

**CHAPTER 20B****SPECIAL PROVISIONS APPLICABLE TO RIVER-SEA NAVIGATION VESSELS****20B-1 GENERAL PROVISIONS****20B-1.1 PURPOSE AND SCOPE**

20B-1.1.1 Provisions of the present Chapter with due regard of 1-2 apply to:

i) cargo vessels (dry cargo vessels and tankers), passenger ships, tugs, towed barges (dry cargo and tankers);

ii) vessels with length from 20 m to 140 m.

20B-1.1.2 For the purpose of this Chapter, the following zones and conditions of sea navigation shall be established:

i) Restricted zone between ports of the same country (domestic voyages) where inland navigation vessels are allowed to navigate with season and wave height restrictions provided that specific requirements of the Administration and/or a recognized classification society concerning seaworthiness, stability, hull structure, machinery, electrical equipment, navigation equipment and communication facilities are met.

ii) zone RS 2,0 (wave height up to 2.0 m<sup>1</sup>): sea areas within specified geographical borders where river-sea navigation vessels are allowed to navigate with season restrictions;

iii) zone RS 3,0 (wave height up to 3.0 m): sea areas within specified geographical borders where river-sea navigation vessels are allowed to navigate with season restrictions;

iv) zone RS 3,5 (wave height up to 3.5 m): sea areas within specified geographical borders where river-sea navigation vessels are allowed to navigate with season restrictions;

v) zone RS 4,5 (wave height up to 4.5 m): sea areas where river-sea navigation vessels are allowed to navigate in closed seas away from shelter at a distance up to 100 miles (distance between shelters up to 200 miles); in open seas away from shelter at a distance up to 50 miles (distance between shelters up to 100 miles);

vi) zone RS 6,0 (wave height up to 6.0 m): sea areas where river-sea navigation vessels are allowed to navigate in closed seas away from shelter at a distance up to 100 miles (distance between shelters up to 200 miles); in open seas away from shelter at a distance up to 50 miles (distance between shelters up to 100 miles).

20B-1.1.4 Unless specified otherwise, provisions of the present Chapter apply to new vessels.

---

<sup>1</sup> In the present Chapter wave height means a wave height of 3 % probability

## 20B-1.2 DEFINITIONS

1. “River-sea navigation vessel”: a vessel suitable for navigation on inland waterways and at sea.
2. “International voyage”: a voyage from a port of a country to which international conventions apply to a port outside such country or conversely.
3. Coastal voyage”: any voyage other than international voyage.
4. “Closed seas”: inland and mediterranean isolated seas communicating with ocean high-seas through straits and different from high seas in salinity and temperature of water, nature of currents, tides, wind- and wave conditions.
5. “Main seas (open seas)”: off-lying seas with ample communication to ocean high-seas and water closely resembling that of high-seas in its salinity and temperature of water, nature of currents, tides, wind- and wave conditions.

## 20B-2 DOCUMENTS

20B-2.1 River-sea navigation vessels covered by the International Convention for the Safety of Life at Sea of 1974 (SOLAS 1974) or the International Convention on Load Lines of 1966 shall carry a valid corresponding international certificate.

20B-2.2 River-sea navigation vessels not covered by SOLAS 1974 or the International Convention of Load Lines 1966 must carry the certificates and bear the freeboard marks required by the laws of their States of registry, and shall meet the requirements of the Convention in respect of construction, rigging and gear, or otherwise ensure a comparable safety level.

20B-2.3 River-sea navigation vessels covered by the International Convention for the Prevention of Pollution from Ships of 1973 (MARPOL 73) shall carry a valid international sea pollution prevention certificate (IOPP certificate).

20B-2.4 River-sea navigation vessels not covered by MARPOL 73 shall carry a valid corresponding certificate required by the laws of their flag state.

20B-2.5 River-sea navigation vessels covered by MARPOL 73 in addition to Chapter 8A, shall carry a valid International air prevention pollution certificate (IAPP Certificate).

