

Economic Commission for Europe**Inland Transport Committee****28 July 2016****Working Party on the Transport of Dangerous Goods****Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) (ADN Safety Committee)****Twenty-ninth session**

Geneva, 22 - 26 August 2016

Item 3 (e) of the provisional agenda

**Implementation of the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)
Matters related to classification societies**

Reference to the ADN in the Class Rules (Revised version of informal document INF.24 of the 28th session)**Transmitted by the Recommended ADN Classification Societies**

During the twenty-eighth session (Jan.2016) of the ADN Safety Committee the Recommended ADN Classification Societies have been invited to submit a new document identifying more specifically the parts of their rules corresponding with the requirements under the Regulations annexed to ADN and explaining any gaps (negative replies or blanks in the columns). (see ECE/TRANS/WP.15/AC.2/58 – item 26).

We submit here this revised table of references.

<p><u>Request to the Recommended ADN Classification Societies</u></p> <p>Source : Doc WP15-AC2-25-inf12</p>		<p>Reference to Bureau Veritas Rules and Regulations</p>	<p>Reference to Germanischer Lloyd (2011) Rules and Regulations</p>	<p>Reference to DNV-GL (2016) Rules and Regulations</p>	<p>Reference to Lloyd's Register Rules and Regulations</p>	<p>Reference to RINA Rules and Regulations</p>	<p>Reference to Russian River Register Rules and Regulations</p>	<p>Reference to Russian Maritime Register of Shipping Rules and Regulations</p>	<p>Reference to Shipping Register of Ukraine Rules and Regulations</p>
<p><u>INF-12/Item 8 :</u></p> <p>References to class approval based on class rules</p>	<p>Do you have Class Rules ?</p> <p>“ <i>The proposers of the document <INF-12> would like to request the Recommended ADN Classification Societies to verify whether the different classification societies do indeed have class rules for the ADN provisions mentioned under paragraph. In case these are not available, they are requested to provide the ADN Committee with a timeframe within which they will be developed.</i>”</p>								
<p><u>INF-12/Item 9 :</u></p> <p>References to class approval based on requirements other than class rules</p>	<p>Which standards/regulations are used ?</p> <p>“<i>For the provisions where reference is made to class approval based on requirements other than class rules they are requested to specify which standards or regulations are used to determine whether arrangements are acceptable to the classification.</i>”</p>								

<u>ADN</u>									
1.2.1. Highest class	<p>may be assigned to a vessel when:</p> <ul style="list-style-type: none"> - the hull, inclusive of rudder and steering gear and equipment of anchors and chains, complies with the rules and regulations of a recognized classification society and has been built and tested under its supervision; - the propulsion plant, together with the essential auxiliary engines, mechanical and electrical installations, have been made and tested in conformity with the rules and regulations of this classification society, and the installation has been carried out under its supervision, and the complete plant was tested to its satisfaction on completion; 	<p>Class notations are included in Pt A, Ch 1, Sec 2</p>	<p>Hull: + 100 A5 IN(X.X) ...</p> <p>Machinery: (+) MC IN</p> <p>Rules for Inland Navigation Vessels Part 2, Chapter 1</p>	<p>Main class: + 1 A5 IN(X.X) ...</p> <p>Rules for Inland navigation vessels Part 1, Chapter 2</p>	<p>Class notations are included in Part 1, Chapter 2.</p>	<p>Class assignment: Pt A, Ch 2, Sec 1 [3.1.27]</p> <p>Class Notations: Pt A, Ch 1</p>	<p>RRR Rules</p>	<p>YES</p>	<p>2, Part XIII, Ch. 2.2.1</p>
1.2.1. Opening pressure	<p>Opening pressure means the pressure referred to in a list of substances in Chapter 3.2, Table C at which the high velocity vent valves open. For pressure tanks the opening pressure of the safety valve shall be established in accordance with the requirements of the competent authority or a recognized classification society;</p>	<p>The opening pressure is given in the class notations of the Certificate and in the first page of our "list of products".</p>	<p>The opening pressure is given in the class sign and at the first page of our vessels substance list.</p> <p>Rules for Inland navigation vessels Part 2, Chapter 1, Section 2, B, Table 2.5</p>	<p>The opening pressure is given in the class sign and at the first page of our vessels substance list.</p> <p>Rules for Inland navigation vessels Part</p>	<p>A cargo list is issued for each classed tanker vessel. This list is based on the questionnaire as filled in by the attending surveyor. The info of this questionnaire is used as input in the cargo list software</p>	<p>Part E, Chapter 2, Sec 1 [3.1.27] also Appendix 1</p> <p>List created by software considering input from surveyor and plan approval</p>	<p>RINS¹</p>	<p>Chapter VII</p> <p>"Rules for the classification and construction of inland and navigation ship (for European Inland Waterways)", 2012.</p>	<p>2, Part XIII, Ch. 1.5.2</p>

				1, Chapter 2, Section 2, Table 2	'Chemix', with which the cargo list is generated. The list can be generated in 4 languages.				
PART 7 REQUIREMENTS CONCERNING LOADING, CARRIAGE, UNLOADING AND HANDLING OF CARGO Chapter 7.2 Tank vessels									
7.2.2.0	NOTE 2: The design pressure and the test pressure of cargo tanks shall be indicated in the certificate of the recognised classification society prescribed in 9.3.1.8.1 or 9.3.2.8.1 or 9.3.3.8.1.	Pt A, Ch 1, Sec 3 , 3.2.7	The design pressure and test pressure are part of our class sign for tankers and will be mentioned at the class certificate. For the corresponding calls sign is given in Rules for Inland Navigation Vessels Part. 2, Chapter 1, Section 2, B, 4.2.1	The design pressure and test pressure are part of our class sign for tankers and will be mentioned at the class certificate. For the corresponding calls sign is given in Rules for Inland Navigation Vessels Part. 1, Chapter 2, Section 2, 4.2.1	The design pressure is included in the class notation. As the test pressure is related to the design pressure, this isn't included.	According to Pt A, Ch 1, Sec 2: The assigned class notations are indicated on the certificate of classification [1.1.2] Design and test pressure are supplementing the service notation Tanker [4.3.2] i.e: C +Hull +Mach, Tanker, Double Hull, DP 45 kPa/ TP 62 kPa TYPE C, inland waterways (2)		YES	The design pressure and test pressure are indicated in the Classification certificate in the section "Other Characteristics".
7.2.2.0	NOTE 3: Where a vessel carries cargo tanks with different valve-relief pressures, the relief pressure of	If a vessel had different design pressures for the cargo tanks	If a vessel has different design pressures for the cargo tanks the	If a vessel has different design pressures for	In such cases this is done. But it's very rare that tanks have	Tanks with different characteristics (such as opening		YES	This is done.

