

Subject

Amendment of IACS Unified Requirements for surveys for Bulk Carrier UR Z10.2 (rev.15)

ClassNK

Technical Information

No. TEC-0561
Date 1 January 2004

To whom it may concern

As previously advised in ClassNK Technical Information No. TEC-0538, the requirements of renewal criteria for side shell frames (IACS UR-S31) as a part of the Bulk Carrier Safety initiative come into force on 1 January 2004. The UR has now been incorporated to the ClassNK Rules.

In order to unify the methodology of thickness gauging which is necessary to evaluate hold frames' strength in line with UR-S31, amongst IACS members, Guidelines for thickness gauging have been prepared and UR Z10.2 (rev.15) including the Guidelines was adopted at the IACS Council meeting held in December 2003.

The UR Z10.2 (rev.15) also comes into force on 1 January 2004, and is applicable to confirmation surveys related to UR-S31 from 1 January 2004.

For an outline of the amendments, please refer to the attached documents.

Regarding full text of the UR Z10.2 (rev.15), please refer to the following IACS Home Page.
<http://www.iacs.org.uk/index1.htm>

Regarding the procedures for confirmation surveys for UR-S31, please refer to "BULK CARRIER SAFETY Retroactive Requirements for existing bulk carriers" available on the ClassNK web site (<http://www.classnk.or.jp>).

For any questions about the above, please contact:

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Attachment:

1. Outline of Guidelines for Gauging in order to Comply with UR S31
2. ANNEX V "Guidance for the Gauging of Side Shell Frames and Brackets in Single Side Skin Bulk Carriers required to comply with UR-S31"

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Outline of Guidelines for Gauging in order to Comply with UR S31

Table: Standard extent of thickness gauging of side shell frames

	Age ≤ 10	10 < Age ≤ 15	15 < Age ≤ 20	20 < Age
IS		No.1 C/H : 100% Other C/Hs : 25%	No.1 C/H : 100% One selected C/H : 100% Other C/Hs : 50%	All C/Hs : 100%
		Equivalent to SS No.2	Equivalent to SS No.3	Equivalent to SS No.4
SS	(SS No.2) No.1 C/H : 100% Other C/Hs : 25%	(SS No.3) No.1 C/H : 100% One selected C/H : 100% Other C/Hs : 50%	(SS No.4) All C/Hs : 100%	(SS No.5 and subsequent SS) All C/Hs : 100%

