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Bicycles—Handlebars and stems

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Contents

	Page
Introduction.....	1
1 Scope.....	1
2 Normative references	1
3 Constitution and classification	2
4 Names of parts	2
5 Strength	2
5.1 One side bending strength	2
5.2 Forward bending strength of stem	2
5.3 Fixing strength of bar and stem	3
5.4 Fixing strength of stem to fork stem	3
5.5 Fixing strength of brake lever.....	3
5.6 Fatigue strength	3
5.7 Strength of expander bolt	3
6 Test method.....	3
6.1 One side bending strength test	3
6.2 Forward bending strength test of stem	4
6.3 Fixing strength test of bar and stem	4
6.4 Fixing strength test of stem to fork stem.....	5
6.5 Fixing strength test of brake lever	5
6.6 Fatigue test	6
7 Construction	8
8 Shapes and dimensions	9
9 Plating and painting	9
9.1 Planting	9
9.2 Painting	9
10 Appearance	10
11 Designation of product.....	10
12 Marking.....	10
Annex A (informative) ISO 6699 Bicycle—Stem and bar—Assembly dimensions	17
Annex JA (informative) Comparison table between JIS and corresponding International Standards	18

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Bicycle Promotion Institute (JBPI)/ Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS D 9412:1997** is replaced with this Standard.

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Bicycles—Handlebars and stems

Introduction

This Japanese Industrial Standard has been prepared based on the fourth edition of **ISO 4210** published in 1996, the first edition of **ISO 6699** published in 1990, the second edition of **ISO 8098** published in 2002 and the first edition of **ISO 8562** published in 1990 with some modifications of the technical contents.

The portions given sidelines or dotted underlines are the matters in which the contents of the original International Standards have been modified. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies the handlebars and stems used for bicycles for general use and bicycles for young children mainly specified in **JIS D 9111**.

NOTE : The International Standards corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 4210:1996 *Cycles—Safety requirements for bicycles*

ISO 6699:1990 *Cycles—Stem and handlebar bend—Assembly dimensions*

ISO 8098:2002 *Cycles—Safety requirements for bicycles for young children*

ISO 8562:1990 *Cycles—Stem wedge angle* (Overall evaluation: MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standards and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 0205-1 *ISO general purpose metric screw threads—Part 1: Basic profile*

JIS B 0205-2 *ISO general purpose metric screw threads—Part 2: General plan*

JIS B 0205-3 *ISO general purpose metric screw threads—Part 3: Selected sizes for screws, bolts and nuts*

JIS B 0205-4 *ISO general purpose metric screw threads—Part 4: Basic dimensions*

JIS B 0209-1 *ISO general purpose metric screw threads—Tolerances—Part 1: Principles and basic data*

JIS B 0209-2 *ISO general purpose metric screw threads—Tolerances—Part 2: Limits of sizes for general purpose external and internal screw threads—Medium quality*

JIS B 0209-3 ISO general purpose metric screw threads—Tolerances—Part 3: Deviations for constructional screw threads

JIS B 4652 Hand torque tools—Requirements and test methods

JIS D 0202 General rules of coating films for automobile parts

JIS D 9111 Cycles—Classification and essential characteristics

JIS D 9402 Front forks for bicycles

JIS H 8610 Electroplated coatings of zinc on iron or steel

JIS H 8617 Electroplated coatings of nickel and chromium

3 Constitution and classification

The handlebar assembly for bicycles shall consist of the handlebar (hereafter referred to as “bar”) and the handlebar stem (including the integral type, hereafter referred to as “stem”), and classified by use and formation thereof as given in table 1. Stems include such constructions as those which allow the separation into a post (axle) and a stem (extension) or those which consist of a stem alone to clamp a fork stem from the outside [see figure 8 f)].

Table 1 Classification

Classification			Shape of bar
Use of handlebar assembly		Formation of handlebar assembly	
Young children use	Used for bicycles for young children	Assembling type Integral type	Drop type [figure 8 a)] Flat type [figure 8 b)]
General use	Used for bicycles for general use other than MTB-look bicycles	Brake lever combined type	Upright type [figure 8 c)] High-rise type ^{a)} [figure 8 d)] Others
	Used for MTB-look bicycles		Flat type
Note ^{a)} Those of which the length of rising portion is over 250 mm.			

4 Names of parts

The names of parts of handlebar assembly are shown in table 5 and figure 8.

5 Strength

5.1 One side bending strength

For the one side bending strength, when tested in accordance with 6.1, there shall be no visible deformation or fracture.

5.2 Forward bending strength of stem

For the forward bending strength of stem, when tested in accordance with 6.2, there shall be no breakages.

