United Nations ECE/TRANS/SC.3/WP.3/2019/5

Economic and Social Council

Distr.: General
30 November 2018

Original: English

Economic Commission for Europe

Inland Transport Committee

Working Party on Inland Water Transport

Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation

Fifty-fourth session
Geneva, 13–15 February 2019
Item 7 (c) of the provisional agenda
Recommendations on Harmonized Europe-Wide Technical Requirements for Inland Navigation Vessels (Resolution No. 61, revision 2)

Aligning of the annex to resolution No. 61, revised, with the Instructions for the application of provisions for shipbuilding, fitting out and equipment of the European Standard laying down Technical Requirements for Inland Navigation Vessels Edition 2017

Note by the secretariat

Mandate

1. This document is submitted in line with cluster 5: Inland Waterway Transport, paragraph 5.1 of the programme of work 2018–2019 (ECE/TRANS/2018/21/Add.1) adopted by the Inland Transport Committee at its eightieth session (20–23 February 2018) (ECE/TRANS/274, para. 123).

2. It is recalled that the Working Party on Inland Water Transport at its sixtieth session had decided to align the annex to resolution No. 61 with the European Standard laying down Technical Requirements for Inland Navigation vessels (ES-TRIN) (ECE/TRANS/SC.3/203, para. 67) adopted by the European committee for drawing up common standards in the field of inland navigation (CESNI). The present document reproduces the text of the Instructions for the application of the technical standard ES-TRIN 2017: Part II, “Provisions regarding shipbuilding, fitting out and equipment” (ESI-II-7 to ESI-II-13).

3. Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation may wish to develop a new appendix to the annex to resolution No. 61, using them as a basis.

Annex

Proposal for a new appendix of the annex to resolution No. 61, revision 2 "Instructions for the application of the technical standard"

PART II
PROVISIONS FOR SHIPBUILDING, FITTING OUT AND EQUIPMENT*

ESI-II-7
Used oil collection facilities

(Article 8.09)

Existing vessels referred to in article 32.02(1), whose permanently installed bilge pumping and drainage systems and static oil separators have been removed from their engine rooms, no longer comply with article 5.07 of the RVIR[1] in force as at 31.12.1994.

In accordance with the transitional provisions, these vessels must be equipped with a used-oil collection tank referred to in article 8.09(2), with the exception of those cases referred to in article 8.09(3).

ESI-II-8
(Left void)

ESI-II-9
Special anchors with reduced mass

(Article 13.01(5))

Section 1
Authorized special anchors

Special anchors with a reduced mass, authorised by competent authorities according to Article 13.01(5) are listed in the following table.

Anchor No.		*Accepted reduction of the anchor mass (%)*	*Competent Authority*
1.	HA-DU	30%	Germany
2.	D'Hone Spezial	30%	Germany
3.	Pool 1 (hol)	35%	Germany
4.	Pool 2 (massief)	40%	Germany
5.	De Biesbosch-Danforth	50%	Germany
6.	Vicinay-Danforth	50%	France

* Instructions ESI-II-1 to ESI-II-6 (without annexes) are available as ECE/TRANS/SC.3/2018/8.

[1] Rhine Vessel Inspection Regulations.

Anchor No.		*Accepted reduction of the anchor mass (%)*	*Competent Authority*
7.	Vicinay AC 14	25%	France
8.	Vicinay Typ 1	45%	France
9.	Vicinay Typ 2	45%	France
10.	Vicinay Typ 3	40%	France
11.	Stockes	35%	France
12.	D'Hone-Danforth	50%	Germany
13.	Schmitt high holding anchor	40%	Netherlands
14.	SHI high holding anchor, type ST (standard)	30%	Netherlands
15.	SHI high holding anchor, type FB (fully balanced)	30%	Netherlands
16.	Klinsmann anchor	30%	Netherlands
17.	HA-DU-POWER anchor	50%	Germany

Section 2
Authorization and test procedure of special anchors with reduced mass

Reduction of the anchor mass values determined in accordance with Article 13.01(1) to (4)

1. Chapter 1 – Authorization procedure

1.1 Special anchors with reduced mass in accordance with Article 13.01(5) shall be authorized by the competent authorities. The competent authority determines the authorized reduction of anchor mass for special anchors in accordance with the procedure outlined below.

