
RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part Q

Steel Barges

2018 AMENDMENT NO.1

Rule No.100 29 June 2018

Resolved by Technical Committee on 31 January 2018

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

“Rules for the survey and construction of steel ships” has been partly amended as follows:

Part Q STEEL BARGES

Amendment 1-1

Chapter 19 EQUIPMENT

19.1 Anchors, Chain Cables and Ropes

19.1.1 General

Sub-paragraph -1 has been amended as follows.

1 All barges, according to their equipment numbers, are to be provided with anchors, chain cables, ropes, etc. which are not less than given in **Table Q19.1** and **19.1.5**. All barges are to be provided with suitable appliances for handling the anchors and the lines.

19.1.2 Unmanned Barges*

Sub-paragraph -1 has been amended as follows.

1 Notwithstanding the provisions in **19.1.1** and **19.1.5**, for the unmanned barges the following requirements are applied:

- (1) The number of anchors may be one of the unit weight in **Table Q19.1**.
- (2) The length of anchor chains may be half of length in **Table Q19.1**.
- (3) Except where specified in (1) and (2), the **Table Q19.1** and **19.1.5** is applied.

Table Q19.1 has been amended as follows.

Table Q19.1 Anchors, Chain Cables ~~and Ropes~~

Equipment Letter	Equipment number		Anchor		Chain cable for anchor (Stud anchor for chain)			Mooring line		
			number	Mass per anchor (stock-less anchor)	Total length	Diameter		number	Length of each line	Breaking load
						Grade 1	Grade 2	Grade 3		
	Over	Up to		kg	m	mm	mm	mm	#	kN
BA1	50	70	2	180	220	14	12.5		3	34
BA2	70	90	2	240	220	16	14		3	37
BA3	90	110	2	300	247.5	17.5	16		3	39
BA4	110	130	2	360	247.5	19	17.5		3	44
BA5	130	150	2	420	275	20.5	17.5		3	49

BB1	150	175	2	480	275	22	19		3	120	•	54
BB2	175	205	2	570	302.5	24	20.5		3	120	•	59
BB3	205	240	2	660	302.5	26	22		4	120	•	64
BB4	240	280	2	780	330	28	24		4	120	•	69
BB5	280	320	2	900	357.5	30	26		4	140	•	74
BC1	320	360	2	1020	357.5	32	28		4	140	•	78
BC2	360	400	2	1140	385	34	30		4	140	•	88
BC3	400	450	2	1290	385	36	32		4	140	•	98
BC4	450	500	2	1440	412.5	38	34		4	140	•	108
BC5	500	550	2	1590	412.5	40	34		4	160	•	123
BD1	550	600	2	1740	440	42	36		4	160	•	132
BD2	600	660	2	1920	440	44	38		4	160	•	147
BD3	660	720	2	2100	440	46	40		4	160	•	157
BD4	720	780	2	2280	467.5	48	42		4	170	•	172
BD5	780	840	2	2460	467.5	50	44		4	170	•	186
BE1	840	910	2	2640	467.5	52	46	40	4	170	•	201
BE2	910	980	2	2850	495	54	48	42	4	170	•	216
BE3	980	1060	2	3060	495	56	50	44	4	180	☐	230
BE4	1060	1140	2	3300	495	58	50	46	4	180	☐	250
BE5	1140	1220	2	3540	522.5	60	52	46	4	180	☐	270
BF1	1220	1300	2	3780	522.5	62	54	48	4	180	☐	284
BF2	1300	1390	2	4050	522.5	64	56	50	4	180	☐	309
BF3	1390	1480	2	4320	550	66	58	50	4	180	☐	324
BF4	1480	1570	2	4590	550	68	60	52	5	190	☐	324
BF5	1570	1670	2	4890	550	70	62	54	5	190	☐	333
BG1	1670	1790	2	5250	577.5	73	64	56	5	190	☐	353
BG2	1790	1930	2	5610	577.5	76	66	58	5	190	☐	378
BG3	1930	2080	2	6000	577.5	78	68	60	5	190	☐	402
BG4	2080	2230	2	6450	605	81	70	62	5	200	☐	422
BG5	2230	2380	2	6900	605	84	73	64	5	200	☐	451
BH1	2380	2530	2	7350	605	87	76	66	5	200	☐	480
BH2	2530	2700	2	7800	632.5	90	78	68	6	200	☐	490
BH3	2700	2870	2	8300	632.5	92	81	70	6	200	⊗	500
BH4	2870	3040	2	8700	632.5	95	84	73	6	200	⊗	500
BH5	3040	3210	2	9300	660	97	84	76	6	200	⊗	520