	each tank shall be indicated in the certificate of approval and the design and test pressures of each tank shall be indicated in the certificate of the recognised classification society.	the pressures would be indicated on the Class Certificate.	pressures a given at the first pages of the vessels substance list.	the cargo tanks the pressures a given at the first pages of the vessels substance list.	different design pressures.	pressures) shall be indicated on the "Certificate of compliance with ADN" and also on the "list of products" both to be issued by RINA.			
7.2.2.0.1	NOTE: The substances accepted for carriage in the individual vessel are listed in the vessel substance list to be drawn up by the recognised classification society (see 1.16.1.2.5).	Pt A, Ch 1, Sec 3 , 3.1.1	DNV GL issue vessels substance lists as requested in ADN.	DNV GL issue vessels substance lists as requested in ADN.	See above on 7.2.2.0.	See above 7.2.2.0		YES	SRU issue vessel substances list.
7.2.2.6 Gas detection system	The system shall have been approved by the competent authority or a recognized classification society.	Pt D, Ch 3, Sec 1 , 5.2.1	DNV GL has a special form for surveying gas detection system.	DNV GL has a special form for surveying gas detection system.	Gas detection is surveyed by LR during special surveys and intermediate surveys. A statement of compliance is issued.	A statement of compliance shall be issued upon satisfactory survey (acc. to ADN 9.3.X.8.3). It must be checked during this survey that the system complies with 7.2.2.6 of ADN (sensors of a type approved)		YES	2, Part XIII, Ch. 3.3.9.8.8
PART 8 PROVISIONS FOR VESSEL CREWS, EQUIPMENT, OPERATION AND									

<p>DOCUMENTATION</p> <p>Chapter 8.1 General requirements applicable to vessels and equipment</p>									
<p>8.1.2.3 c)</p>	<p>the stability booklet and the proof of the loading instrument having been approved by the recognized classification society;</p>	<p>GUIDANCE NOTE NI 634 Loading Instruments for Inland Navigation Vessels</p>	<p>Stability booklet will be approved on the basis of our Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, B, 7 and the ADN requirements. The loading instruments will be approved on the basis of our Rules Part 11, Chapter 7 - Guidelines for Loading Computer Systems.</p>	<p>Stability booklet will be approved on the basis of our Rules for Inland navigation vessels Part. 6, Chapter 1, Section 2, 7 and the ADN requirements. The loading instruments will be approved on the basis of GL Rules Part 11, Chapter 7 - Guidelines for Loading Computer Systems.</p>	<p>Stability booklets for new vessels are being approved. For existing vessels the booklets which were previously approved by the national authorities are being checked at class renewal. Also the computer loading instrument is being approved at class renewal.</p>	<p>Stability booklet can be approved acc. to Pt B, Ch 6 Appendix 2.</p> <p>Approval of loading instruments can be performed on basis of IACS REC 48.</p>	<p>RRR Rules (RTSC², RINS)</p>	<p>Chapter IV</p>	<p>1, Ch. 4.2.2.5.1, 4.2.7.6, 4.2.7.15, 4.2.8.8</p>
<p>PART 9</p> <p>RULES FOR CONSTRUCTION</p> <p>Chapter 9.1</p> <p>Rules for construction of dry cargo vessels</p>									
<p>9.1.0.88.1</p>	<p>Double-hull vessels intended to carry dangerous goods of</p>	<p>Double hull :</p>	<p>DNV GL has defined the class notations</p>	<p>DNV GL has defined the</p>	<p>Vessels where this is applicable</p>	<p>If not already built under</p>	<p>RRR Rules</p>	<p>Chapter II</p>	<p>2, Part XIII, Ch.</p>

	Classes 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 7, 8 or 9 except those for which label No. 1 is prescribed in column (5) of Table A of Chapter 3.2, in quantities exceeding those referred to in 7.1.4.1.1 shall be built or transformed under survey of a recognised classification society in accordance with the rules established by that classification society to its highest class. This shall be confirmed by the classification society by the issue of an appropriate certificate.	Pt A, Ch 1, Sec 3 , 1.2.3 DG : Pt A, Ch 1, Sec 3 , 2.2.6	"Double hull", "ADN" and "DG" to demonstrate that a vessel is in line with these requirements. For additional information to the class notations see Rules for Inland Navigation Vessels Part. 2, Chapter 1, Section 2, B, Table 2.5.	class notations "Double hull", "ADN" and "DG" to demonstrate that a vessel is in line with these requirements s. For additional information to the class notations see Rules for Inland Navigation Vessels Part. 1, Chapter 2, Section 2, Table 2.	will be surveyed and a statement that the vessel complies with the Rules will be issued upon completion.	supervision of a recognized Society, then subjected to relevant surveys and plan approvals an attestation that the vessel complies with the rules can be issued (Pt A, Ch 2, Sec 1). Additional class notations "ADN" and "double hull" can be granted (Pt E, Ch 2).			2.1.4
9.1.0.88.3	Future conversions and major repairs to the hull shall be carried out under survey of this classification society.	Pt A, Ch 2, Sec 1 , 6.4.2	No reference in the Rules.	No reference in the Rules.	This is done and confirmed by a statement that the conversion is done according the Rules.	Conversions and any repair which may affect the class must be surveyed by RINA (Pt A, Ch 2)	RRR Rules	Chapter I	2, Part XIII, Ch. 2.1.3
9.1.0.91.2	The distance between the sides of the vessel and the longitudinal bulkheads of the hold shall be not less than 0.80 m. Regardless of the requirements relating to the width of walkways on deck, a reduction of this distance to 0.60 m is permitted, provided that, compared with the scantlings	Pt D, Ch 3, Sec 7, 6.2.2	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, D, 5.	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 4, 5.	Part 4, Chapter 1 includes the requirements for the construction of dry cargo ships.	If issuance of an "ADN-compliance certificate" is requested, then compliance with the constructional rules of Chapter 9.1 will be examined (a dedicated document was developed for this	RRR Guidelines ³	Chapter II	2, Part XIII, Ch. 3.2.2.1.2