1.2 Authorization as special anchor is only possible if the reduction of anchor mass established is at least 15%.

1.3 Applications for the authorization of a special anchor in accordance with (1.1) shall be submitted to the competent authority of a Member State. Ten copies of the following documents shall be forwarded with each application:

a) an outline of the dimensions and mass of the special anchor, giving the main dimensions and type designation for each available anchor size;

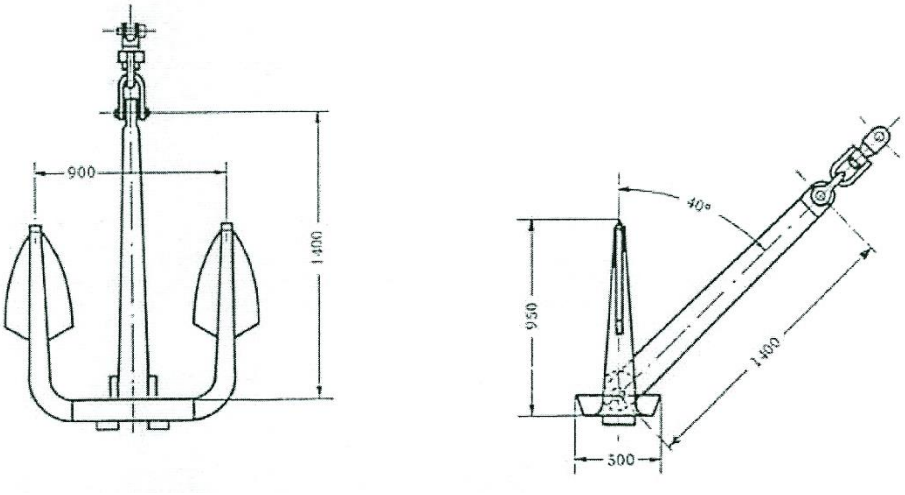
b) a braking force diagram for the reference anchor *A* (in accordance with (2.2)) and the special anchor *B* to be authorised which has been prepared and assessed by an institution designated by the competent authority.

1.4 The competent authority notifies CESNI of any applications to reduce anchor mass which it considers to authorize after testing.

2. Chapter 2 – Test Procedure

2.1 The braking force diagrams in accordance with (1.3) shall show the braking forces as a function of speed for the reference anchor *A* and the special anchor *B* to be authorised on the basis of tests in accordance with (2.2) to (2.5) below. Annex 1 shows one possible braking force test.

2.2 The reference anchor A used in the tests shall be a conventional folding stockless anchor corresponding to the sketch and details given below, with a mass of at least 400 kg.



A tolerance of ±5% applies to the dimensions and mass given. However, the surface area of each fluke must be at least 0,15 m^2.

2.3 The mass of the special anchor B used in the tests shall not deviate by more than 10% from the mass of the reference anchor A. If the tolerances are greater, the forces shall be recalculated proportional to mass.

2.4 Braking force diagrams shall give a linear representation of speed (v) in the range 0 to 5 km/h (speed over ground). To this end, three tests shall be carried out in an upstream direction for the reference anchor A and the special anchor B on an alternating basis over each of two stretches of river determined by the competent authority, one with coarse gravel and one with fine sand. On the River Rhine the stretch between 401–402 km can serve as a reference stretch for the coarse gravel tests and the stretch between 480–481 km for the fine sand tests.

2.5 For each test, the anchor being tested shall be towed with a steel wire cable whose length between the points of connection on the anchor and on the towing craft or device is 10 times the height of the connection point on the craft above the anchorage ground.

2.6 The percentage of reduction of anchor mass is calculated by the following formula:

$$r = 75 \cdot \left(1 - 0.5 \ \frac{PB}{PA}\left(\frac{FA}{FB} + \frac{AA}{AB}\right)\right) \ [\%]$$

where

r = the percentage of reduction of anchor mass of special anchor B in relation to reference anchor A;

PA = the mass of reference anchor A;

PB = the mass of special anchor B;

FA = holding force of reference anchor A at v = 0,5 km/h ;

FB = holding force of special anchor B at v = 0,5 km/h;

