Guideline No.L-01(202601)

L-01

LIFEJACKETS

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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 service@ccs.org.cn.

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Main change:

1、Amendments To The International Life-Saving Appliances (LSA) Code as per the newly added MSC.554(108)

2、Amendment to the Revised Recommendations on Testing of Life-Saving Appliances (Resolution MSC.81(70)) as per the newly added MSC.544(107)

3、Amendment to the Revised Recommendations on Testing of Life-Saving Appliances (Resolution MSC.81(70)) as per the newly added MSC.580(110)

4、Amendment to the Revised Standardized Assessment and Test Report Form for Life-Saving Appliances (Personal Life-Saving Appliances) as per the Newly Added MSC.1/Circ.1628/Rev.2

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LIFEJACKETS

1 Application

1.1 This Guideline applies to the approval and inspection of the lifejackets provided onboard ships engaged on international voyages.

2 Normative references

2.1 For the purpose of this Guideline, the following documents apply:

(1) Chapter III of the International Convention for the Safety of Life at Sea, 1974, and MSC.201(81);

(2) MSC.48(66), Chapters I and II of the International Life-saving Appliances Code (LSA Code), and MSC.207(81),MSC218(82),MSC368(93),MSC.554(108);

(3) MSC.81(70), Recommendation on Testing of Life-saving Appliances, and MSC.200(80), MSC.226(82),MSC.323(89),MSC378(93),MSC.544(107),MSC.580(110);

(4) IMO RESOLUTION MSC.481(102) REVISED RECOMMENDATION ON THE USE AND FITTING OF RETRO-REFLECTIVE MATERIALS ON LIFE-SAVING APPLIANCES;

(5) IMO Resolution MSC.481(102) Revised Recommendation on the Use and Fitting of Retro-reflective Material on Life-saving Appliances;

(6) MSC.1-Circ.1470 - Guidelines For Validating The Construction Of A Completed Adult Lifejacket Reference Test Device (RTD)

(7) MSC.1-Circ.1628 - Amendment to the Revised Standardized Assessment and Test Report Form for Life-Saving Appliances (Personal Life-Saving Appliances)

3 Definitions

3.1 For the purpose of this Guideline:

(1) Lifejacket means a lifejacket (including infant and children’s lifejacket) using inherent buoyancy material as core material.

(2) Inflatable lifejacket means a lifejacket (including infant and children’s lifejacket) which depend upon inflating for buoyancy and which has at least two independent inflatable

bladders.

4 Plans and documents

4.1 The following documents are to be submitted to CCS for approval when applying for products approval:

(1) products structural plan;

(2) fabric prototype plan;

(3) buoyant material measurements;

(4) type test program.

4.2 The following documents are to be submitted to CCS for information when applying for products approval:

(1) a list of materials and attachments;

(2) molding technique documents;

(3) instruction manual;

(4) product identification.

5 Materials and components

5.1 Materials and components are to comply with relevant requirements of CCS Rules.

6 Design and technical requirements

6.1 The design and manufacturing of the lifejackets are to at least comply with the applicable requirements of 2.1(1), (2) and (3) of this Guideline.

6.2 If a lifejacket is manufactured and designed to fit persons weighing up to 140 kg and with a chest girth of up to 1,750 mm, suitable accessories are to be specified.

7 Type test

7.1 Selection of samples

Each type and model of the lifejacket is to be selected for type test.

7.1.1 Lifejackets

(1) The lifejackets produced are to be randomly selected from the products warehouse of the manufacturer applying for type approval. Six lifejackets of each model are to be sampled and the sampling base is not to be less than 100 pieces per model.

(2) The following quantity of materials from each model of lifejackets are to be taken for test, with the exception that different types/models of products applying the same material and furnished with a written declaration provided by the manufacturer may be exempt from the repetition of sampling:

① Fabric: 3 m;

② Webbing: CCS won't allow the lifejacket approved which the webbing attached by fabric. ;

③ Thread: 1 roll;

④ Buckle: 75;

⑤ Core material: 8 pieces, 300 mm × 300 mm × 25 mm in size; 4 pieces, 300 mm × 300 mm × 10 mm in size.

7.1.2 Inflatable lifejackets

(1) The lifejackets produced are to be randomly selected from the products warehouse of the manufacturer applying for type approval. Four lifejackets of each model are to be sampled and the sampling base is not to be less than 100 pieces per model. In addition, 60 gas cylinders, 10 sets each of automatic inflation devices and manual inflation devices, and 30 expendable start components of the automatic inflation devices are to be provided.