20B-2.6 River-sea navigation vessels are to comply with the requirements of the following international conventions and IMO instruments:

i) all types of vessels for navigation in all zones:

structural fire protection shall comply with Chapter II-2 of SOLAS 1974 and International Code for Fire Safety Systems;

load line shall comply with International Convention on Load Lines, 1966;

electrical equipment shall comply with Part D Chapter II-1 SOLAS 1974;

ii) self-propelled vessels for navigation in all zones:

composition of communication equipment shall comply with Chapter IV of SOLAS 1974 to ensure participation in Global Maritime Distress and Safety System (GMDSS);

composition of navigation equipment shall comply with Chapter V of SOLAS 1974;

iii) vessels engaged in international voyages, passenger vessels beginning with zone RS 3,0 and other vessels when navigating in zones RS 4,5, RS 6,0:

subdivision shall comply with SOLAS 1974;

minimal summer freeboard for navigation at sea shall comply with International Convention on Load Lines, 1966;

life-saving appliances shall comply with SOLAS 1974 and International Life-Saving Appliance Code, 1996;

liquid cargo systems of oil tankers, air- and gas outlet ducts, ventilation, fire extinguishing, fuel and oil systems shall comply with SOLAS 1974 and International Code for Fire Safety Systems.

## 20B-3 HULL

### 20B-3.1 STRENGTH

20B-3.1.1 Hull structural strength is deemed sufficient for navigation in zones stated in 20B-1.1.2, if a vessel has a class assigned by a recognized Classification Society that allows its navigation in the specified zones.

20B-3.1.2 The bow draft of cargo vessels for any loading conditions shall not be less than specified in the Table:

Zone	Length of the vessel, m	Bow draft not less than, m
RS 2,0	$\leq 25$	0.5
	$\geq 60$	0.9
RS 3,0	$\leq 25$	0.75
	$\geq 60$	1.4
RS 3,5	$\leq 25$	0.9
	$\geq 60$	1.7
RS 4,5	$\leq 25$	1.2
	$\geq 60$	2.2
RS 6,0	$\leq 25$	1.6
	$\geq 60$	2.9

Note. Minimal permissible bow draft for vessels of transitional lengths shall be determined from linear interpolation.

## **20B-3.2 DESIGN REQUIREMENTS**

20B-3.2.1 A cargo vessel shall have the double hull provided at least for the cargo holds (tanks) and double bottom.

The double bottom shall extend from the forepeak bulkhead to the afterpeak bulkhead as far as practicable.

The double-hull requirement does not apply to tankers with removable cargo tanks.

Distance between the outer shell plating and the inner shell (double-side space?) as well as the double bottom space shall be sufficient to arrange manholes and passageways providing safe access to the abovementioned areas.

20B-3.2.2 Tankers for transportation of oil products in cargo spaces, liquid dangerous goods and liquefied gases shall be fitted with facilities which enable safe access to the bow area.

## **20B-3.3 STABILITY**

20B-3.3.1 In addition to 3-3.2.3 a vessel engaged in international voyages shall carry the Stability Booklet in English.

20B-3.3.2 In addition to 3-5.1.6 stability shall be checked under most adverse loading conditions with due regard of 3-5.1.5, at least for the following cases:

- i) with full cargo and full stores,
- ii) with full cargo and 10 % stores,
- iii) with no cargo yet with ballast and full stores,

20B-3.3.3 In addition to 3-3.2.1 each vessel after restoring repair, major repair or modernization shall undergo heeling test.

## **20B-3.4 SUBDIVISION**

20B-3.4.1 Vessels shall comply with 20B-2.6.

20B-3.4.2 Forepeak, afterpeak and engine room of all vessels shall be isolated with watertight bulkheads.

20B-3.4.3 Resistance to flooding for vessels navigating in zones RS 3,5, RS 3,0, RS 2,0 engaged on coastal navigation shall be ensured at flooding of:

- i) forepeak and afterpeak taken apart for vessels of all types;
- ii) any two compartments – for passenger vessels navigating in zones RS 3,0 and RS 2,0, any single compartment – for self-propelled flush-deck vessels, flush-deck barges and tankers navigating in zones RS 3,5, RS 3,0 and RS 2,0;

iii) forepeak, afterpeak, double-bottom and/or double-side spaces – for dry cargo vessels navigating in zone RS 3,5.

20B-3.4.4 A forepeak bulkhead shall be fitted aft of the fore perpendicular, at a distance not less than one-half of the hull width. For vessels less than 14 m wide this distance may be reduced on approval of the Administration or a recognized Classification Society.

20B-3.4.5 Vessels covered by the present Chapter shall be provided with the Stability Booklet and damage control plan approved by the Administration and/or a recognized Classification Society.

