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# JIS

## JAPANESE INDUSTRIAL STANDARD

# Bend test pieces for metallic materials

## JIS Z 2204–1996

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by

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority

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# JAPANESE INDUSTRIAL STANDARD J I S

## Bend test pieces for metallic materials Z 2204-1996

1. Scope This Japanese Industrial Standard specifies the standard test pieces used for bend test of metallic materials (hereafter referred to as "test piece"). As to which test piece is to be used, the material standard specified in each relevant Japanese Industrial Standard applies. The bend test pieces for tubes is specified in other standards.

Remarks 1. The following standard is cited in this Standard:

JIS G 0202 Glossary of terms used in iron and steel (testing)

2. The following is the corresponding International Standard to this Standard:

ISO 7438:1985 (E) Metallic materials — Bend test

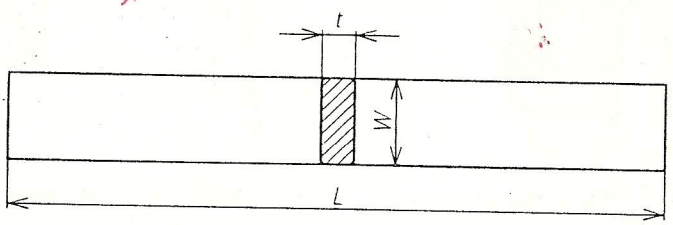
3. The special bend test pieces for metallic materials are shown in Annex.

2. Definitions For the purpose of this Standard, the definitions given in JIS G 0202 apply.

3. Classification of test pieces The test pieces shall be classified into No. 1 to No. 3 test pieces according to their shapes, and the dimensions are as follows:

(1) No. 1 test piece This test piece is used mainly for the bend test of metallic plate, strip and section of 3 mm or more in thickness (see Fig. 1).

Fig. 1. No. 1 test piece




Thickness $t$ = original thickness
Width $W$ = 20 to 50 mm
Length $L$ = the length depending on the thickness of test piece and the test equipment to be used

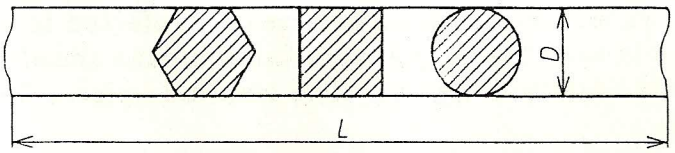
If the specified width cannot be obtained, the maximum width possible to be manufactured shall be used.

If the original thickness is greater than 25 mm, it may be reduced by machining one surface to give a thickness not less than 25 mm, depending on the test equipment used.

When bending the test piece like this, the unmachined side shall be on the tension-side surface of the test piece. The side surface resulted from cutting shall be finished by machining where appropriate.

(2) No. 2 test piece This test piece is used mainly for the bend test of steel bar and nonferrous metallic bar (see Fig. 2).

Fig. 2. No. 2 test piece



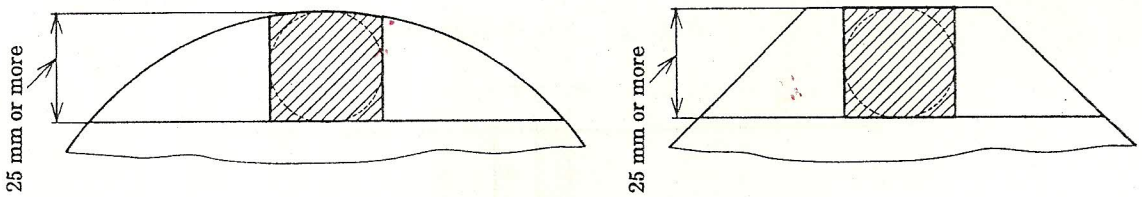

Diameter (for circular cross-section) or inscribed circle diameter (for polygonal cross-section)

$D$ = original dimension

Length $L$ = the length depending on $D$ of test piece and the test equipment to be used

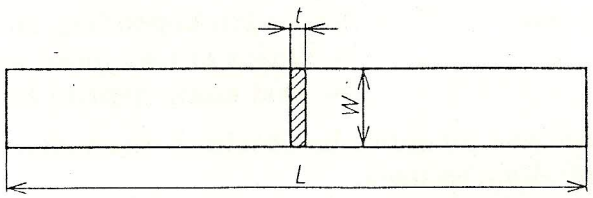
If the original diameter or the inscribed circle diameter exceeds 30 mm, it may be finished by machining, with remaining a part of the original material surface depending on the test equipment, to not less than 25 mm in inscribed circle diameter (see Fig. 3). When bending the test piece like this, the unmachined side shall be on the tension-side surface of the test piece.

Fig. 3. Machining method when test piece diameter or inscribed circle diameter exceeds 30 mm and reduction of thickness is necessary




(3) No. 3 test piece This test piece is used mainly for the bend test of thin metallic plate of thickness less than 3 mm (see Fig. 4).

Fig. 4. No. 3 test piece




Thickness $t$ = original thickness

Width $W$ = 15 to 50 mm

Length $L$ = the length depending on the thickness of test piece and the test equipment to be used

If the specified width cannot be obtained, the maximum width possible to be manufactured shall be used.

The side surface resulted from cutting shall be finished by machining where appropriate.

4. Finish of edges The edges of rectangular cross-section test pieces shall be rounded as shown in Table 1 where appropriate.

Table 1. Finish of edges

Unit: mm

| Thickness of test pieces | Roundness |
|---|---|
| 10 or less | 1.0 or less |
| Exceeding 10 | $\frac{1}{10}$ of thickness or less |

## Annex Special bend test pieces for metallic materials

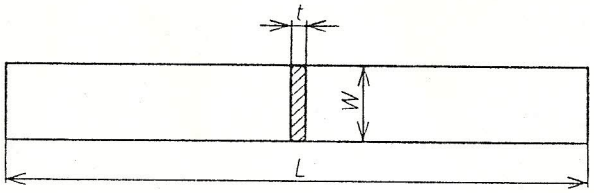
1. Scope This Annex specifies the special bend test pieces used for the bend test of metallic materials (hereafter referred to as "special test piece").

2. Period of application This Annex applies until May 31, 2001.

3. Classification of special test pieces The special test pieces shall be classified into No. 4 and No. 5 test pieces according to their shapes and dimensions, and the dimensions shall be as follows.

(1) No. 4 test piece This test piece is used mainly for the bend test of phosphor bronze plates for spring and nickel silver plates for spring (see Annex Fig. 1).

Annex Fig. 1. No. 4 test piece



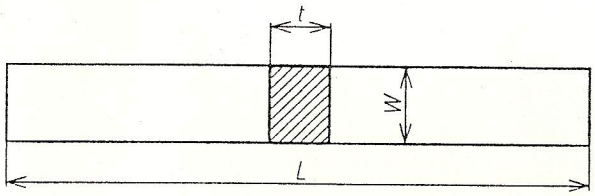

Thickness $t$ = original thickness
Width $W$ = 10 mm or more
Length $L$ = 150 mm or more

If the specified width cannot be obtained, the maximum width possible to be manufactured shall be used.

The surface resulted from cutting shall be finished by machining where appropriate.

(2) No. 5 test piece This test piece is used mainly for the bend test of steel forgings and steel castings (see Annex Fig. 2).

Annex Fig. 2. No. 5 test piece




Unit: mm

| Class of test piece | Thickness $t$ | Width $W$ | Length $L$ |
|---|---|---|---|
| 5 A | 19 | 25 | 150 or more |
| 5 B | 15 | 20 | 150 or more |

Each surface of test piece shall be finished by machining.

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