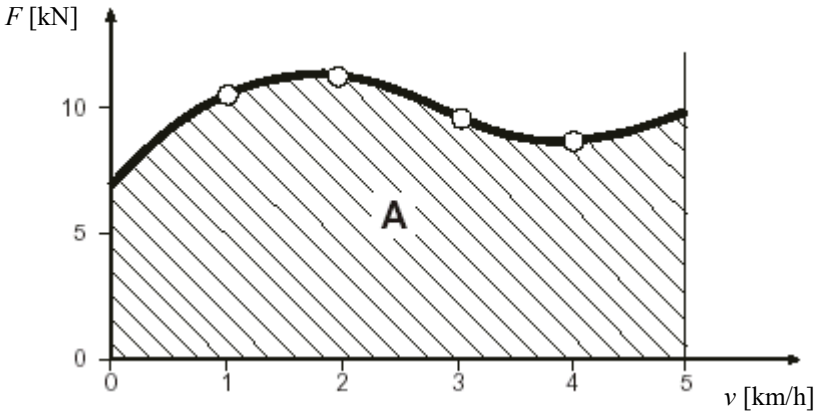
AA = the surface area on the braking force diagram defined by

- the line parallel to the y-axis at v = 0
- the line parallel to the y-axis at v = 5 km/h

- - the line parallel to the x-axis at holding force $F = 0$
- - the braking force curve for reference anchor A;

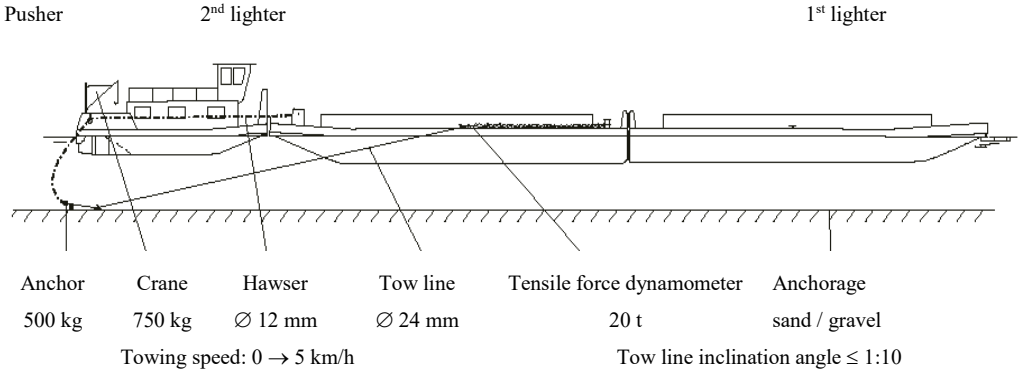
AB = same definition as for AA except that the braking force curve for special anchor B is used.

Model branking force diagram
(Determining the surface areas *AA* and *AB*)



2.7 The acceptable percentage is the average of six values of r calculated in accordance with (2.6).

Annex 1 to instruction ESI-II-9
Example of an anchor test method with a single-file two-part pushed convoy



ESI-II-10
Automatic pressurised water sprinklers

(Article 13.04(1) and (4))

Suitable automatic pressurised water sprinklers as in Article 13.04(1) and (4) shall meet the following requirements:

1. The automatic pressurised water sprinkler shall be ready for service at all times when there are persons on board. No additional action by crew members shall be required to trigger operation.

2. The system shall be permanently maintained at the necessary pressure. The pipes shall be filled with water up to the spray nozzles at all times. The system shall have a continuously working water supply. It shall not be possible for impurities harmful to operation to enter the system. Appropriate display instruments and test systems (e.g. pressure gauges, pressure-tank water level indicators, pump test piping) shall be installed for monitoring and checking the system. The pressurised water sprinkler systems located in the cold storage and freezer rooms should not be permanently filled with water. These rooms can be protected with dry sprinklers.

3. The pump for the water supply to the spray nozzles shall be activated automatically by a pressure drop in the system. The pump shall be dimensioned so that it can continuously provide a sufficient water supply at the necessary pressure if all the spray nozzles necessary for covering the area of the largest room to be protected are activated simultaneously. The pump shall supply the automatic pressurised water sprinkler exclusively. In the event of pump failure, it shall be possible to provide the spray nozzles with a sufficient water supply from another on-board pump.

4. The system shall be divided into sections, each with no more than 50 spray nozzles. A larger number of spray nozzles may be authorised by the inspection body with appropriate corroboration, in particular a hydraulic calculation.