### **20B-3.5 STABILITY CRITERIA. WEATHER CRITERION**

20B-3.5.1 The vessel stability is regarded as sufficient as regards weather criterion if, at combined effect of wind and rolling the requirements of “Code on Intact Stability for all types of ships” are met with due regard of 20B-3.5.2 – 20B-3.5.3.

20B-3.5.2 It is assumed in determining the weather criterion that:

the vessel is subjected to the steady speed wind blowing at the right angle to the center plane. The corresponding wind heeling arm  $l_{w1}$ , is determined by the formula, m:

$$l_{w1} = \frac{P_{wd} A_w z_v}{1000g\Delta},$$

where  $P_{wd}$  – wind static pressure, in Pa;  $P_{wd} = 252 \text{ Pa}$ ;

$z_v$  – lever arm taken as the distance between the centre of gravity of the lateral area and the center of water pressure against the underwater section (approximately to half the draft), m;

$\Delta$  – vessel displacement, t;

$A_w$  – lateral plane,  $\text{m}^2$ ;

$g$  – gravity acceleration,  $g = 9.81 \text{ m/s}^2$ .

20B-3.5.3 The initial metacentric height corrected for free-surface effect of liquid cargo shall be at least 0.15 m for all types of vessels at any options of loading (except “unladen vessel”).

Minimal corrected metacentric height may have another value as in cases specified in 20B-3.6.

### **20B-3.6 ADDITIONAL STABILITY REQUIREMENTS FOR SPECIFIC VESSEL TYPES**

#### **20B-3.6.1 Dry cargo vessels**

i) Stability of vessels which carry cargo on deck shall be checked with additional loading options:

- with holds filled by homogeneous cargo which have draft as per summer load line, with cargo on deck, full stores and liquid ballast, if necessary,
  - loaded as in the previous case yet with 10 % stores.
- ii) Metacentric height of vessels which carry cargo in bulk or on deck shall be at least 0.2 m.
- iii) As long as there no data on stowage rate  $\mu$ , stability of vessels which carry timber in holds or on deck shall be determined at minimal value  $\mu=2.32 \text{ m}^3/\text{t}$ .

### 20B-3.6.2 Vessels carrying containers

Stability of vessel carrying containers shall be checked for the following additional loading conditions:

- with the maximum number of containers each having the weight equal 0.6 of maximal gross for each type of container, with full stores and liquid ballast, if necessary;
- loaded as in the previous case yet with 10 % stores;
- with the maximum number of empty containers, with ballast and full stores;
- loaded as in the previous case yet with 10 % stores.

### 20B-3.6.3 Passenger vessels

The heeling angle from the combined heeling moment due to passengers and steady turning in II cases shall not exceed  $12^\circ$ .

### 20B-3.6.4 Tugs

i) Stability of tugs without cargo holds shall be checked at the following loading conditions:

- with full stores,
- with 10 % stores.

ii) Tug shall be checked for stability under dynamic effect of towline jerk with due account of rolling, i.e. the following condition shall be met:

$$\Delta g(d_{perm} - d_k) \geq M_p,$$

where  $M_p$  – heeling moment, kNm, from dynamic effect of towline jerk;  $M_p$  is determined as per requirements set by the Administration or a recognized Classification Society;

$\Delta$  –displacement, t;

$d_{perm}$  – lever of permissible moment taken from the dynamic stability curve, at the admissible heeling angle, m;

$d_k$  – lever of permissible moment taken from the dynamic stability curve under estimated roll amplitude.

iii) Tugs shall be checked for stability against towline jerks with no account taken of free-surface effects from liquid cargo.

### **20B-3.6.5 Towed barges**

i) Stability of barges is determined at the following loading conditions:

- with full load,
- unladen vessel.

In timber transportations, estimation is made with account given to eventual increase of timber weight due to its soaking. If not specified otherwise, it is recommended to increase weight of on-deck cargo by 10 %. This weight increase is set off to overload and excluded from vessel deadweight.

ii) In calculating stability levers for a timber carrying barge, it is allowed to account for cargo volume in full height and width multiplied by permeability factor 0,25.

iii) Tank barge stability is checked with account taken of liquid cargo free-surface effects in dependence of actual filling of tanks..

iv) Barge stability is deemed sufficient if:

the static stability curve area up to the angle of maximum stability lever is at least 0.08 m·rad,

the angle of static heeling due to constant wind does not exceed half the angle of deck exposure,

positive heeling angles of static stability curve extend at least to:

20° in case of vessels 100 m long and less,

15° in case of vessels 150 m and above.