	specified in the rules for construction published by a recognised classification society, the following reinforcements have been made:					purpose: Form ADN_Dry).			
9.1.0.91.2	(c) The gangboards shall be supported by transverse bulkheads or cross-ties spaced not more than 32 m apart. As an alternative to compliance with the requirements of (c) above, a proof by calculation, issued by a recognised classification society confirming that additional reinforcements have been fitted in the double-hull spaces and that the vessel's transverse strength may be regarded as satisfactory.	Pt D, Ch 1, Sec3 , 6.1.1	The required sufficient transverse strength is fulfilled when the design of the vessel fulfills the requirements of our Rules for Inland Navigation Vessels Part. 2, Chapter 2, Section 5, B to E.	The required sufficient transverse strength is fulfilled when the design of the vessel fulfills the requirements of our Rules for Inland navigation vessels Part. 3, Chapter 4, Section 2 to 5.	This is included in Part 4, Chapter 1, Section 12.3 to 12.5.	Vessel's transverse strength may be considered as sufficient when the design fulfills the requirements of the Rules Pt B	RRR Guidelines	Chapter II	2, Part XIII, Ch. 3.2.2.1.2.3
9.2.0.88.1	Classification 9.2.0.88.1 Double-hull vessels intended to carry dangerous goods of Classes 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 7, 8 or 9 except those for which label No. 1 is prescribed in column (5) of Table A of Chapter 3.2, in quantities exceeding those referred to in 7.1.4.1, shall be built under survey of a recognised classification society in accordance with the rules established by	Rules for the Classification of Steel Ships NR 467	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, D, 3.2	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 4, 3.2.	This possibility is never being used. Seagoing vessel carrying dangerous goods are always already certified according legislation for seagoing ships. Additional certification has never been requested.	See 9.1.0.88.1	RRR Rules	Chapter II	2, Part XIII, Ch. 2.1.4

	that classification society to its highest class. This shall be confirmed by the classification society by the issue of an appropriate certificate.								
9.3.1									
Rules for construction of type G tank vessels									
9.3.1.8.1	The tank vessel shall be built under survey of a recognised classification society in accordance with the rules established by that classification society for its highest class, and the tank vessel shall be classed accordingly. The vessel's highest class shall be continued. The classification society shall issue a certificate certifying that the vessel is in conformity with the rules of this section (classification certificate). The design pressure and the test pressure of cargo tanks shall be entered in the certificate. If a vessel has cargo tanks with different valve opening pressures, the design and test pressures of each tank shall be entered in the certificate.	Pt D, Ch 3, Sec 2	Rules for Inland Navigation Vessels Part. 2, Chapter 1, Section 2, B, Tables 2.4 and 2.5. DNV GL issue vessels substance lists as requested in ADN.	Rules for Inland navigation vessels Part. 1, Chapter 2, Section 2, Tables 1 and 2. DNV GL issue vessels substance lists as requested in ADN.	Part 4, Chapter 5 includes requirements for type G tankers.	Highest class: see above 1.2.1 and 9.1.0.88.1 . Service Notation Tanker type G foreseen in the rules. Design/ test pressure and different opening pressures: see above 7.2.2.0 List of dangerous goods accepted for carriage: see above 7.2.2.0.1	Complies with RRR classification activity	YES	1, Ch. 1.4.1.1 2, Part XIII, Ch. 2.1.2, 2.1.5, 2.1.3 3, Part IV, Ch. 12.3

	The classification society shall draw up a vessel substance list mentioning all the dangerous goods accepted for carriage by the tank vessel (see also 1.16.1.2.5).								
9.3.1.8.2	<p>The cargo pump-rooms shall be inspected by a recognised classification society whenever the certificate of approval has to be renewed as well as during the third year of validity of the certificate of approval. The inspection shall comprise at least:</p> <ul style="list-style-type: none"> - an inspection of the whole system for its condition, for corrosion, leakage or conversion works which have not been approved; - a checking of the condition of the gas detection system in the cargo pump-rooms. <p>Inspection certificates signed by the recognised classification society with respect to the inspection of the cargo pump-rooms shall be kept on board. The inspection certificates shall at least include particulars of the above inspection and the results obtained as well as the date of the inspection.</p>	Pt A, Ch 3, Sec 7, 5.1.2 and 5.2.1	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the cargo pump room" (F092)	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the cargo pump room" (F092)	This is surveyed during intermediate survey and special survey. A statement of compliance is issued.	This shall be surveyed during class renewal, ordinary and intermediate survey (Pt A, Ch 4, Sec 2/ Sec 3/ Sec4). An attestation of compliance shall be issued.	Complies with RRR classification activity	YES	3, Part IV, Ch. 12.3

9.3.1.8.3	The condition of the gas detection system referred to in 9.3.1.52.3 shall be checked by a recognised classification society whenever the certificate of approval has to be renewed and during the third year of validity of the certificate of approval. A certificate signed by the recognised classification society shall be kept on board.	Pt A, Ch 3, Sec 7, 5.3.5	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the gas detection system" (F093)	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the gas detection system" (F093)	Gas detection is surveyed by LR during special surveys and intermediate surveys. A statement of compliance is issued.	This can be surveyed (on owner's request) during class renewal, ordinary and intermediate survey. An attestation of compliance shall be issued.	Complies with RRR classification activity	Chapter V	3, Part IV, Ch. 12.3
9.3.1.11.2	(a) In the cargo area, the hull shall be designed as follows:1 – as a double-hull and double bottom vessel. The internal distance between the sideplatings of the vessel and the longitudinal bulkheads shall not be less than 0.80 m, the height of the double bottom shall be not less than 0.60 m, the cargo tanks shall be supported by saddles extending between the tanks to not less than 20° below the horizontal centreline of the cargo tanks. Refrigerated cargo tanks shall be installed only in hold spaces bounded by	Pt D, Ch 3, Sec 2, 3.1.2 Pt D, Ch 3, Sec 2, 3.3.2	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, C, 2.	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 3, 2.	Part 4, Chapter 5, Section 3 includes requirements for the cargo tanks including their fastenings.	Requirements included in Pt E, Ch 1, Sec 13 and in Pt E, Ch 1, Sec 13 [7] Further if issuance of an "ADN-compliance certificate" is requested, then compliance with the constructional rules of Chapter 9.3.1 will be examined (a dedicated document was developed for this purpose: Form	RRR Guidelines	Chapter II	2, Part XIII, Ch. 3.3.3.6.1

	double-hull spaces and double-bottom. Cargo tank fastenings shall meet the requirements of a recognised classification society; or	Pt D, Ch 1, Sec 3, 8				ADN_TANKG).			
9.3.1.13.3 The proof of sufficient stability shall be shown for every operating, loading and ballast condition in the stability booklet, to be approved by the relevant classification society, which classes the vessel. If it is unpractical to pre-calculate the operating, loading and ballast conditions, a loading instrument approved by the recognised classification society which classes the vessel shall be installed and used which contains the contents of the stability booklet.	Pt D, Ch 3, Sec 2, Table 1 , Item 9	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, C, 6.	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 3, 6.	Stability booklets for new vessels are being approved. For existing vessels the booklets which were previously approved by the national authorities are being checked at class renewal. Also the computer loading instrument is being approved at class renewal.	See above 8.1.2.3 c)	RRR Rules	Chapter IV	2, Part XIII, Ch. 3.3.5.3- 3.3.5.6
9.3.1.17.5	(b) The penetration of the shaft [Driving shafts of the bilge or ballast pumps]through the bulkhead shall be gastight and shall have been approved by a recognised classification society.	Pt D, Ch 3, Sec 2, 2.3.5.b)	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, A, 2.10.3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 1, 2.10.3.	In Part 5, Chapter 13, Section 1.6.2 requirements on shaft penetrations are included.	Penetrations for drive shafts through pump room bulkheads are to be gastight design and are to be RINA approved (Pt E, Ch 2, Sec1	RRR Guidelines	Chapter XIV	2, Part XIII, Ch. 3.3.9.5