IS: Intermediate Survey

SS: Special Survey

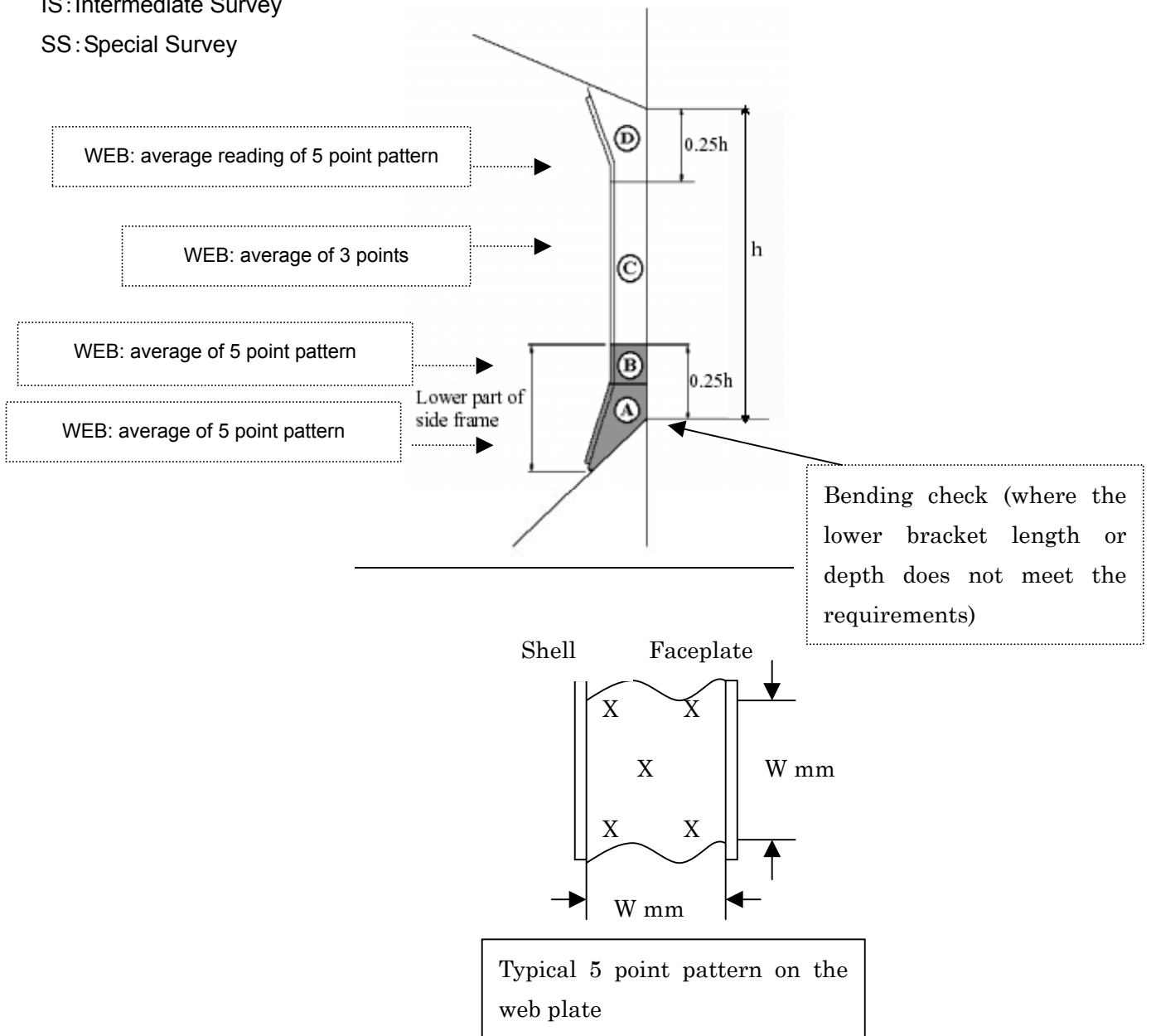


Fig: Standard points of Thickness Measurements

ANNEX V

Guidelines for the Gauging of Side Shell Frames and Brackets
in Single Side Skin Bulk Carriers required to comply with UR S31**1. General**

Gauging is necessary to determine the general condition of the structure and to define the extent of possible steel renewals or other measures for the webs and flanges of side shell frames and brackets for verification of the compliance with UR S31.

2. Zones of Side Shell Frames and Brackets

For the purpose of steel renewal, sand blasting and coating, four zones A, B, C and D are defined, as shown in Figure 1.

Zones A & B are considered to be the most critical zones.

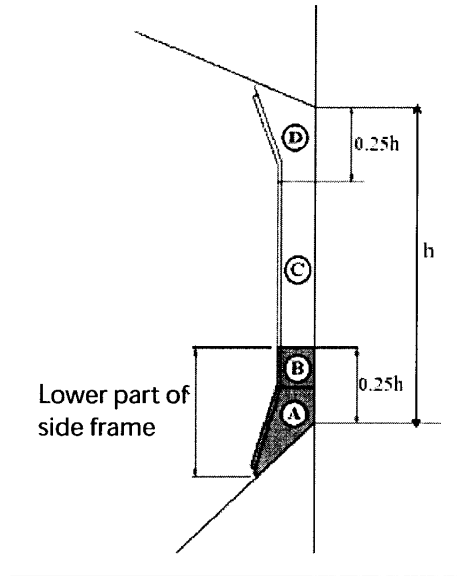


Figure 1 Zones of side shell frames and brackets

3. Pitting and grooving

Pits can grow in a variety of shapes, some of which would need to be ground before assessment.

Pitting corrosion may be found under coating blisters, which must be removed before inspection.

To measure the remaining thickness of pits or grooving the normal ultrasonic transducer (generally 10mm diameter) will not suffice. A miniature transducer (3 to 5 mm diameter) must be used. Alternatively the gauging firm must use a pit gauge to measure the depth of the pits and grooving and calculate the remaining thickness.



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3.1 Assessment based upon Area

This is the method specified in S31.2.5 and is based upon the intensity determined from Figure 2 below.

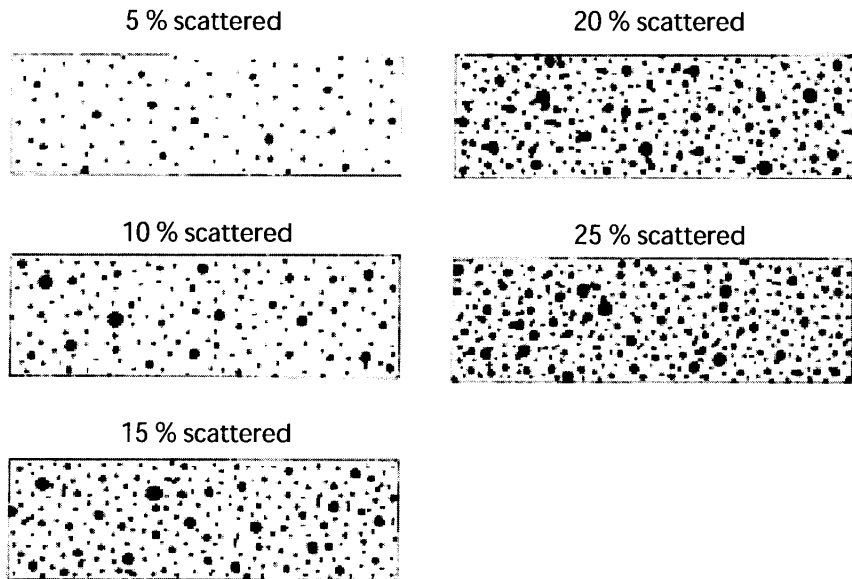


Figure 2 Pitting intensity diagrams (from 5% to 25% intensity)

If pitting intensity is higher than 15% in an area (see Figure 2), then thickness measurements are to be taken to check the extent of the pitting corrosion. The 15% is based upon pitting or grooving on only one side of the web.