5.3 Fixing strength of bar and stem

For the fixing strength of bar and stem, when tested in accordance with **6.3**, there shall be no movement of the bar relative to the stem.

5.4 Fixing strength of stem to fork stem

For the fixing strength of stem to fork stem, when tested in accordance with **6.4**, there shall be no movement of the stem relative to the fork stem.

5.5 Fixing strength of brake lever

For the fixing strength of brake lever of the brake lever combined handlebar assembly, when tested in accordance with **6.5**, there shall be no movement on the connection between the lever and the brake lever arm.

5.6 Fatigue strength

For the fatigue strength, when tested in accordance with **6.6**, there shall be no abnormalities on any part.

5.7 Strength of expander bolt

For the expander bolt, when fastened by a torque of 50 % greater than the tightening torque (maximum, if its range is provided) recommended by the manufacturer by means of a torque tool specified in **JIS B 4652**, there shall be no abnormalities.

6 Test method

6.1 One side bending strength test

When the handlebar assembly is clamped in a fixture to the minimum insertion depth of the stem as shown in figure 1, and a force (F) is applied at 40 mm from one end of the bar to produce a torque of 108 N·m for general use or 30 N·m for young children use, the existence of visible deformation or fracture shall be examined by the naked eye. For a stem designed to clamp a fork stem from the outside, the test shall be carried out with the stem being fixed to a round bar of appropriate length having the same external diameter as the fork stem.

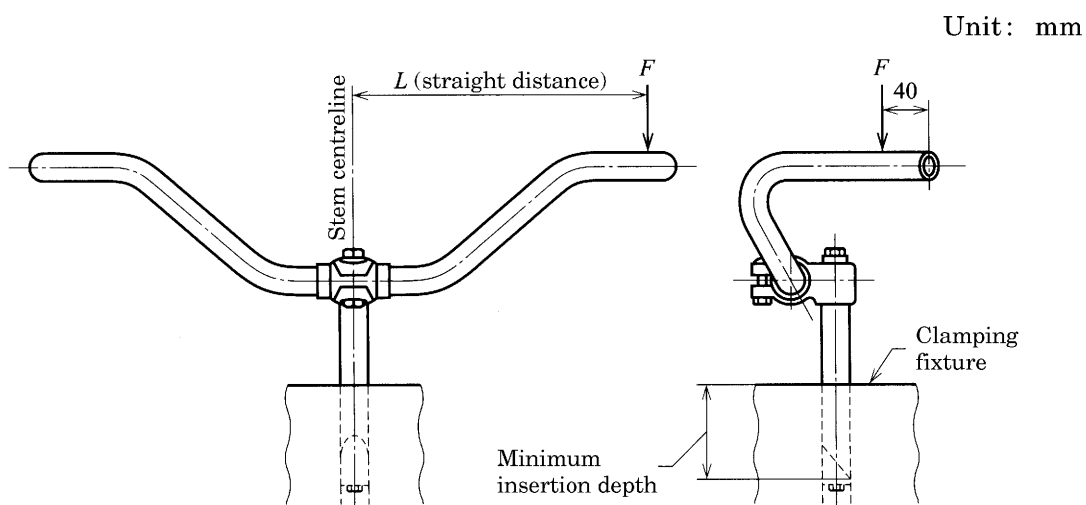


Figure 1 One side bending strength test

6.2 Forward bending strength test of stem

When the stem is clamped in a fixture to the minimum insertion depth of the stem as shown in figure 2, and a force of 2 000 N for general use or 500 N for young children use is applied through the attachment point of bar or test bar, the existence of breakage shall be examined by the naked eye. However, the stem for general use incapable of withstanding the force of 2 000 N shall not be broken before 45° of the bending angle of the stem. In this case, the maximum force to be applied to the stem shall be not less than 1 600 N. For a stem designed to clamp a fork stem from the outside, the test shall be carried out with the stem being fixed to a round bar of appropriate length having the same external diameter as the fork stem.