						[9.1.1])			
9.3.1.17.5	(d) Penetrations through the bulkhead between the engine room and the service space in the cargo area, and the bulkhead between the engine room and the hold spaces may be provided for electrical cables, hydraulic lines and piping for measuring, control and alarm systems, provided that the penetrations have been approved by a recognised classification society. The penetrations shall be gastight. Penetrations through a bulkhead with an "A-60" fire protection insulation according to SOLAS 74, Chapter II-2, Regulation 3, shall have an equivalent fire protection.	Pt D, Ch 3, Sec 2, 2.3.5.c)	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, A, 2.10.3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 1, 2.10.3.	In Part 6, Chapter 2, Section 13.6.5 requirements on cables penetrating bulkheads are included. In Part 5, Chapter 11, Section 1.2 requirements for piping systems penetrating bulkheads are included.	Shaft penetrations through A-60 bulkheads are not allowed. Pipe or cable penetrations may be fitted provided that they have an equivalent fire resistance (Pt E, Ch 2, Sec 1 [9.1.3])	RRR Rules (RINS)	Chapter XIV	2, Part XIII, Ch. 3.3.9.7
9.3.1.23.1	Cargo tanks and piping for loading and unloading shall comply with the provisions concerning pressure vessels which have been established by the competent authority or a recognised classification society for the substances carried.	Pt C, Ch 1, Sec3	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, C, 1.2.2	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 3, 1.2.2.	Part 4, Chapter 5, Section 3 refers to cargo tanks of type G tankers. In Part 5, Chapter 9 and Chapter 13 these requirements are further specified.	Requirements for pressure vessels in Pt C, Ch 1, Sec 3 Further specific requirements in Pt E, Ch 1, Sec 13 [6.2.1]	RRR Guidelines	Yes	2, Part XIII, Ch. 3.3.14.2

<p>9.3.1.24.1</p>	<p>Unless the entire cargo system is designed to resist the full effective vapour pressure of the cargo at the upper limits of the ambient design temperatures, the pressure of the tanks shall be kept below the permissible maximum set pressure of the safety valves, by one or more of the following means: (a); (b) a system ensuring safety in the event of the heating or increase in pressure of the cargo. The insulation or the design pressure of the cargo tank, or the combination of these two elements, shall be such as to leave an adequate margin for the operating period and the temperatures expected; in each case the system shall be deemed acceptable by a recognized classification society and shall ensure safety for a minimum time of three times the operation period; (c) other systems deemed acceptable by a recognized classification society.</p>	<p>Pt D, Ch 3, Sec2, 5.1.1</p>	<p>Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, C, 1.3 and 3</p>	<p>Rules for Inland navigation vessels Part. 6, Chapter 1, Section 3, 1.3 and 3.</p>	<p>Part 5, Chapter 13, Section 5.6 refers to these requirements.</p>	<p>Requirements stipulated in Pt E, Ch 2, Sec 3 [3.1.7] Acc. to Pt E, Ch 1, Sec 13 [6.1.1] for safety systems, reference can be made also to the Rules for Seagoing Ships carrying liquefied gases.</p>	<p>RRR Guidelines</p>	<p>Chapter VII “Rules for the classification and construction of inland navigation ships (for European Inland Waterways)” Chapter VI “Rules for the classification and construction of chemical tankers”</p>	<p>2, Part XIII, Ch. 3.3.15.1</p>
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9.3.1.24.2	The systems prescribed in 9.3.1.24.1 shall be constructed, installed and tested to the satisfaction of the recognized classification society. The materials used in their construction shall be compatible with the cargoes to be carried. For normal service, the upper ambient design temperature limits shall be: air: +30° C; water: +20° C.	Pt D, Ch 3, Sec2, 5.1.2	Rules for Seagoing Ships-Liquefied Gas Carriers I-Part 1, Chapter 6, Section 7; 7.1.2	Rules for Seagoing Ships-Liquefied Gas Carriers I-Part 1, Chapter 6, Section 7; 7.1.2 or RULES FOR CLASSIFICATION Ships, Part 5, Chapter 7, Section 7, 1.1.1	Part 5, Chapter 13, Section 5.6 refers to these requirements. Part 2 is entirely on manufacturing, testing and certification of materials of construction.	See above 9.3.1.24.1	RRR Guidelines	Chapter VII "Rules for the classification and construction of inland navigation ships (for European Inland Waterways)" Chapter VI "Rules for the classification and construction of chemical tankers"	2, Part XIII, Ch. 3.3.15.2
9.3.1.27.1	The refrigeration system referred to in 9.3.1.24.1 (a) shall be composed of one or more units capable of keeping the pressure and temperature of the cargo at the upper limits of the ambient design temperatures at the prescribed level. Unless another means of regulating cargo pressure and temperature deemed satisfactory by a recognized classification society is provided, provision shall be made for one or more stand-by units with an output at least equal to that of the largest prescribed unit. A stand-by unit shall include a compressor, its	Pt D, Ch 3, Sec2, 5.2.1	Rules for Seagoing Ships-Liquefied Gas Carriers I-Part 1, Chapter 6, Section 7; 7.2	Rules for Seagoing Ships-Liquefied Gas Carriers I-Part 1, Chapter 6, Section 7; 7.2 or RULES FOR CLASSIFICATION Ships, Part 5, Chapter 7, Section 7	Part 5, Chapter 13, Section 5.6 refers to these requirements.	See above 9.3.1.24.1	RRR Guidelines	Chapter VII "Rules for the classification and construction of inland navigation ships (for European Inland Waterways)" Chapter VI "Rules for the classification and construction of chemical tankers"	2, Part XIII, Ch. 3.3.18.1