5. The number and the layout of spray nozzles shall ensure effective distribution of water in the rooms to be protected.

6. Spray nozzles shall be triggered at a temperature between 68°C and 79°C, in the galley areas at a maximum of 93°C and in the saunas at a maximum of 141°C.

7. The installation of components of automatic pressurised water sprinklers within the rooms to be protected shall be limited to the necessary minimum. No such system components shall be installed in main engine rooms.

8. Visual and acoustic indicators shall be provided in one or more suitable locations, at least one of which must be permanently manned, displaying activation of automatic pressurised water sprinklers for each section.

9. The energy supply of the installation of automatic pressurised water sprinklers shall be provided by two independent energy sources that shall not be installed in the same location. Each energy source shall be capable of supplying the entire system unassisted.

10. An installation plan of the automatic pressurised water sprinkler shall be presented to the inspection body for examination before installation of the system. The plan shall indicate the types and performance data of the machines and equipment used. An installation tested and certified by an approved classification society which complies at least with the above prescriptions can be authorised without further testing.

11. The presence of an automatic pressurised water sprinkler shall be entered in the inland navigation vessel certificate under item 43.

ESI-II-11
Steerageway under vessel's own power

(Article 13.05(2)(a), Article 19.07(1), Article 28.04(1)(a))

1. Minimum requirements for vessel's steerageway

Steerageway under a vessel's own power in accordance with Articles 13.05(2)(a), 19.07(1) and 28.04(1)(a) is deemed to be sufficient if – when using the bow thruster – the vessel or the formation propelled by the vessel attains a speed of 6,5 km/h in relation to the water and a rate-of-turn of 20°/min can be induced and maintained while under way at a speed of 6,5 km/h in relation to the water.

2. Navigation tests

When verifying the minimum requirements, Articles 5.03 and 5.04 shall be complied with.

ESI-II-12
Appropriate fire alarm system

(Article 13.05(3), Article 19.11(18), Article 29.10(1))

Fire alarm systems are considered to be appropriate if they meet the following conditions.

0. Components

0.1 Fire alarm systems consist of :

a) fire detection system,

b) fire indicator system,

c) control panel

as well as the external power supply.

0.2 The fire detection system may be divided into one or more fire zones

0.3 The fire indicator system may have one or more indicator devices.

0.4 The control panel is the central control unit of the fire alarm system. It also includes parts of the fire indicator system (i.e. an indicator device).

0.5 A fire detection zone may have one or more fire detectors.

0.6 Fire detectors may be

a) heat detectors,

b) smoke detectors,

c) ion detectors,

d) flame detectors,

e) combination detectors (fire detectors combining two or more of the detectors listed in (a) to (d)).

Fire detectors which respond to other factors indicating the onset of a fire may be approved by the inspection body provided that they are no less sensitive than the detectors referred to under (a) to (e).

0.7 Fire detectors may be installed

a) with or

b) without

individual identification.

1. Construction requirements

1.1 General

1.1.1 Compulsory fire alarm systems shall be operational at all times.

1.1.2 Fire detectors required in accordance with (2.2) shall be automatic. Additional manually operated fire detectors may be installed.

1.1.3 The system and its components shall be able to withstand voltage fluctuations and surges, changes in ambient temperature, vibrations, humidity, shocks, impacts and corrosion such as commonly occur on vessels.

1.2 Energy supply

1.2.1 Energy sources and electric circuits necessary for the operation of the fire alarm system shall be self monitoring. Any fault occurring shall activate a visual and acoustic alarm signal on the control panel which can be distinguished from a fire alarm signal.

1.2.2 There shall be at least two power sources for the electrical part of the fire alarm system, one of which shall be an emergency power system (i.e. emergency power source and emergency switchboard). There shall be two separate power-feeds solely for this purpose. These shall lead to an automatic switch in or near the control panel of the fire alarm system. On day-trip vessels up to 25 m L_{WL} and on motor vessels a separate emergency power supply is sufficient.

1.3 Fire detection system

1.3.1 Fire detectors shall be grouped in fire detection zones.

1.3.2 Fire detection systems shall not be used for any other purpose. By way of derogation the closing of the doors in accordance with Article 19.11(9) and similar functions may be activated and indicated on the control panel.

