the propeller shaft is regularly monitored throughout the life cycle of the ship. To improve legibility, the permitted bearing clearances on the propeller shaft would be moved to Annex 3.

The requirements for pulling out the propeller shaft for inspection would be clarified. The propeller shaft of a ship with a propulsion power of more than 375 kW must be pulled out of the ship for inspection in connection with the renewal survey carried out at the end of each five-year period. As an exception to this, propeller shafts with an oil-lubricated bearing on ships up to 30 years old could be pulled out at the end of every other five-year period. This would be broadly in line with current survey practices.

The conditions for ceasing to regularly pull out the propeller shaft would be clarified. This requirement could be waived if the ship had a plan in place for monitoring the condition of the propeller shaft approved by the Finnish Transport and Communications Agency, and no signs of damage were observed on the propeller shaft. The requirement for a ship-specific plan would enable condition monitoring to be carried out in a manner that takes the specific characteristics of the ship's structure and operation into account. Once the plan had been approved, it would no longer be necessary to apply separately for the abandonment of pulling out the propeller shaft, which would reduce the administrative burden compared to the current practice.

5.5 Anchor and anchor chain

A requirement to replace a lost anchor immediately upon discovery of the loss would be added to the regulation. However, the section would allow a ship requiring two anchors to temporarily operate with one anchor pending the replacement of the lost anchor. This would mean that the procurement of a replacement anchor must begin immediately following the loss of an anchor, and that operation with a single anchor would be permitted only for the time strictly necessary to deliver and install the new anchor on the ship. The exemption would avoid unnecessary interruptions in the operation of ships without compromising safety.

In addition, the existing technical dimensioning system based on the equipment number (VN) and requirements defined in Annex 4 would be maintained.

5.6 Documentation of repairs

A requirement to document repairs carried out to maintain the hull and equipment would be added to the Regulation. This requirement would be broadly in line with the current practice whereby repairs are documented for surveys. The inclusion of the documentation requirement in the regulation would clarify the procedure and ensure that repairs carried out on board can be verified in surveys.

6. Hull markings

6.1 Name, home port and draught of the ship

The requirements set out in section 77 of the Act on the Technical Safety and Safe Operation of Ships regarding the position, size and manner of marking a ship's name, home port and draught would be added to the regulation. Under the Act, the requirements would apply to all vessels entered in the Register of Ships or the Åland Register of Ships.

As a rule, draught marks should be located close to the bow and stern on both sides of the ship. If it was difficult to read the markings on the bow and stern due to the ship's list, for example, it would be acceptable to move the markings further away from the bow or stern, closer to the midship. However, the ship's bow and stern draughts should be able to be determined based on the draught marks.

The ship's name and home port should be indicated in a visible place on the side or at the stern of the ship, one below the other. Markings may be made in several places, as long as the minimum requirement is met. The name and home port must therefore be marked one below the other, at least near the bow or stern on both sides, or alternatively on the stern of the ship.

6.2 Markings on the bottom

The markings on the bottom of a ship would be specified in accordance with the current Regulation.

7. Documents kept on board

The documents to be kept on board ships would be specified in accordance with the current Regulation.

8. Winter navigation

The regulation would include requirements for winter navigation, which would replace section 9 regarding the approval of ships for winter navigation of the current Regulation (TRAFI/9321/03.04.01.00/2013). The requirements would be updated in terms of structure and content so that they are more generally applicable to different ships. The requirements would also be aligned with the existing technical requirements concerning ships intended for navigation on ice.

The approval for winter navigation would be based on a strength requirement for the ship's structures and underwater equipment, which would be defined in accordance with the prevailing ice conditions, in other words the maximum level ice thickness, similarly to the current Regulation. The structures and equipment (hull, propulsion system, rudder and steering gear) should be sufficiently strong to withstand the loads caused by the prevailing ice thickness. This would in line with the objective of the current Regulation, but the presentation would be clarified and simplified.

The length-related propulsion power and shell thickness requirements specified in the current Regulation would be abandoned. Under the new regulation, the dimensioning would be based on the requirements set out in the Workboat Regulation and the regulation on ice classes, which specify the ship's geometry and structural characteristics in more detail.

The updates to the requirements would not affect ships already approved for winter navigation. Ships previously approved for winter navigation may be re-approved based on a survey carried out at the end of each five-year period.

Annexes

Some technical and explanatory definitions would be moved to the annexes to the regulation to improve readability.

Annex 1 would set out the methods for demonstrating compliance of ships subject to an initial survey.

Annex 2 would specify the corrosion and wear allowances in ships when the original limit values are not known.

The permitted bearing clearances for propeller shafts would be specified in Annex 3.

Annex 4 would set out the more detailed requirements for anchors and anchor chains.

Entry into force

The regulation will enter into force on xx xx 2025 and remain in force until further notice.

The regulation has been published in the Finnish Transport and Communications Agency's collection of regulations on Finlex, the online Statute Book of Finland, and is available from the Finnish Transport and Communications Agency.

Monitoring

The Finnish Transport and Communications Agency will monitor the application of the regulation and its effects on the public authorities, ship managers and survey practices. Any need to update the regulation will be assessed in the context of other regulatory developments, technological developments and changes in international standards.