	<p>engine, its control system and all necessary accessories to enable it to operate independently of the units normally used. Provision shall be made for a stand-by heat-exchanger unless the system's normal heat-exchanger has a surplus capacity equal to at least 25% of the largest prescribed capacity. It is not necessary to make provision for separate piping.</p> <p>Cargo tanks, piping and accessories shall be insulated so that, in the event of a failure of all cargo refrigeration systems, the entire cargo remains for at least 52 hours in a condition not causing the safety valves to open.</p>								
<p>9.3.1.27.9</p>	<p>For all cargo systems, the heat transmission coefficient shall be determined by calculation. The correctness of the calculation shall be checked by means of a refrigeration test (heat balance test). This test shall be performed in accordance with the rules set up by a recognised classification society.</p>	<p>Pt D, Ch 3, Sec2 , 5.2</p>	<p>No Rules available</p>	<p>No Rules available</p>	<p>Part 5, Chapter 13, Sections 4.4.1 and 5.4.1 refer to these requirements.</p>	<p>Implemented in the requirements for cargo refrigeration systems as described in Pt E, Ch 2, Sec 3 [3.1.7 d)]</p>	<p>RRR Guidelines</p>	<p>Chapter VII "Rules for the classification and construction of inland navigation ships (for European Inland Waterways)"</p> <p>Chapter VI "Rules for the classification and construction of chemical tankers"</p>	<p>2, Part XIII, Ch. 3.3.18.9</p>

9.3.1.27.10	A certificate from a recognized classification society stating that 9.3.1.24.1 to 9.3.1.24.3, 9.2.1.27.1 and 9.3.1.27.4 above have been complied with shall be submitted together with the application for issue or renewal of the certificate of approval.	An attestation will be issued.	Rules for Seagoing Ships-Liquefied Gas Carriers I-Part 1, Chapter 6, Section 7; 7.1.2	Rules for Seagoing Ships-Liquefied Gas Carriers I-Part 1, Chapter 6, Section 7; 7.1.2 or RULES FOR CLASSIFICATION Ships, Part 5, Chapter 7, Section 7.2.	Such statement of compliance will be issued.	An attestation of compliance can be issued.	Execution of this paragraph is an internal matter of classification society	<same as above>	2, Part XIII, Ch. 3.3.18.10
9.3.2 Rules for construction of type C tank vessels									
9.3.2.8.1	The tank vessel shall be built under survey of a recognised classification society in accordance with the rules established by that classification society for its highest class, and the tank vessel shall be classed accordingly. The vessel's highest class shall be continued. The classification society shall issue a certificate certifying that the vessel is in conformity with the rules of this section (classification certificate). The design pressure and the test pressure of cargo tanks shall be	Pt D, Ch 3, Sec 3	Rules for Inland Navigation Vessels Part. 2, Chapter 1, Section 2, B, Table 2.4 and 2.5. DNV GL issue vessels substance lists as requested in ADN.	Rules for Inland navigation vessels Part. 1, Chapter 2, Section 2, Tables 1 and 2. DNV GL issue vessels substance lists as requested in ADN.	Part 4, Chapter 6 includes requirements for type C tankers.	Highest class: see above 1.2.1 and 9.1.0.88.1 Design/ test pressure and different opening pressures: see above 7.2.2.0 List of dangerous goods accepted for carriage: see above 7.2.2.0.1	Complies with RRR classification activity	YES	1, Ch. 1.4.1.1 2, Part XIII, Ch. 2.1.2, 2.1.5, 2.1.3 3, Part IV, Ch. 12.3

	<p>entered in the certificate. If a vessel has cargo tanks with different valve opening pressures, the design and test pressures of each tank shall be entered in the certificate. The classification society shall draw up a vessel substance list mentioning all the dangerous goods accepted for carriage by the tank vessel (see also 1.16.1.2.5).</p>								
9.3.2.8.2	<p>The cargo pump-rooms shall be inspected by a recognised classification society whenever the certificate of approval has to be renewed as well as during the third year of validity of the certificate of approval. The inspection shall comprise at least: – an inspection of the whole system for its condition, for corrosion, leakage or conversion works which have not been approved; – a checking of the condition of the gas detection system in the cargo pump-rooms. Inspection certificates signed by the recognised classification society with respect to the inspection of the cargo pump-rooms</p>	Pt A, Ch 3, Sec7, 4.2.5	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the cargo pump room" (F092)	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the cargo pump room" (F092)	This is surveyed during intermediate survey and special survey. A statement of compliance is issued.	This shall be surveyed during class renewal, ordinary and intermediate survey (Pt A, Ch 4, Sec 2/ Sec 3/ Sec4). An attestation of compliance shall be issued.	Complies with RRR classification activity	YES	3, Part IV, Ch. 12.3

	shall be kept on board. The inspection certificates shall at least include particulars of the above inspection and the results obtained as well as the date of the inspection.								
9.3.2.8.3	The condition of the gas detection system referred to in 9.3.2.52.3 shall be checked by a recognised classification society whenever the certificate of approval has to be renewed and during the third year of validity of the certificate of approval. A certificate signed by the recognised classification society shall be kept on board.	Pt D, Ch 3, Sec3 , Table 1 Item 17	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the gas detection system" (F093)	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the gas detection system" (F093)	Gas detection is surveyed by LR during special surveys and intermediate surveys. A statement of compliance is issued.	This can be surveyed (on owner's request) during class renewal, ordinary and intermediate survey. An attestation of compliance shall be issued.	Complies with RRR classification activity	Chapter V	3, Part IV, Ch. 12.3
9.3.2.11.7	For double-hull construction with the cargo tanks integrated in the vessel's structure, the distance between the side wall of the vessel and the longitudinal bulkhead of the cargo tanks shall be not less than 1.00 m. A distance of 0.80 m may however be permitted, provided that, compared with the scantling requirements specified in the rules for construction of a	Pt D, Ch 3, Sec3	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, B, 3.2	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 2, 3.2.	Part 4, Chapter 4, Section 3.6.5 refers to these requirements.	If issuance of an "ADN-compliance certificate" is requested, then compliance with the constructional rules of Chapter 9.1 will be examined (a dedicated document was developed for this purpose: Form	RRR Guidelines	Chapter II	2, Part XIII, Ch. 3.3.3.21