(2) The following quantity of materials from each model of lifejackets are to be taken for test, with the exception that different types/models of products applying the same material and furnished with a written declaration provided by the manufacturer may be exempt from the repetition of sampling:

① coated fabrics of inflatable buoyancy chambers: 3m2;

② The size and the number of the sample are self-cutting by the laboratory;

③ The size and the number of the sample are self-cutting by the laboratory; coated surface to coated surface, to be connected by means of the connecting inflatable lifejackets method, to form 12 pieces, 300 mm × 50 mm in size, each in the warp direction and in the weft direction.

7.2 Type test items

(1) The test items of lifejackets (inherent buoyancy materials) and the corresponding technical requirements and test methods are given in Table 7.2(1).

Table 7.2(1)

No.	Test items	Technical requirements and test methods
1	Visual examination	The color to be orange, and the retro-reflective tape to comply with MSC.481(102), the Mark to comply with MSC.48 (66) Annex Ⅰ 2.2.1.6.2
2	Temperature cycling test	Paragraph 2.1, PART 1 of MSC.200(80) and Paragraph 1.2.2.2, Chapter I of MSC.207(81)
3	Buoyancy test	Paragraph 2.2, PART 1 of MSC.200(80); Paragraph 2.2, PART 1 of MSC.580(110) and Paragraph 2.2.1.11, Chapter II of MSC.207(81)
4	Fire test	Paragraph 2.3, PART 1 of MSC.200(80) and Paragraph 2.2.1.1, Chapter II of MSC.207(81)
5	Tests of components other than buoyancy materials	Paragraph 2.4, PART 1 of MSC.200(80)
6	Strength test	Paragraph 2.5, PART 1 of MSC.200(80)
7	Tests for lifejacket buoyancy material	Paragraph 2.6, PART 1 of MSC.200(80) and Paragraph 1 of MSC.378(93).
8	Donning test	Paragraph 2.7, PART 1 of MSC.200(80) and Paragraph 2.2.1.5, Chapter II of MSC.207(81) and Paragraph 2 of MSC.378(93).
9	Water performance test	Paragraph 2.8, PART 1 of MSC.200(80) and Paragraph 2.2.1.6, Chapter II of MSC.207(81); Paragraph 2.2, Chapter II of MSC.554(108)
9.1	Righting test	Paragraph 2.8.5, PART 1 of MSC.200(80) and Paragraph 2.2.1.6, Chapter II of MSC.207(81); Paragraph 2.2, Chapter II of MSC.554(108)
9.2	Static balance test	Paragraph 2.8.6, PART 1 of MSC.200(80) and Paragraph 2.2.1.6, Chapter II of MSC.207(81) and Paragraph 2.8.7 of MSC.378(93).
9.3	Jump and drop tests	Paragraph 2.8.8, PART 1 of MSC.200(80) and Paragraph 2.2.1.5, Chapter II of MSC.207(81) and Paragraph 5,6,7,8 of MSC.378(93).
9.4	Stability test	Paragraph 2.8.10, PART 1 of MSC.200(80)
9.5	Swimming and water emergence test	Paragraph 2.8.11, PART 1 of MSC.200(80)

(2) Infant and children's lifejackets (inherent buoyancy materials) and the corresponding test methods are given in Table 7.2(2).

Table 7.2(2)

No.	Test items	Test methods
1	Visual examination	The color to be orange, and the retro-reflective tape to comply with MSC.481(102); symbols to comply with Paragraph 2.2.1.6.2, Chapter I of MSC.48(66)
2	Temperature cycling test	Paragraph 2.1, PART 1 of MSC.200(80) and Paragraph 1.2.2.2, Chapter I of MSC.207(81)
3	Buoyancy test	Paragraph 2.2, PART 1 of MSC.200(80); Paragraph 2.2, PART 1 of MSC.580(110) and Paragraph 2.2.1.11, Chapter II of MSC.207(81)
4	Fire test	Paragraph 2.3, PART 1 of MSC.200(80) and Paragraph 2.2.1.1, Chapter II of MSC.207(81)
5	Tests of components other than buoyancy materials	Paragraph 2.4, PART 1 of MSC.200(80)
6	Strength test	Paragraph 2.5, PART 1 of MSC.200(80)
7	Tests for lifejacket buoyancy material	Paragraph 2.6, PART 1 of MSC.200(80) and Paragraph 1 of MSC.378(93); Paragraph 2.2, Chapter II of MSC.554(108)
8	Donning test	Paragraph 2.7, PART 1 of MSC.200(80) and Paragraph 2.2.1.8, Chapter II of MSC.207(81)
9	Water performance test	Paragraphs 2.8, 2.9.2, 2.9.3, PART 1 of MSC.200(80) and Paragraphs 2.2.1.8, 2.2.1.9, Chapter II of MSC.207(81) and Paragraph 10,11,12,13,14,15 of MSC.378(93); Paragraph 2.2, Chapter II of MSC.554(108)

(3) Inflatable lifejackets and the corresponding test methods are given in Table 7.2(3).