Notes:

- ~~Where steel wire ropes are used, the following wire ropes corresponding to the marks shown in the Table are to be provided: •, ⊕ and ⊗ show wire ropes of (6×12), (6×24) and (6×37), respectively.~~
- ~~Length of chain cables may be that including shacks for connection.~~
- ~~For barges having equipment number of 205 and below, wire rope may be used instead of cable.~~
- ~~Values given for anchoring equipment in this table are based on an assumed maximum current speed of 2.5 m/s, a maximum wind speed of 25 m/s and a minimum scope of chain cable of 6, the scope being the ratio between the paid-out length of the chain and water depth.~~

Paragraphs 19.1.5 to 19.1.7 have been added as follows.

19.1.5 Mooring Lines

1 As for wire ropes and fibre ropes used as mooring lines, the breaking test load specified in **Chapter 4 or 5, Part L** is not to be less than the breaking load given in **Table Q19.2 or -3** respectively.

2 The number of mooring lines for barges whose equipment numbers do not exceed 2,000 is to be in accordance with **Table Q19.2**. However, for barges having the ratio A/EN above 0.9, the following number of ropes should be added to the number required by **Table Q19.2** for mooring lines.

Where A/EN is above 0.9 up to 1.1 : 1

Where A/EN is above 1.1 up to 1.2 : 2

Where A/EN is above 1.2 : 3

EN : Equipment number

A : Value specified in **19.1.3(2)**

3 The number and strength of mooring lines for barges whose equipment numbers exceed 2,000 are to be in accordance with the following (1) to (4).

(1) Minimum breaking strength (MBL) is not to be less than that obtained from the following formula:

$$MBL = 0.1A_1 + 350 \quad (kN)$$

A_1 : Barge side-projected area specified in -5.

(2) Head lines, stern lines, breast lines or spring lines in the same service are to be of the same characteristics in terms of strength and elasticity. The strength of spring lines is to be the same as that of the head, stern and breast lines.

(3) The total number of head, stern and breast lines is to be obtained from the following formula and rounded to the nearest whole number:

$$n = 8.3 \times 10^{-4} A_1 + 6$$

(4) The total number of spring lines is to be not less than two.

4 Notwithstanding the requirement in -3, the number of head, stern and breast lines may be increased or decreased in conjunction with an adjustment to the strength of the lines. The adjusted strength, MBL^* , is to be taken as:

$$MBL^* = 1.2MBL \cdot n/n^* \leq MBL \quad (kN) \quad \text{for an increased number of lines}$$

$$MBL^* = MBL \cdot n/n^* \quad (kN) \quad \text{for a reduced number of lines}$$

n^* : The increased or decreased total number of head, stern and breast lines

n : The number of lines calculated by the formulae specified in -3(3) without rounding.

In the same manner, the strength of head, stern and breast lines may be increased or decreased in conjunction with an adjustment to the number of lines. If the number of head, stern and breast lines is increased in conjunction with an adjustment to the strength of the lines, the number of spring lines is to be likewise increased, but rounded up to the nearest even number.

5 The barge side-projected area A_1 is to be obtained from the same formula specified in **19.1.3(2)**. However, following (1) to (4) are to be considered.

(1) The lightest draft of usual loading conditions is to be considered if the ratio of the freeboard in the lightest draft and the full load condition is equal to or above two.

(2) Wind shielding of the pier can be considered for the calculation of the side-projected area A_1 unless the barge is intended to be regularly moored to jetty-type piers. A height of the pier surface of 3 m over waterline may be assumed; in other word, the lower part of the side-projected area with a height of 3 m above the waterline for the considered loading condition may be disregarded for the calculation of the side-projected area A_1 .