Transient values of heeling angle are determined by linear interpolation.

### **20B-3.6.6 Icing**

Stability of vessels to be operated in subzero weather conditions shall be checked with account for icing.

## **20B-4 FIRE PROTECTION**

20B-4.1 Vessels shall comply with 20B-2.6.

20B-4.2 Fire-protection diagrams shall be provided on self-propelled vessels in the central control station, wheelhouse and on prominent places in the corridors. A second copy of fire-

protection diagram or a booklet with such diagrams shall be kept outside the deckhouse in an assigned place protected against sea impact.

## 20B-5 FREEBOARD AND LOAD LINE

### 20B-5.1 FREEBOARD CALCULATION

20B-5.1.1 When assigning minimal summer freeboard requirements of 20B-2.6 shall be met.

Minimal freeboard for vessels navigating at sea and not engaged in international voyages and vessels navigating in zones RS 3,5 (other than passenger vessels), RS 3,0, RS 2,0 shall be assigned according to the requirements of the Administration and/or a recognized classification society.

Minimal summer freeboard for vessels engaged on international voyages and vessels navigating in zones RS 6,0, RS 4,5 and passenger vessels navigating in zone RS 3,5 shall be assigned according to the requirements of International Convention on Load Lines, 1966.

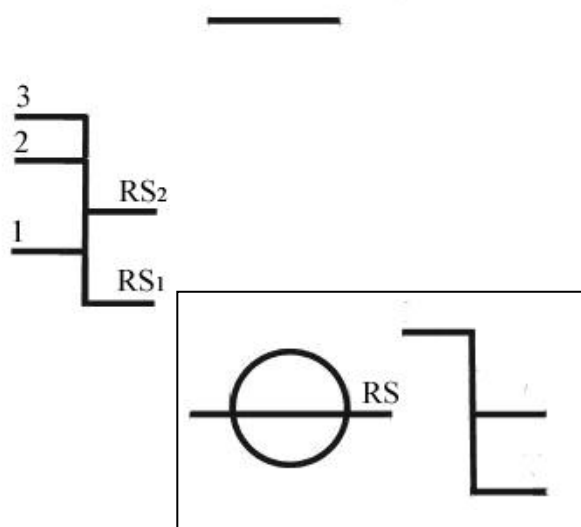
Minimal freeboard for navigation in zones 1, 2 and 3 is assigned according to 4-4.1.2.

20B-5.1.2 Vessels navigating at sea shall carry a load line according to International Convention on Load Lines, 1966.

Sternwards off the draught mark the following marks shall be placed:

- i) marks for navigation on inland waterways of zones 1, 2 and 3 – according to 4-4.1.2;
- ii) a measurement mark in accordance with the requirements of the Convention on the Measurement of Inland Navigation Vessels , if the vessel is measured in accordance with it;
- iii) marks for navigation in sea areas with seawater, where the vessel is allowed for navigation with a wave height lower than in the given zones, e. g. for a vessel navigating in zone RS 3,5 – zones RS 3,0 and 2,0.

Diagram of the load line is shown on the Figure:



(load line according to International Convention on Load Lines, 1966)



RS<sub>1</sub>, RS<sub>2</sub> — lines corresponding to maximum draught for navigation in sea areas with a wave height lower than in the main navigation zone;

1, 2, 3 — lines corresponding to maximum draught for navigation on inland waterways of zones 1, 2 and 3 respectively.

## 20B-5.2 HATCHWAYS AND COVERS OF VESSEL OPENINGS

20B-5.2.1 Hatchway covers shall be designed to withstand wave loads depending on the navigation zone, length of the vessel and the load from cargo to be stowed on these enclosures.

Minimal design loads for hatchway covers shall comply with requirements of the Administration and/or a recognized Classification Society.

## 20B-6 SHIP MACHINERY AND ARRANGEMENTS

### 20B-6.1 STEERING GEAR AND THRUSTER UNIT

20B-6.1.1 Steering gear and thruster unit shall comply with Chapter 6.