	<p>recognised classification society, the following reinforcements have been made:</p> <p>(a) 25% increase in the thickness of the deck stringer plate;</p> <p>(b) 15% increase in the side plating thickness;</p> <p>(c) Arrangement of a longitudinal framing system at the vessel's side, where depth of the longitudinals shall be not less than 0.15 m and the longitudinals shall have a face plate with the cross-sectional area of at least 7.0 cm².</p> <p>(d) The stringer or longitudinal framing systems shall be supported by web frames, and like bottom girders fitted with lightening holes, at a maximum spacing of 1.80 m. These distances may be increased if the longitudinals are strengthened accordingly.</p>					ADN_TNKC).			
9.3.2.13.3	<p>...</p> <p>The proof of sufficient stability shall be shown for every operating, loading and ballast condition in the stability booklet, to be approved by the relevant classification society, which classes the vessel. If it is</p>	<p>Pt D, Ch 3, Sec3 , Table 1, item 6</p> <p>And</p> <p>Pt D, Ch 3 , 11</p>	<p>Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, B, 7</p>	<p>Rules for Inland navigation vessels Part. 6, Chapter 1, Section 2, 7.</p>	<p>Stability booklets for new vessels are being approved. For existing vessels the booklets which were previously approved by the national</p>	<p>Stability booklet can be approved acc. to Pt B, Ch 6 Appendix 2.</p> <p>Approval of loading instruments can be performed on basis of IACS</p>	<p>RRR Rules</p>	<p>Chapter IV</p>	<p>2, Part XIII, Ch. 3.3.5.3</p>

	unpractical to pre-calculate the operating, loading and ballast conditions, a loading instrument approved by the recognised classification society which classes the vessel shall be installed and used which contains the contents of the stability booklet.				authorities are being checked at class renewal. Also the computer loading instrument is being approved at class renewal.	REC 48.			
9.3.2.17.5	(b) The penetration of the shaft through the bulkhead shall be gastight and shall have been approved by a recognised classification society.	Pt D, Ch 3, Sec3 , 2.3.5.b	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, A, 2.10.3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 1, 2.10.3.	In Part 5, Chapter 13, Section 1.6.2 requirements on shaft penetrations are included.	Penetrations for drive shafts through pump room bulkheads are to be gastight design and are to be RINA approved (Pt E, Ch 2, Sec1 [9.1.1])	RRR Rules RRR Guidelines	YES	2, Part XIII, Ch. 3.3.9.5
9.3.2.17.5	(d) Penetrations through the bulkhead between the engine room and the service space in the cargo area and the bulkhead between the engine room and the hold spaces may be provided for electrical cables, hydraulic and piping for measuring, control and alarm systems, provided that the penetration have been approved by a recognized classification society. The penetrations shall be gastight. Penetrations through a bulkhead with an “A-	Pt D, Ch 3, Sec3 , 2.3.5.c	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, A, 2.10.3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 1, 2.10.3.	In Part 6, Chapter 2, Section 13.6.5 requirements on cables penetrating bulkheads are included. In Part 5, Chapter 11, Section 1.2 requirements for piping systems penetrating bulkheads are	Shaft penetrations through A-60 bulkheads are not allowed. Pipe or cable penetrations may be fitted provided that they have an equivalent fire resistance (Pt E, Ch 2, Sec 1 [9.1.3])	RRR Rules RRR Guidelines	YES	2, Part XIII, Ch. 3.3.9.7

	60" fire protection insulation according to SOLAS 74, Chapter II-2, Regulation 3, shall have an equivalent fire protection.				included.				
9.3.2.23.5	The procedure for pressure tests shall comply with the provisions established by the competent authority or a recognised classification society.	Pt D, Ch 3, Sec1, 5	Rules for Inland Navigation Vessels Part. 2, Chapter 1, Section 3, C, 2.1.10	Rules for Inland navigation vessels Part. 7, Chapter 1, Section 3, 2.1.10.	Testing procedures are included in Part 1, Chapter 3, Section 6.3.	Procedure for pressure tests described in Pt B, Ch 5, Sec 1 [1]	RTSC	YES	2, Part XIII, Ch. 3.3.14
9.3.3 Rules for construction of type N tank vessels									
9.3.3.8.1	The tank vessel shall be built under survey of a recognised classification society in accordance with the rules established by that classification society for its highest class, and the tank vessel shall be classed accordingly. The vessel's class shall be continued. The classification society shall issue a certificate certifying that the vessel is in conformity with the rules of this section (classification certificate). The design pressure and the test pressure of cargo tanks shall be entered in the certificate. If a vessel has cargo	Pt D, Ch 3 , Sec4	Rules for Inland Navigation Vessels Part. 2, Chapter 1, Section 2, B, Table 2.4 and 2.5. DNV GL issue vessels substance lists as requested in ADN.	Rules for Inland navigation vessels Part. 1, Chapter 2, Section 2, Tables 1 and 2. DNV GL issue vessels substance lists as requested in ADN.	Part 4, Chapter 6 includes requirements for type N tankers.	Highest class: see above 1.2.1 and 9.1.0.88.1 Design/ test pressure and different opening pressures: see above 7.2.2.0 List of dangerous goods accepted for carriage: see above 7.2.2.0.1	Complies with RRR classification activity	YES	1, Ch. 1.4.1.1 2, Part XIII, Ch. 2.1.2, 2.1.5, 2.1.3 3, Part IV, Ch. 12.3

	<p>tanks with different valve opening pressures, the design and test pressures of each tank shall be entered in the certificate.</p> <p>The classification society shall draw up a vessel substance list mentioning all the dangerous goods accepted for carriage by the tank vessel (see also 1.16.1.2.5).</p>								
9.3.3.8.2	<p>The cargo pump-rooms shall be inspected by a recognised classification society whenever the certificate of approval has to be renewed as well as during the third year of validity of the certificate of approval. The inspection shall comprise at least:</p> <ul style="list-style-type: none"> - an inspection of the whole system for its condition, for corrosion, leakage or conversion works which have not been approved; - a checking of the condition of the gas detection system in the cargo pump-rooms. <p>Inspection certificates signed by the recognised classification society with respect to the inspection of the cargo pump-rooms shall be kept on board. The inspection certificates shall at</p>	Pt A, Ch 3, Sec7, 4.2.5	<p>Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the cargo pump room" (F092)</p>	<p>Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the cargo pump room" (F092)</p>	<p>This is surveyed during intermediate survey and special survey. A statement of compliance is issued.</p>	<p>This shall be surveyed during class renewal, ordinary and intermediate survey (Pt A, Ch 4, Sec 2/ Sec 3/ Sec4). An attestation of compliance shall be issued.</p>	<p>Complies with RRR classification activity</p>	<p>YES</p>	<p>3, Part IV, Ch. 12.3</p>