(3) Deck cargo is to be included for the determination of side-projected area A_1 . Deck cargo may not need to be considered if a usual light draft condition without cargo on deck generates a larger side-projected area A_1 than the full load condition with cargo on deck. The larger of both side-projected areas is to be chosen as side-projected area A_1 .

(4) Usual loading conditions mean loading conditions as given by the trim and stability booklet that are to be expected to regularly occur during operation and, in particular, excluding light weight conditions, propeller inspection conditions, etc.

6 The mooring lines specified in -3 and -4 are based on the following environmental conditions:

(1) Maximum current speed: 1.0 m/s

(2) Maximum wind speed v_w : 25.0 m/s

7 Among the environmental conditions specified in **-6**, the maximum wind speed v_w may be increased and decreased in conjunction with an adjustment to the strength of the lines as the acceptable wind speed v_w^* . In this case, the acceptable wind speed v_w^* is to be obtained from the following formula:

$$v_w^* = v_w \sqrt{\frac{MBL^*}{MBL}}$$

MBL^* : The adjusted strength of mooring lines (kN)

However, the maximum wind speed v_w can be decreased where maximum breaking strength, MBL , specified in **-3(1)** is more than 1,275 kN. The acceptable wind speed v_w^* is to be not less than 21 m/s.

8 The length of mooring lines for barges whose equipment numbers are less than or equal to 2,000 is to be in accordance with **Table Q19.2**. For barges whose equipment numbers exceed 2,000, the length of mooring lines is to be taken as 200 m.

9 Application of fibre ropes for mooring lines is to be as deemed appropriate by the Society.

10 For mooring lines connected with powered winches where the rope is stored on the drum, steel cored wire ropes of suitable flexible construction may be used instead of fibre cored wire ropes subject to the approval by the Society.

11 The length of individual mooring lines may be reduced by up to 7% of the lengths given in **-8**, provided that the total length of the stipulated number of mooring lines is not less than that obtained from multiplying the length by the number given in **-2** or **-3**.

Table Q19.2 Mooring Lines for Barges with Equipment Number \leq 2000

Equipment Letter	Equipment number		Mooring line		
			Number	Length of each line	Breaking load
	Over	Up to		m	kN
<u>BA1</u>	<u>50</u>	<u>70</u>	<u>3</u>	<u>80</u>	<u>37</u>
<u>BA2</u>	<u>70</u>	<u>90</u>	<u>3</u>	<u>100</u>	<u>40</u>
<u>BA3</u>	<u>90</u>	<u>110</u>	<u>3</u>	<u>110</u>	<u>42</u>
<u>BA4</u>	<u>110</u>	<u>130</u>	<u>3</u>	<u>110</u>	<u>48</u>
<u>BA5</u>	<u>130</u>	<u>150</u>	<u>3</u>	<u>120</u>	<u>53</u>
<u>BB1</u>	<u>150</u>	<u>175</u>	<u>3</u>	<u>120</u>	<u>59</u>
<u>BB2</u>	<u>175</u>	<u>205</u>	<u>3</u>	<u>120</u>	<u>64</u>
<u>BB3</u>	<u>205</u>	<u>240</u>	<u>4</u>	<u>120</u>	<u>69</u>
<u>BB4</u>	<u>240</u>	<u>280</u>	<u>4</u>	<u>120</u>	<u>75</u>
<u>BB5</u>	<u>280</u>	<u>320</u>	<u>4</u>	<u>140</u>	<u>80</u>
<u>BC1</u>	<u>320</u>	<u>360</u>	<u>4</u>	<u>140</u>	<u>85</u>
<u>BC2</u>	<u>360</u>	<u>400</u>	<u>4</u>	<u>140</u>	<u>96</u>
<u>BC3</u>	<u>400</u>	<u>450</u>	<u>4</u>	<u>140</u>	<u>107</u>
<u>BC4</u>	<u>450</u>	<u>500</u>	<u>4</u>	<u>140</u>	<u>117</u>
<u>BC5</u>	<u>500</u>	<u>550</u>	<u>4</u>	<u>160</u>	<u>134</u>
<u>BD1</u>	<u>550</u>	<u>600</u>	<u>4</u>	<u>160</u>	<u>143</u>
<u>BD2</u>	<u>600</u>	<u>660</u>	<u>4</u>	<u>160</u>	<u>160</u>
<u>BD3</u>	<u>660</u>	<u>720</u>	<u>4</u>	<u>160</u>	<u>171</u>
<u>BD4</u>	<u>720</u>	<u>780</u>	<u>4</u>	<u>170</u>	<u>187</u>
<u>BD5</u>	<u>780</u>	<u>840</u>	<u>4</u>	<u>170</u>	<u>202</u>
<u>BE1</u>	<u>840</u>	<u>910</u>	<u>4</u>	<u>170</u>	<u>218</u>