In cases where pitting is evident as defined above (exceeding 15 %) then an area of 300mm diameter or more, at the most pitted part of the frame, is to be cleaned to bare metal, and the thickness measured in way of the five deepest pits within the cleaned area. The least thickness measured in way of any of these pits is to be taken as the thickness to be recorded.

The minimum acceptable remaining thickness in any pit or groove is equal to:

- 75% of the as built thickness, for pitting or grooving in the cargo hold side frame webs and flanges
- 70% of the as built thickness, for pitting or grooving in the side shell, hopper tank and topside tank plating attached to the cargo hold side frame, over a width up to 30mm from each side of it.

4. Gauging methodology

Numbers of side frames to be measured are equivalent to those of Special Survey or Intermediate Survey corresponding to the ship's age. Representative thickness measurements are to be taken for each zone as specified below.

Special consideration to the extent of the thickness measurements may be given by the Classification Society, if the structural members show no thickness diminution with respect to the as built thicknesses and the coating is found in "as-new" condition (i.e., without breakdown or rusting).

Where gauging readings close to the criteria are found, the number of hold frames to be measured is to be increased.

If renewal or other measures according to S31 are to be applied on individual frames in a hold, then all

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frames in that hold are to be gauged.

There is a variety of construction methods used for side shell frames in bulk carriers. Some have faceplates (T sections) on the side shell frames, some have flanged plates and some have bulb plates. The use of faceplates and flanged sections is considered similar for gauging purposes in that both the web and faceplate or web and flange plate are to be gauged. If bulb plate has been used, then web of the bulb plate is to be gauged in the normal manner and the sectional modulus has to be specially considered if required.

4.1 Gaugings for Zones A, B & D**Web plating**

The gauging pattern for Zones A, B & D are to be a five point pattern. See figure 3. The 5 point pattern is to be over the depth of the web and the same area vertically. The gauging report is to reflect the average reading.

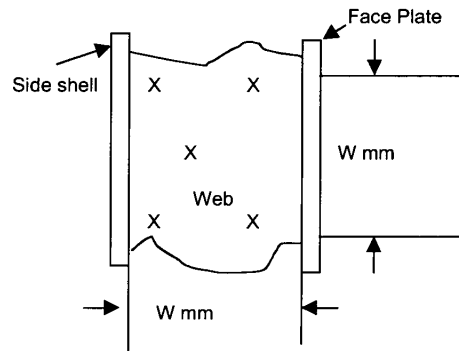


Figure 3– Typical 5 point pattern on the web plate

4.2 Gaugings for Zone C**Web plating**

Depending upon the condition of the web in way of Zone C, the web may be measured by taking 3 readings over the length of Zone C and averaging them. The average reading is to be compared with the allowable thickness. If the web plating has general corrosion then this pattern should be expanded to a five point pattern as noted above.

4.3 Gaugings for section a) and b) (flanges and side shell plating)

Where the lower bracket length or depth does not meet the requirements in UR S12(Rev.3), gaugings are to be taken at sections a) and b) to calculate the actual section modulus required in UR S31.3.4. See Figure 4. At least 2 readings on the flange/faceplate are to be taken in way of each section. At least one reading of the attached shell plating is to be taken on each side of the frame (i.e. fore and aft) in way of section a) and section b).

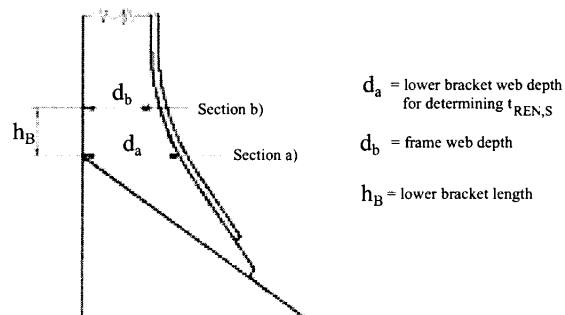


Figure 4 - Sections a) and b)

5 Report on Thickness Measurement of Cargo Hold Frames

See form TM7-BC S31 (sheet 11 bis).

Report on THICKNESS MEASUREMENT OF CARGO HOLD SIDE SHELL FRAMES

TM7-BC S31

Ship's Name Class identity No. Report No.

		CARGO HOLD NO.:										Side:					(Port / stb.)							
FRAME NO	ZONE A						ZONE B						ZONE C					ZONE D						
	Org. Thk.	t _{REN}	t _{COAT}	t _M	Diminution		Org. Thk.	t _{REN}	t _{COAT}	t _M	Diminution		Org. Thk.	t _{REN}	t _{COAT}	t _M	Diminution		Org. Thk.	t _{REN}	t _{COAT}	t _M	Diminution	
	mm	mm	mm	mm	mm	%	mm	mm	mm	mm	mm	%	mm	mm	mm	mm	mm	%	mm	mm	mm	mm	mm	%

Operators Signature

Surveyors Signature