1.3.3 Fire detection systems shall be designed in such a way that the first indicated fire alarm does not prevent fire alarms set off by other detectors.

1.4 Fire detection zones

1.4.1 Where the fire detectors cannot be remotely identified individually, a fire detection zone shall not monitor more than one deck. This does not apply to a fire detection zone which monitors an encapsulated stairwell.

In order to avoid delays in detecting the origin of the fire, the number of enclosed spaces included in each fire detection zone shall be limited. There shall not be more than fifty enclosed spaces in one fire detection zone.

Where the fire detection system has remote identification of individual fire detectors, the fire detection zones may monitor several decks and any number of enclosed spaces.

1.4.2 On passenger vessels which do not have a fire detection system with remote identification of individual fire detectors, a fire detection zone shall not comprise more than the area constituted in accordance with Article 19.11(11). The activation of a fire detector

in an individual cabin in this fire detection zone shall set off a visual and acoustic signal in the passageway outside that cabin.

1.4.3 Galleys, engine rooms and boiler rooms shall constitute separate fire detection zones.

1.5 Fire detectors

1.5.1 Only heat, smoke or ion detectors shall be used as fire detectors. Other types may only be used as additional detectors.

1.5.2 Fire detectors shall be type-approved.

1.5.3 All automatic fire detectors shall be designed in such a way that they can be tested to ensure that they are working properly and brought back into service without having to replace any components.

1.5.4 Smoke detectors shall be set so that they respond to a reduction in visibility per metre caused by smoke of more than 2% to 12,5%. Smoke detectors fitted in galleys, engine rooms and boiler rooms shall respond within sensitivity limits meeting the requirements of the inspection body, whereby under-sensitivity or over-sensitivity of the detectors shall be avoided.

1.5.5 Heat detectors shall be set so that with temperature increase rates of less than 1°C/min they respond at temperatures of between 54°C and 78°C.

With higher rates of temperature increase, the heat detector shall respond within temperature limits where under- or over-sensitivity of the heat detector is avoided.

1.5.6 With the agreement of the inspection body, the permissible operating temperature of heat detectors may be increased to 30°C above the maximum temperature in the upper part of engine and boiler rooms.

1.5.7 The sensitivity of flame detectors shall be sufficient to detect flames against an illuminated background. Flame detectors shall also be equipped with a system for identifying false alarms.

1.6 Fire detection system and control panel

1.6.1 Activation of a fire detector shall set off a visual and acoustic fire alarm signal at the control panel and the indicator devices.

1.6.2 The control panel and the indicator devices shall be at a location which is permanently manned by crew or shipboard personnel. One indicator shall be at the steering position.

1.6.3 The indicator devices shall indicate at least the fire detection zone in which a fire detector has been activated.

1.6.4 On or near each indicator device there shall be clear information on the areas monitored and the location of the fire detection zones.

2. Installation requirements

2.1 Fire detectors shall be installed in such a manner as to ensure the best possible operation of the system. Locations in the vicinity of deck girders and ventilation shafts or other locations where air currents could adversely affect system operation and locations where impacts or mechanical damage are likely shall be avoided.

2.2 In general, fire detectors located on the ceiling shall be at least 0,5 metres away from bulkheads. The maximum distance between fire detectors and bulkheads shall conform to the following table:

Type of fire detector	Maximum floor surface area per fire detector	Maximum distance between fire detectors	Maximum distance of fire detectors from bulkheads
Heat	37 m^2	9 m	4,5 m
Smoke	74 m^2	11 m	5,5 m

The inspection body may stipulate or approve other distances on the basis of tests which prove the characteristics of the detectors.

2.3 The routing of electric cables for the fire alarm system through engine rooms and boiler rooms or other high fire risk areas is not permitted unless this is necessary for fire detection in those areas or connection to the corresponding power supply.

3. Acceptance test

3.1 Fire alarm systems must be checked by an expert:

a) before being put into service for the first time,

b) before being put back into service after any major modification or repair,

c) regularly, at least every two years.

In the case of engine rooms and boiler rooms these checks shall be made under various machine operation conditions and under changing ventilation conditions. Inspections as referred to in subsection (c) above may also be carried out by a competent person from a competent firm specialising in fire extinguishing systems.

3.2 An inspection certificate shall be issued, signed by the expert or competent person and showing the date of the inspection.

ESI-II-13
(Left void)