Table 7.2(3)

No.	Test items	Test methods
1	Visual examination	The color to be orange, and the retro-reflective tape to comply with MSC.481(102),the Mark to comply with MSC.48 (66) Annex Ⅰ 2.2.1.6.2
2	Temperature cycling test	Paragraph 2.1, PART 1 of MSC.200(80) and Paragraph 1.2.2.2, Chapter I of MSC.207(81)
3	Inflation test	Paragraph 2.10.1、2.10.2 和 2.10.3, PART 1 of MSC.200(80)
4	Buoyancy test	Paragraph 2.2, PART 1 of MSC.200(80); Paragraph 2.2, PART 1 of MSC.580(110) and Paragraph 2.2.1.11 Chapter II of MSC.207(81)
5	Fire test	Paragraph 2.3, PART 1 of MSC.200(80) and Paragraph 2.2.1.1, Chapter II of MSC.207(81)
6	Tests of components other than buoyancy materials	Paragraph 2.4, PART 1 of MSC.200(80)
7	Strength test	Paragraph 2.5, PART 1 of MSC.200(80)
8	Donning test	Paragraphs 2.7, 2.10.2, PART 1 of MSC.200(80) and Paragraph 2.2.1.5, Chapter II of MSC.207(81) and Paragraph 2 of MSC.378(93).
9	Water performance test	Paragraphs 2.8, 2.10.3, PART 1 of MSC.200(80) and Paragraph 2.2.1.6, Chapter II of MSC.207(81); Paragraph 2.2, Chapter II of MSC.554(108)
9.1	Righting tests	Paragraph 2.8.5, PART 1 of MSC.200(80) and Paragraph 2.2.1.6, Chapter II of MSC.207(81); Paragraph 2.2, Chapter II of MSC.554(108)
9.2	Static balance test	Paragraph 2.8.6, PART 1 of MSC.200(80) and Paragraph 2.2.1.6, Chapter II of MSC.207(81) and Paragraph 2.8.7 of MSC.378(93).
9.3	Jump and drop tests	Paragraph 2.8.8, PART 1 of MSC.200(80) and Paragraph 2.2.1.5, Chapter II of MSC.207(81) and Paragraph 5,6,7,8 of MSC.378(93).
9.4	Stability test	Paragraph 2.8.10, PART 1 of MSC.200(80)
9.5	Swimming and water emergence test	Paragraph 2.8.11, PART 1 of MSC.200(80)
10	Tests of materials for inflatable bladders, inflation systems and components	Paragraph 2.10.4, PART 1 of MSC.200(80), MSC.323(89)

Continued Table 7.2(3)

No.	Test items	Test methods
10.1	Coated fabrics	Paragraph 2.10.4.1, PART 1 of MSC.200(80) and Paragraph 2.3, PART 1 of MSC.323(89).
10.2	Operating head load test	Paragraph 2.10.4.2, PART 1 of MSC.200(80) and Paragraph 2.3, PART 1 of MSC.323(89).
10.3	Pressure test	Paragraph 2.10.4.3, PART 1 of MSC.200(80)
10.4	Compression test	Paragraph 2.10.4.4, PART 1 of MSC.200(80)
10.5	Test of metallic components	Paragraph 2.10.4.5, PART 1 of MSC.200(80) and Paragraph 2.5, PART 1 of MSC.323(89).
10.6	Inadvertent inflation test	Paragraph 2.10.4.6, PART 1 of MSC.200(80) and Paragraph 2.6,2.7, PART 1 of MSC.323(89).

8 Unit/batch inspection

8.1 Ratio of sampling

(1) Each type and model is regarded as a sampling unit and each unit not more than 6,000 pieces a batch, from which 2 pieces are taken as samples.

8.2 Inspection and test items

(1) Lifejackets are subject to the following inspection:

① Visual examination;

② Buoyancy test;

③ Strength test.

(2) Additional test items may be required where deemed necessary by the Surveyor.

(3) The certificates of each batch of lifejacket materials and components as specified in 5 are to be examined.

(4) The markings of lifejackets are to be inspected to ensure they comply with the 1.2.2.9 and 2.2.1.6 of LSA Code.