	least include particulars of the above inspection and the results obtained as well as the date of the inspection.								
9.3.3.8.3	The condition of the gas detection system referred to in 9.3.3.52.3 shall be checked by a recognised classification society whenever the certificate of approval has to be renewed and during the third year of validity of the certificate of approval. A certificate signed by the recognised classification society shall be kept on board.	Pt D, Ch 3, Sec4 , Table 1 Item 17	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the gas detection system" (F093)	Is requested in "ADN – Checklist for Inland Tankers / Pushed Tank Barges Type G/C/N" (F082) and will be confirmed by "Certificate about inspection of the gas detection system" (F093)	Gas detection is surveyed by LR during special surveys and intermediate surveys. A statement of compliance is issued.	This can be surveyed (on owner's request) during class renewal, ordinary and intermediate survey. An attestation of compliance shall be issued.	Complies with RRR classification activity	CHAPTER V	3, Part IV, Ch. 12.3
9.3.3.13.3	... The proof of sufficient stability shall be shown for every operating, loading and ballast condition in the stability booklet, to be approved by the relevant classification society, which classes the vessel. If it is unpractical to pre-calculate the operating, loading and ballast conditions, a loading instrument approved by the recognised classification society which classes the vessel shall be	Pt D, Ch 3, Sec4 , Table 1, item 6 And Pt D, Ch4 , 11	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, B, 7	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 2, 7.	Stability booklets for new vessels are being approved. Also the computer loading instrument is being approved for new vessels. For existing vessels a transitional provision is applicable, so this isn't observed at	Stability booklet can be approved acc. to Pt B, Ch 6 Appendix 2. Approval of loading instruments can be performed on basis of IACS REC 48.	RRR Rules	Chapter IV	2, Part XIII, Ch. 3.3.5.3 – 3.3.5.6

	installed and used which contains the contents of the stability booklet.				surveys.				
9.3.3.17.5	(b) The penetration of the shaft through the bulkhead shall be gastight and shall have been approved by a recognised classification society.	Pt D, Ch 3, Sec4 , 2.3.5.b				Penetrations for drive shafts through pump room bulkheads are to be gastight design and are to be RINA approved (Pt E, Ch 2, Sec1 [9.1.1]).			
9.3.3.17.5	(d) Penetrations through the bulkhead between the engine room and the service space in the cargo area and the bulkhead between the engine room and the hold spaces may be provided for electrical cables, hydraulic lines and piping for measuring, control and alarm systems, provided that the penetrations have been approved by a recognised classification society. The penetrations shall be gastight. Penetrations through a bulkhead with an "A-60" fire protection insulation according to SOLAS 74, Chapter II-2, Regulation 3, shall have an equivalent fire protection.	Pt D, Ch 3, Sec4 , 2.3.5.c	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, A, 2.10.3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 1, 2.10.3.	In Part 6, Chapter 2, Section 13.6.5 requirements on cables penetrating bulkheads are included. In Part 5, Chapter 11, Section 1.2 requirements for piping systems penetrating bulkheads are included.	Shaft penetrations through A-60 bulkheads are not allowed. Pipe or cable penetrations may be fitted provided that they have an equivalent fire resistance (Pt E, Ch 2, Sec 1 [9.1.3]).	RRR Rules RRR guidelines	YES	2, Part XIII, Ch. 3.3.9.7

9.3.3.23.5	The procedure for pressure tests shall comply with the provisions established by the competent authority or a recognised classification society.	Pt D, Ch 3, Sec1, 5	Rules for Inland Navigation Vessels Part. 2, Chapter 1, Section 3, C, 2.1.10	Rules for Inland navigation vessels Part. 7, Chapter 1, Section 3, 2.1.10.	Testing procedures are included in Part 1, Chapter 3, Section 6.3.	Procedure for pressure tests described in Pt B, Ch 5, Sec 1 [1].	Complies with RRR classification activity	YES	2, Part XIII, Ch. 3.3.14
9.3.4 Alternative constructions									
9.3.4.1.4	When a vessel is built in compliance with this section, a recognised classification society shall document the application of the calculation procedure in accordance with 9.3.4.3 and shall submit its conclusions to the competent authority for approval. The competent authority may request additional calculations and proof.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 1	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 1.	The calculations are approved by Lloyd's Register. As we usually act as competent authority this info isn't submitted to the Dutch national authorities.	Where applicable, calculation procedure acc. to ADN 9.3.4.3 will be adopted and approved by RINA.	NO	According to "Rules for the classification and construction of inland navigation ships (for European Inland Waterways)" vessels are to be designed in compliance with ADN.	2, Part XIII, Ch. 3.4.1.4
9.3.4.3.1.1	<i>Step 1</i> Besides the alternative design, which is used for cargo tanks exceeding the maximum allowable capacity or a reduced distance between the side wall and the cargo tank as well as a more crashworthy side structure, a reference design with at least the same dimensions	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part 2, Chapter 4, Section 3, F, 3. and Part 2, Chapter 4, Section 3, A, B and C	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 1, 2 and 3.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 1.2.2

	(length, width, depth, displacement) shall be drawn up. This reference design shall fulfil the requirements specified in section 9.3.1 (Type G), 9.3.2 (Type C) or 9.3.3 (Type N) and shall comply with the minimum requirements of a recognised classification society.				(type C and N).				
9.3.4.3.1.2.1	The relevant typical collision locations i=1 through n shall be determined. The table in 9.3.4.3.1 depicts the general case where there are 'n' typical collision locations. The number of typical collision locations depends on the vessel design. The choice of the collision locations shall be accepted by the recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 3.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4 Where applicable, reference can be made also to GUI.9/E	NO	<same as above>	2, Part XIII, Annex 1, Ch. 1.2.3.1
9.3.4.3.1.2.2.1.5	Depending on the vessel design, the recognised classification society may require additional collision locations.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 3.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4. Where applicable, reference can be made also to GUI.9/E	NO	<same as above>	2, Part XIII, Annex 1, Ch. 1.2.3.2.1.5
9.3.4.3.1.2.2.2	<i>Tank vessel type G</i> For a tank vessel type G a collision at half	Pt D, Ch 3 , Sec2,	Rules for Inland Navigation Vessels	Rules for Inland	Part 4, Chapter 4, Section 3.2	See above	NO	<same as	2, Part XIII, Annex 1, Ch.

	tank height shall be assumed. The recognized classification society may require additional collision locations at other heights. This shall be agreed with the recognised classification society.	3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Part. 2, Chapter 4, Section 3, F, 3	navigation vessels Part. 6, Chapter 1, Section 6, 3.	refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	9.3.4.3.1.2.2.1.5		above>	1.2.3.2.2
9.3.4.3.1.2.4.3	<i>Additional examinations for tank vessels type G, C and N with independent cargo tanks</i> As proof that the tank seatings and the buoyancy restraints do not cause any premature tank rupture, additional calculations shall be carried out. The additional collision locations for this purpose shall be agreed with the recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 3.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	Requirements stipulated in Pt E, Ch 1, Sec 13 [7]. Also see above 9.3.4.3.1.2.2.1.5	NO	<same as above>	2, Part XIII, Annex 1, Ch. 1.2.3.5
9.3.4.3.1.3.1	For each typical collision location a weighting factor which indicates the relative probability that such a typical collision location will be struck shall be determined. In the table in 9.3.4.3.1 these factors are named <i>wfloc(i)</i> (column J). The assumptions shall be agreed with the recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 3	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 3.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 1.2.4.1