20B-6.1.2 Self-propelled passenger and cargo vessels with area of lateral projection over center-plane in excess of 800 m<sup>2</sup>, shall be provided with a bow and/or stern thruster additionally to the steering gear.

Note. Lateral projection area includes vessel wet and dry parts as well as area of on-deck cargo.

### 20B-6.2 ANCHOR EQUIPMENT

20B-6.2.1 Vessels shall be supplied with anchors and chains according to the equipment number  $N$  or  $N_A$ . For vessels navigating in zones RS 2,0, RS 3,0, RS 3,5, RS 4,5  $N$  shall be determined according to 10-1.2.2.

For vessels navigating in zone RS 6,0  $N_A$  (dimensionless value) is calculated by the following formulae:

for self-propelled vessels

$$N_A = 0.85 \nabla^{2/3} + 1.7B_{WL}h + 0.085A_w;$$

for non-self-propelled vessels

$$N_A = 1.0625 \nabla^{2/3} + 2.125B_{WL}h + 0.10625A_w;$$

for tugs

$$N_A = 0.85 \nabla^{2/3} + 1.7(B_{WLa} + \Sigma h_i b_i) + 0.085A_w;$$

where  $\nabla$  is — water displacement corresponding to summer load line, m<sup>3</sup>;

$B_{WL}$  — breadth of the vessel, m;

$A_w$  — lateral plane within the vessel's length  $L_{WL}$  as per summer load waterline,  $m^2$ . When calculating  $A_w$  only the lateral plane of the hull, superstructures and deckhouses with breadth over  $0.25 B_{WL}$  should be considered;

$h$  — distance from the summer load waterline to the upper edge of the deck plating of the highest deckhouse calculated by the formula, m:

$$h = a + \sum h_i,$$

$a$  — distance from the summer load waterline to the upper edge of the deck plating of the upper deck near the side amidships, m;

$h_i$  — height of each layer of superstructure or deckhouse having a width over  $0.25 B_{WL}$  at the centre line of the vessel. In case of two or more superstructures or deckhouses in the given layer only the superstructure or deckhouse of the biggest breadth should be considered. In the lowest layer  $h_i$  is measured in the centre line from the upper deck or, if the upper deck is stepped, from conventional line being the prolongation of the upper deck;

$b_i$  — width of each ( $i^{\text{th}}$ ) layer of the superstructure or deckhouse having a width over  $0.25 B_{WL}$ , m.

Sheer and trim may not be considered in calculations of  $h$ . Containers and similar cargoes transported on the deck and on covers of cargo hatches, masts, cargo derricks, rigging, guard rails and similar structures may be omitted in calculations of  $h$  and  $A$ ; bulwark and hatch coamings less than 1.5 m high may be omitted also. If the height of bulwark and hatch coamings is over 1.5 m, they shall be considered as a deckhouse or superstructure.

20B-6.2.2 Vessels with the equipment number exceeding  $75 m^2$  shall be fitted with two bow anchors. For vessels with the equipment number of  $75 m^2$  and over one bow anchor is permitted.

20B-6.2.3 Total mass  $P$ , kg, of bow anchors shall be not less than the following values, but not less than  $N$ :

Zone	Vessel type	$N, m^2$	$P, kg$
RS 2,0			$-11.1760 + 1.90971 \cdot N^{0.912368}$
	self-propelled cargo and passenger vessels	from 50 to 5200	$-11.1760 + 1.90971 \cdot N^{0.912368}$
	non-self-propelled	from 150 to 5200	$-0.5589 + 1.8253 \cdot N^{0.9174657}$
	tugs	from 50 to 1600	$\exp(0.78894 + 0.9164 \cdot \ln N)$
RS 3,0	self-propelled cargo and passenger vessels	less than 1000	$1 / (0.000248 + 0.5997 / N)$
		1000 and over	$234.5 + 1.097N$
	non-self-propelled	from 200 to 1000	$18.72 + 2.9996 \cdot N^{0.868}$
		1000 and over	$63.803 + 1.828 \cdot N^{0.943}$
	tugs	from 50 to 2000	$1 / (-7.42 \cdot 10^{-5} + 0.1061 \cdot \ln N / N)$

20B-6.2.4 Total mass  $P$  (kg) of bow anchors for vessels navigating in zones RS 3,5, RS 4,5 shall be more than values determined according to 20B-6.2.3 for vessels of RS 3,0 class at least by 20 %.