<u>BE2</u>	910	980	4	170	235
<u>BE3</u>	980	1060	4	180	250
<u>BE4</u>	1060	1140	4	180	272
<u>BE5</u>	1140	1220	4	180	293
<u>BF1</u>	1220	1300	4	180	309
<u>BF2</u>	1300	1390	4	180	336
<u>BF3</u>	1390	1480	4	180	352
<u>BF4</u>	1480	1570	5	190	352
<u>BF5</u>	1570	1670	5	190	362
<u>BG1</u>	1670	1790	5	190	384
<u>BG2</u>	1790	1930	5	190	411
<u>BG3</u>	1930	2000	5	190	437

19.1.6 Chain Lockers

1 Chain lockers are to be of capacities and depths adequate to provide an easy direct lead of the cables through the chain pipes and a self-stowing of the cables.

2 Chain lockers including spurling pipes are to be watertight up to the weather deck and to be provided with a means for drainage.

3 Chain lockers are to be subdivided by centre line screen walls.

4 Where a means of access is provided, it is to be closed by a substantial cover and secured by closely spaced bolts.

5 Where a means of access to spurling pipes or cable lockers is located below the weather deck, the access cover and its securing arrangements are to be to the satisfaction of the Society. Butterfly nuts and/or hinged bolts are prohibited as the securing mechanism for the access cover.

6 Spurling pipes through which anchor cables are led are to be provided with permanently attached closing appliances to minimize water ingress.

7 The inboard ends of the chain cables are to be secured to the structures by fasteners able to withstand a force not less than 15% and not more than 30% breaking load of the chain cable.

8 Fasteners are to be provided with a means suitable to permit, in case of emergency, an easy slipping of chain cables to the sea, operable from an accessible position outside the chain locker.

19.1.7 Supporting Hull Structures of Anchor Windlasses and Chain Stoppers

1 The supporting hull structures of anchor windlasses and chain stoppers are to be sufficient to accommodate operating loads and sea loads

(1) Operating loads are to be taken as not less than the following:

(a) For chain stoppers, 80% of the chain cable breaking load

(b) For windlasses, where no chain stopper is fitted or a chain stopper is attached to the windlass, 80% of the chain cable breaking load

(c) For windlasses, where chain stoppers are fitted but not attached to the windlass, 45% of the chain cable breaking load

(2) Sea loads are to be taken according to **2.1.6, Section 4, Chapter 11, Part 1 of Part CSR-B&T**

2 The permissible stresses for supporting hull structures of windlasses and chain stoppers, based on gross thicknesses, are not to be greater than the following permissible values:

(1) Normal stress: $1.00 R_{eH}$

(2) Shear stress: $0.60 R_{eH}$

R_{eH} : The specified minimum yield stress of the material

Chapter 23 BARGES INTENDED TO BE CLASSIFIED AS LIMITED SERVICES

23.2 Barges Intended to be Classified as “Coasting Service”

Paragraph 23.2.3 has been amended as follows.

23.2.3 Equipment

Equipment ~~given in Table Q19.1~~ ~~are~~ is to be provided ~~according to their equipment numbers obtained from the formulae in~~ in accordance with **Chapter 19**. However, the mass of one of the two anchors may be reduced to 85% of the mass given in the **Table Q19.1**. The mass of an anchor required to be provided with for unmanned barges with exception of those for which provision **19.1.2-2** are applied, is not to be less than given in **Table Q19.1**.