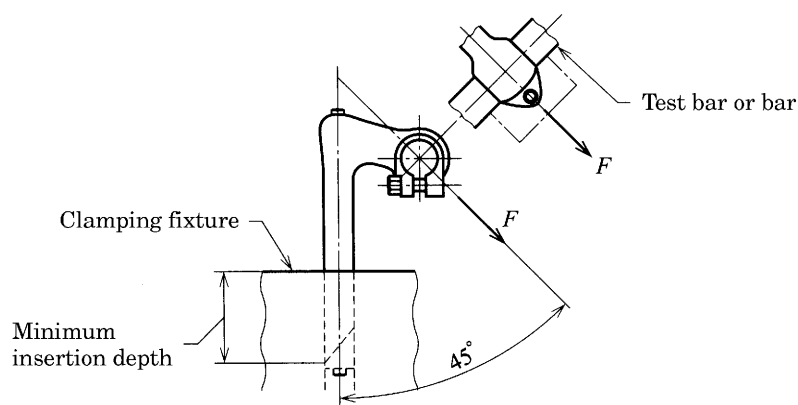


Figure 2 Forward bending strength test of stem

6.3 Fixing strength test of bar and stem

When the handlebar assembly is clamped in a fixture to the minimum insertion depth of the stem as shown in figure 3 and a force of 220 N for general use or 130 N for young children use is applied simultaneously to each side of the bar in a direction and at the location that will provide a maximum torque at the junction of the bar and stem, the movement of the bar relative to the stem shall be examined by the naked eye. Where this location occurs at the end of bar, the force shall be applied as near to the end as practicable and within 15 mm from the end. For a stem designed to clamp a fork stem from the outside, the test shall be carried out with the stem being fixed to a round bar of appropriate length having the same external diameter as the fork stem.

Where the assembly of bar and stem is fastened by means of a clamp, the tightening torque shall be suitable and shall not exceed $20 \text{ N} \cdot \text{m}$.

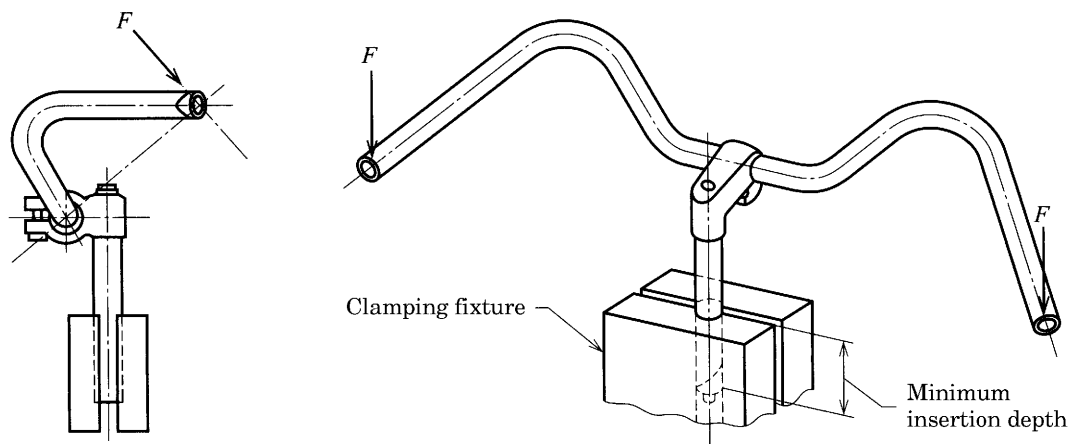


Figure 3 Fixing strength test of bar and stem

6.4 Fixing strength test of stem to fork stem

Under the conditions where the stem is correctly assembled into a fork stem specified in **JIS D 9402** or a clamping fixture corresponding thereto and the expander bolt is fastened with a suitable tightening torque of not exceeding $20 \text{ N} \cdot \text{m}$, when a torque of $25 \text{ N} \cdot \text{m}$ for general use or $15 \text{ N} \cdot \text{m}$ for young children use is applied to the bar or the test bar as shown in figure 4, the movement of the stem relative to the fork stem shall be examined by the naked eye. For a stem designed to clamp a fork stem from the outside, the test shall be carried out with the stem being fixed to a round bar of appropriate length having the same external diameter as the fork stem.

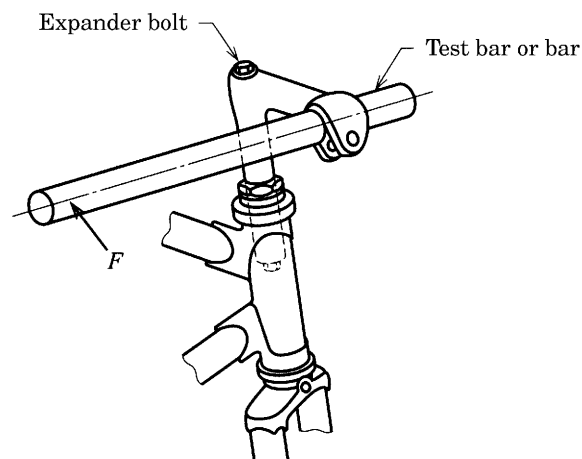


Figure 4 Fixing strength test of stem to fork stem

6.5 Fixing strength test of brake lever

For the brake lever combined handlebar assembly, when a force of 150 N is applied at 40 mm from the end of brake lever as shown in figure 5, the movement on the connection between the lever and the brake lever arm shall be examined by the naked eye.