9.3.4.4.1.2	The program actually used and the level of detail of the calculations shall be agreed upon with a recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.1.2
9.3.4.4.2.1	First of all, FE models for the more crashworthy design and one for the reference design shall be generated. Each FE model shall describe all plastic deformations relevant for all collision cases considered. The section of the cargo area to be modelled shall be agreed upon with a recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4 Where applicable, reference can be made also to GUI.9/E	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.2.1
9.3.4.4.2.4	The calculation of rupture initiation must be based on fracture criteria which are suitable for the elements used. The maximum element size shall be less than 200 mm in the collision areas. The ratio between the longer and the shorter shell element edge shall not exceed the value of three. The element length L for a shell element is defined as the longer length of	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.2.4

	both sides of the element. The ratio between element length and element thickness shall be larger than five. Other values shall be agreed upon with the recognised classification society.								
9.3.4.4.3.4	If the material properties from tensile tests are not available when starting the calculations, minimum values of Ag and Rm, as defined in the rules of the recognised classification society, shall be used instead. For shipbuilding steel with a yield stress higher than 355 N/mm ² or materials other than shipbuilding steel, material properties shall be agreed upon with a recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N). Also Part 2 refers.	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.3.4
9.3.4.4.4.4	Other σ_g and σ_e values taken from thickness measurements of exemplary damage cases and experiments may be used in agreement with the recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.4.4
9.3.4.4.4.5	Other rupture criteria may be accepted by the recognised classification society if	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3,	Rules for Inland Navigation Vessels Part. 2, Chapter 4,	Rules for Inland navigation vessels Part.	Part 4, Chapter 4, Section 3.2 refers to these requirements.	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.4.5

	proof from adequate tests is provided.	3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Section 3, F, 4	6, Chapter 1, Section 6, 4.	This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).				
9.3.4.4.4.6	<i>Tank vessel type G</i> For a tank vessel type G the rupture criterion for the pressure tank shall be based on equivalent plastic strain. The value to be used while applying the rupture criterion shall be agreed upon with the recognised classification society. Equivalent plastic strains associated with compressions shall be ignored.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.4.6
9.3.4.4.5.2	The force penetration curves resulting from the FE model calculation shall be submitted to the recognised classification society.	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7, 6.2.1	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4, Chapter 5, Section 1.3.5 (type G), and Part 4, Chapter 6, Section 1.3.4 (type C and N).	See above 9.3.4.1.4 Where applicable reference can be made also to GUI.9/E	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.5.1.2
9.3.4.4.6.2	Because in most collision cases the bow of the striking vessel shows only slight deformations compared to the side structure of the struck	Pt D, Ch 3 , Sec2, 3.1.1 Pt D, Ch 3 , Sec3, 3.2.1 Pt D, Ch 3 , Sec7,	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, F, 4	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 6, 4.	Part 4, Chapter 4, Section 3.2 refers to these requirements. This is repeated in Part 4,	See above 9.3.4.1.4 Where applicable reference can be made also to	NO	<same as above>	2, Part XIII, Annex 1, Ch. 2.6.2

	wheelhouse or into the accommodation. A safe haven can be evacuated during an incident. A safe haven on board is not acceptable when the identified danger is explosion. A safe haven on board and a floating safe haven outside the ship are certified by a recognized classification society. A safe haven on land is constructed according to local law;"								
9.3.1.27.9	"For all cargo systems, the heat transmission coefficient as used for the determination of the holding time (7.2.4.16.16 and 7.2.4.16.17) shall be determined by calculation. Upon completion of the vessel, the correctness of the calculation shall be checked by means of a heat balance test. The calculation and test shall be performed under supervision by the recognized classification society which classified the vessel. The heat transmission coefficient shall be documented and kept on board. The heat transmission	Pt D, Ch 3, Sec2 , 5.2	No Rules available	No Rules available	Part 5, Chapter 13, Sections 4.4.1 and 5.4.1 refer to these requirements.	Implemented in the requirements for cargo refrigeration systems as described in Pt E, Ch 2, Sec 3 [3.1.7 d)]		<same as above>	2, Part XIII, Ch. 3.3.18.9, 3.3.18.10

	coefficient shall be verified at every renewal of the certificate of approval."								
9.3.2.11.2 a)	"Refrigerated cargo tank fastenings shall meet the requirements of a recognised classification society."	Pt D, Ch 1, Sec 3, 8	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, C, 2.1.5	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 3, 2.1.5.	Part 5, Chapter 13, section 4.6 includes requirements for tank supports.	Requirements for cargo tank fastening described in Pt E, Ch 2, Sec 3 [3.1.5].		<same as above>	2, Part XIII, Ch. 3.3.3.7
9.3.x.24.3	9.3.x.24.3 The cargo storage system shall be capable of resisting the full vapour pressure of the cargo at the upper limits of the ambient design temperatures, whatever the system adopted to deal with the boil-off gas. This requirement is indicated by remark 37 in column (20) of Table C of Chapter 3.2."	---	Rules for Inland Navigation Vessels Part. 2, Chapter 4, Section 3, C, 1.3.1	Rules for Inland navigation vessels Part. 6, Chapter 1, Section 3, 1.3.1.	Part 5, Chapter 9, Section 1.3 includes requirements on design pressures.	Requirements stipulated in Pt E, Ch 2, Sec 3 [2.1.1].		<same as above>	2, Part XIII, Ch. 3.3.15.3

Notes from :

LR :

1 - Rules and Regulations for the Classification of Inland Waterway Ships. In this document this will be referred to as 'Rules'. All Parts, Chapters and Sections mentioned in this document refer to these Rules.

Apart from these Rules a Marine Survey Procedure Manual in which detailed information on the content of the surveys is included is applicable.

2- Standards which are given by national authorities or international accepted standards.

RRR :

¹ **RINS** – Rules for Classification and Construction of Inland Navigation Ships

² **RTSC** – Rules for Technical Supervision over Construction of Ships and Manufacturing of Products and Materials

³ **Guidelines** – Rules For Ships Carrying Dangerous Goods, Guidelines P.027-2008; Survey Of Ships For Determination Of Their Capability To Carry Dangerous Goods, Guidelines P.038-2011

RINA:

The reference is the consolidated edition of Inland Navigation Rules identified as document no. RES-19ENG as amended until 1.7.2015. Some requirements are the same as used in RINA Rules for the Classification of Ships and other guidelines for the construction of chemical/oil tankers and gas carriers.