20B-6.2.5 Total mass  $P$  of two bow anchors (kg) for vessels navigating in zone RS 6,0 shall not be less than the value calculated by the formula

$$P = 1 / (1.997 \cdot 10^{-6} + 0.1625 / N_A)$$

20B-6.2.6 Total length of anchor chains of bow anchors is determined as follows:

Total length  $l_A$  of anchor chains is calculated in first approximation:

Zone	Vessel type	$N, m^2$ , or $N_A$	$l_A, m$
RS 2,0	self-propelled	from 50 to 5200	$1 / (0.0036455 + 0.22895 \cdot \ln N / N)$
	non-self-propelled	from 150 to 5200	$\sqrt{-16660.441 + 928.5287 \cdot (\ln N)^2}$
	tugs	from 50 to 1600	$1 / (0.0035 + 1.13 / N)$
RS 3,0	self-propelled	less than 1000	$1 / (0.002565 + 0.1826 \cdot \ln N / N)$
		1000 and over	$1 / (0.00277 + 1.3056 / N)$
	non-self-propelled	from 200 to 1000	$(15.972 - 959.209 / N)^2$
		1000 and over	$1 / (0.00297 + 1.563 / N)$
	tugs	from 50 to 2000	$1 / (0.0024 + 0.18 \ln N / N)$
RS 3,5 RS 4,5	The same as for zone RS 3,0	The same as for zone RS 3,0	At least 25 % greater than the length $l_A$ determined as for zone RS 3,0
RS 6,0		from 10 to 2500	$57.19 + 9.12 (\ln N_A)^2$

The obtained value of  $l_A$  is corrected by reduction to closest value of length  $L_A$  multiple to shackle length (25 m) with due regard of the number of anchors except the chains of diameter less than 15 mm. For vessels navigating in zone RS 3,0 with equipment number 1000  $m^2$  and above, the total rated length  $l_A$  of anchor chains shall be increased by one shackle length before being reduced to length  $L_A$ . Besides, provisions of 10-1.4.1 shall be complied as well.

20B-6.2.7 Stern anchors for vessels navigating in zones RS 2,0, RS 3,0, RS 3,5, RS 4,5 shall be provided according to 10-1.3 where  $P$  is calculated according to 20B-6.2.3 – 20B-6.2.4.

20B-6.2.8 Mass of stern anchor for vessels navigating in zone RS 6,0 with  $N_A$  from 35 to 205 is calculated according to relationship  $P = N_A$ . At  $N_A > 205$  mass of stern anchor shall be at least 75 % of the mass of one of bow anchors.

Stern anchor chain length for vessels navigating in zone RS 6,0 is determined according to 20B-6.2.6; here for vessels with  $N_A$  from 35 to 205

$$l_A = 92 - 11504 \ln(N_A) / N_A^2,$$

and for vessels with  $N_A$  over 205 the chain length of stern anchor is equal to half total length of bow anchors.

### 20B-6.3 MOORING EQUIPMENT

20B-6.3.1 Number and length of mooring lines for vessels navigating in zone RS 2,0 shall be selected in compliance with provisions of 10-1.4.5. Vessels navigating in zones RS 3,0, RS 3,5 and RS 4,5 with a length up to 85 m shall be equipped with at least 3 mooring lines each at least 100 m long. Vessels navigating in zones RS 3,0, RS 3,5 and RS 4,5 with a length over 85 m shall be provided with at least 4 mooring lines each at least 120 m long.

20B-6.3.2 Number and length of mooring lines for vessels navigating in zone RS 6,0 shall be determined on the basis of  $N_A$  calculated according to 20B-6.2.1 as follows, m:

$N_A$	Number and length of mooring lines
$10 < N_A \leq 25$	at least two mooring lines at least 30 m long
$25 < N_A \leq 50$	at least two mooring lines at least 50 m long
$50 < N_A \leq 205$	at least three mooring lines having a length not less than: 80 m at $N_A \leq 70$ ; 100 m at $N_A \leq 90$ ; 110 m at $N_A \leq 130$ ; 120 m at $N_A \leq 205$
$205 < N_A \leq 1480$	at least four mooring lines having a length not less than: 120 m at $N_A \leq 280$ ; 140 m at $N_A \leq 500$ ; 160 m at $N_A \leq 720$ ; 170 m at $N_A \leq 980$ ; 180 m at $N_A \leq 1480$
$1480 < N_A \leq 2500$	at least five mooring lines having a length not less than: 190 m at $N_A \leq 2080$ ; 200 m at $N_A \leq 2500$

