Guideline No.: U-04(201510)

U-04

MARINE WINDOW AND SIDE SCUTTLES

Issued date: October 20,2015

Foreword

CCS Product Inspection and Testing Guideline (hereinafter referred to as this Guideline) contains the technical requirements, inspection and testing criteria related to classification and statutory survey of marine products to be applied for CCS approval/inspection.

This Guideline frees the users to adopt other test methods and requirements which are equivalent to or are stricter than this Guideline.

This Guideline is published and updated by CCS, and is released at http://www.ccs.org.cn. Your comments or suggestions are welcomed and may be sent to our email addressed mp@ccs.org.cn.

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MARINE WINDOW AND SIDE SCUTTLES

1 Application

This guideline is applicable to the approval and product inspection of various marine windows and side scuttles other than the fire resistant series, But beyond the requirements of the Convention on the window can also refer to the applicable standards for testing.

2 Normative references

Regulation 23, Annex I of Amendment to Annex B of the Protocol of 1988 Relating to the International Convention on Load Lines, 1966

ISO 3903-2012 Ships and Marine Technology – Ships' Ordinary Rectangular Windows

ISO 1751-2012 Ships and Marine Technology – Ships' Side Scuttles

Regulation 3-12, Chapter II-1 of Amendments to 1974 SOLAS Convention, as Amended

IMO MSC.337(91), Code on Noise Levels on Board Ships

Chapter 4,Part 3 of CCS Guidelines for Noise Control and Testing of Ships and Products

3 Terms and definitions

(1) Side scuttle: round or oval openings with an area not exceeding 0.16 m2.

(2) Window: usually means a rectangular opening with curved transition consistent with the dimensions of the rectangular window in each corner, and any circular or elliptic opening of an area more than 0.16m².

(3) Nominal size: the clear light size of side scuttles and windows.

(4) Fastener: a generic term for eyelet bolts in the round-hole hinge and locking arrangements ensuring the strength and tightness of side scuttles and windows. The eyelet bolts for long elliptic hinge holes are not to be used as fasteners.

(5) Window seat: basic frame fixed onto the structure by bolts or welding.

(6) Window frame: a frame used for insertion of openable windows and side scuttles.

(7) Glass retaining frame: a frame used to fix the glass sheets on openable window sash frames or fixed main window frame.

4 Classification of windows and side scuttles

(1) Series: windows and side scuttles are classified into Regular series (N), fire resistant series (P) and heated series (H).

(2) Type: windows are classified into heavy type (E) and light type (F), side scuttles are classified into heavy type (A), medium type (B) and light type (C).

(3) Structural form: windows and side scuttles are classified into opening and non-opening type by the opening mode and classified into welded and bolted type by the fastening mode.

5 Drawings and documentation to be submitted

The following drawings and documentation to be submitted are to be submitted to CCS for approval:

(1) General assembly drawing

(2) Scuttle deadlight/window protective cover structure drawing (when applicable)

(3) Fasteners drawing

(4) Window seat structure drawing;

(5) Window frame structure drawing (when applicable)

(6) Glass retaining frame structure drawing (when applicable)

(7) Summary table of main parts and materials

6 Technical specifications

(1) The product Design and technical requirements are to be in accordance with the relevant standards mentioned in 2 of the Guidelines;

(2) CCS or other equivalent materials.

(3) Glasses used on windows and side scuttles are to be the products within the scope of approval manufactured by approved manufacturer.

(4) Seal packing of windows and side scuttles are to comply with the requirements of CB/T 3873-1999.

(5) The plan approval for marine windows and side scuttles is to be performed incorporating the specific approved plans of the ships on which such windows and side scuttles will be used. Where the plan approval is not performed in such a way, for the products manufactured according to the plans approved so, the product certificate is to be endorsed with remarks stating that the suitability of such products is to be approved and confirmed by the attending surveyor.

7 Type test

The provisions stated herein may be referred to if type approval of marine windows and side scuttles is requested by the manufacturer.

(1) Sampling principle of type test

One product of the maximum specification (nominal size) is to be selected from the windows or side scuttles of different type series, structural form and main structure material respectively, as the typical test specimen.