23.3 Barges Intended to be Classified as “Smooth Water Service”

23.3.5 Equipment

Sub-paragraph -1 has been amended as follows.

1 For barges of which equipment numbers are not more than 2,000, equipment given in **Table Q19.1** may be provided by reducing one rank according to their equipment numbers obtained from the formula in **Chapter 19**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 July 2018.
2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction* is before the effective date.
* “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of “contract for construction” of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.
2. The date of “contract for construction” of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder. For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a “series of vessels” if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
 - (1) such alterations do not affect matters related to classification, or
 - (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.
3. If a contract for construction is later amended to include additional vessels or additional options, the date of “contract for construction” for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a “new contract” to which **1.** and **2.** above apply.
4. If a contract for construction is amended to change the ship type, the date of “contract for construction” of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:

This Procedural Requirement applies from 1 July 2009.

Chapter 20 MACHINERY

20.4 Auxiliaries and Piping Arrangement

Paragraph 20.4.9 has been added as follows.

20.4.9 Windlasses and Mooring Winches

Windlasses and mooring winches are to be in accordance with the requirements specified in Chapter 16, Part D.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2018.
2. Notwithstanding the amendments to the Rules, the current requirements apply to windlasses for which the application for approval is submitted to the Society before the effective date and that are installed on ships for which the date of contract for construction* is before the effective date.
* “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of “contract for construction” of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.
2. The date of “contract for construction” of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder. For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a “series of vessels” if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
 - (1) such alterations do not affect matters related to classification, or
 - (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.
3. If a contract for construction is later amended to include additional vessels or additional options, the date of “contract for construction” for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a “new contract” to which **1.** and **2.** above apply.
4. If a contract for construction is amended to change the ship type, the date of “contract for construction” of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:

This Procedural Requirement applies from 1 July 2009.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part Q

Steel Barges

GUIDANCE

2018 AMENDMENT NO.1

Notice No.52 29 June 2018

Resolved by Technical Committee on 31 January 2018

Notice No.52 29 June 2018

AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

“Guidance for the survey and construction of steel ships” has been partly amended as follows:

Part Q STEEL BARGES

Appendix 1 APPLICATION OF PART C OF THE GUIDANCE

Table Q has been amended as follows.

Table Q Correspondence Table of Guidance

Part Q	Part C	Part Q	Part C	Part Q	Part C
1.1.1	C1.1.3	8.2.1	C11.2.1	13.3.3	C16.3.3
1.16	C1.1.10	9.1.3	C12.1.3	14.1.1-1	C10.2.1 ¹⁾
2.1.1	C1.1.11 & C1.1.12	9.1.4	C12.1.4	14.2.1	C17.1.1
		9.2.1	C12.2.1	14.2.3	C17.1.4
2.1.2	C1.1.7	10.2.3	C13.2.3	14.3.2	C17.2.2
7.1.2	C10.1.2	11.1.3	C14.1.3	14.4.1	C17.3.1
7.3.2	C10.4.2	11.2.2	C14.2.3	15.3.1	C18.3.1
8.1.1	C11.1.2	12.1.1	C15.2.1	19.1.3	C27.1.2
8.1.1	C11.1.2	12.1.2	C15.2.3	19.1.5	C27.1.5 ²⁾

Remarks

- 1) In **C10.2.1, Part C of the Guidance**, “**10.2.1-1(2), Part C of the Rules**” is to be construed as “**14.1.1-1(2), Part Q of the Rules**”.
- 2) In **C27.1.5, Part C of the Guidance**, “**27.1.5, Part C of the Rules**” is to be construed as “**19.1.5, Part Q of the Rules**”.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 1 July 2018.
2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships for which the date of contract for construction* is before the effective date.
* “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of “contract for construction” of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.
2. The date of “contract for construction” of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.
For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a “series of vessels” if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
 - (1) such alterations do not affect matters related to classification, or
 - (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.
3. If a contract for construction is later amended to include additional vessels or additional options, the date of “contract for construction” for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a “new contract” to which **1.** and **2.** above apply.
4. If a contract for construction is amended to change the ship type, the date of “contract for construction” of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:

This Procedural Requirement applies from 1 July 2009.