20B-6.3.3 For vessels navigating in zone RS 6,0 with  $A_w/N_A$  over 0.9 the number of mooring lines stated in 20B-6.3.2 shall be exceeded by:

- 1 — for vessels with  $0.9 < A_w/N_A \leq 1.1$ ;
- 2 — for vessels with  $1.1 < A_w/N_A \leq 1.2$ ;
- 3 — for vessels with  $A_w/N_A > 1.2$ .

### 20B-6.4 LIFE-SAVING APPLIANCES

20B-6.4.1 Vessels shall comply with requirements of the present section with due regard of 20B-2.6.

20B-6.4.2 Life-saving appliances shall be supplied with a certificate issued by a competent body authorized by the Administration or a recognized classification society.

20B-6.4.3 A vessel shall be provided with a rescue boat. One of lifeboats or a ship's boat can be used as a rescue boat if this boat and its launching and recovery appliances meet the requirements set to the rescue boat.

20B-6.4.4 Tankers for transportation of oil products in cargo spaces, liquid dangerous goods and liquefied gases less than 85 m in length and engaged in coastal voyages may be supplied with one lifeboat of seating capacity sufficient to accommodate 100 % of people onboard if there is a launching appliance that provides launching of the lifeboat from any side of the vessel.

20B-6.4.5 It is recommended to provide marine evacuation systems preventing people from getting into water during embarkation in the liferafts on passenger vessels over 30 m in length navigating in zones RS 3,0 and RS 2,0 which are not covered by SOLAS 74, and fitted with free-fall launching liferafts.

20B-6.4.6 If a vessel is fitted with free-fall launching liferafts and there are no marine evacuation systems preventing people from getting into water during embarkation in the liferafts, than the vessel shall be fitted with immersion suits for all persons to be accommodated in these liferafts.

20B-6.4.7 Passenger vessels shall be fitted with motorized lifeboats.

20B-6.4.8 Tankers navigating in zones RS 3,0 and RS 2,0 intended for transportation of dangerous goods with a flashpoint not over 60° C, which are not covered by SOLAS 74, shall be fitted with fireproof lifeboats.

## **20B-6.5 WHEELHOUSE**

20B-6.5.1 In addition to Chapter 7 unobstructed searchlight-aided view shall be provided from windows of the wheelhouse at night time.

20B-6.5.2 Arrangement and colour of signal lights when navigating on inland waterways shall comply with CEVNI.

## **20B-6.6 FIRE FIGHTING EQUIPMENT**

20B-6.6.1 Vessels shall comply with 20B-2.6.

## **20B-7 POWER PLANT AND SYSTEMS**

### **20B-7.1 GENERAL**

20B-7.1.1 Power plant components, vessel systems and equipment shall be designed for operation at ambient air temperature in closed spaces from 0 to +45 °C, and on the open deck - from - 25 to +45 °C.

The assumption shall be made that outside water temperature is 20 °C (32 °C — for vessels operating in tropic areas).

20B-7.1.2 Power plant shall provide the vessel operation under all normal operating conditions, at permanent list up to 15° with concurrent permanent trim up to 5°, and rolling up to 22.5° with simultaneous pitching up to 7.5°.

### **20B-7.2 INTERNAL COMBUSTION ENGINES**

20B-7.2.1 The duration of main engines reversing shall not exceed the following values depending on the vessel speed:

25 s at full speed;

15 s at low speed.

### **20B-7.3 CORROSION PROTECTION OF PROPELLER SHAFTS**

20B-7.3.1 Propeller shafts made of corrosion-sensitive materials shall be protected against sea water attack either with metal coatings or other coatings approved by Administration and/or recognized Classification Society.

### **20B-7.4 ALARM SYSTEM**

20B-7.4.1 Vessel shall be fitted with alarm to call up an engineer to the machinery space which is actuated:

- i) manually from the central control station or from a local control station of main engines;
- ii) automatically, if the power plant faulty alarm is not confirmed within a given time.

The alarm signal shall be indicated inside the spaces that may be attended by the power plant servicing personnel.

---