(2) Type test items and requirements

Table 1

No.	Inspection/test item	Inspection/test method	Technical requirements
1	Raw material inspection	Review of raw material quality certificates	The quality certificates or conformity certificates of steel materials, aluminum alloys, glass, sealing rubber and hinge bolts are to be mainly enclosed. The material properties are to comply with the relevant requirements in 5 of the Guidelines
2	Visual inspection	Visual inspection	Existence of burrs and cracks is not allowed. The external side is to be even, smooth and clean. Surfaces are to be free from any apparent defect

Continued Table 1

No.	Inspection/test item	Inspection/test method	Technical requirements
3	Dimensional measurement	Dimensional measurement is to be taken using the measuring tools certified for measurement conformity	Measurement results are to comply with the dimensional and tolerance requirements specified in the drawings and standards
4	Opening/closing test (applicable to openable structures)	Opening/closing test of side scuttles/windows is to be carried out	The opening direction is to be consistent with the marked direction. Windows and side scuttles are to be capable of being properly closed and freely opened without excessive tightness or looseness
5	Hose test	Side scuttles/windows together with window protective covers are to be mounted onto the simulated bulkhead, and hosed for a period of at least 3 minutes using nozzle not less than 12.5mm in diameter, at a nozzle outlet pressure of 0.25Mpa at least, from a distance not more than1.5m.	The tested parts are to be free from signs of water leakage such as water droplets or water traces.

Continued Table 1

<table>
<tr><th>No.</th><th>Inspection/test item</th><th>Inspection/test method</th><th>Technical requirements</th></tr>
<tr><td>6</td><td>Hydraulic test</td><td>The side scuttle/window is to be mounted onto a special hydraulic test box.

Test pressure for the side scuttle:

<table><tr><td rowspan="2">Type</td><td colspan="2">Test pressure (KPa)</td></tr><tr><td>Glass installed, deadlight open</td><td>Glass not installed, deadlight closed</td></tr><tr><td>A</td><td>150</td><td>100</td></tr><tr><td>B</td><td>75</td><td>50</td></tr><tr><td>C</td><td>35</td><td>--</td></tr></table>
Test pressure for the window: 25 KPa;

Pressure holding time: at least 1min.</td><td>The tested parts are to be free from signs of water leakage such as water droplets or water traces.</td></tr>
</table>

Continued Table 1

No.	Inspection/test item	Inspection/test method	Technical requirements
7	Mechanical strength test	Side scuttle: The side scuttle without the glass pane and with closed deadlight, is to be placed horizontally on a stiff test bench. The press head of the testing machine is to be placed in the center of the deadlight side possibly in direct contact with the seawater. Where required due to deadlight structure, a steel plate of 100mm diameter and 10mm thickness may be padded between the press head and the deadlight. A test load of 240kPa for type A and 120kPa for type B is to be applied and maintained for at least 5s. The permanent deformation of the deadlight is to be measured after removal of load. Window: The window is to be placed on a stiff test bench and a rubber pad of 2mm thickness is to be placed between the window seat and the supporting face of the test bench. After the window is securely positioned, an evenly distributed load of 75kPa for type E and 35kPa for type F is to be applied to the window by appropriate means and maintained for 1min. Then the deformation of the window is to be observed.	Side scuttles: the permanent deformation of deadlight after the test is not to exceed 1% of the nominal size of the side scuttle; Windows: the windows after the test are to be free from any permanent deformation.

Continued Table 1

8	Airborne sound insulation index test	The products which met the requirements Regulations 6.2 Chapter 6 of IMO MSC.337(91) The Code on Noise Levels on Board Ships should be tested for acoustic noise index at the test and inspection institutes approved by CCS.The specific testing methods, please see to Chapter 4 Part 3 CCS Guidelines for Noise Control and Testing for Ships and Products	Regulations 6.2 Chapter 6 of IMO MSC.337(91) The Code on Noise Levels on Board Ships

8 Unit/batch inspection

(1) According to the provisions in CCS Rules for Classification of Sea-going Steel Ships, the product inspection for marine windows and side scuttles may be carried out directly and type test is not necessary.

(2) Principle for batch: windows or side scuttles of the same series, type, structural form and main structure material are to be grouped into the same batch.

(3) Unit/batch inspection is to be carried out as per the test items listed in Table 1, among which:

Item 2 is to be carried out one by one;

For items 3 and 4, 10% of the products, not less than one sash, are to be randomly selected from each specification of each batch and tested. 100% inspection is required in case any non-conformity has been found during the initial test;

For items 5 and 6, 10% of the products, not less than one sash, are to be randomly selected from each batch (to include the product of the maximum specification) and tested. Products of double quantity are to be selected and tested in case any non-conformity has been found during the initial test;

For item 7, one sash of the maximum specification is to be respectively selected from side scuttles of A/B type and windows of E/F type and tested.