GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 77.040.10

H 23

GB/T 244-2020

Replacing GB/T 244-2008

Metallic materials - Tube - Bend test method

金属材料 管 弯曲试验方法

[ISO 8491:1998, Metallic materials - Tube (in full section) - Bend test, MOD]

Issued on: June 02, 2020 **Implemented on: December 01, 2020**

Issued by: State Administration for Market Regulation;

Standardization Administration of the People's Republic of China.

Table of Contents

Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 244-2008 “Metallic materials - Tube - Bend test”. Compared with GB/T 244-2008, the main technical changes are as follows:

- MODIFY the description of the scope according to the national standard compilation requirements (see Clause 1 of this Standard, Clause 1 of the 2008 edition);

- MODIFY the symbol of the wall thickness of the tube from “*a*” to “*t*”, and MODIFY the note of the symbol of the wall thickness of the tube in Table 1 (see Table 1 and Figure 1 of this Standard, Table 1 and Figure 1 of the 2008 edition);

- MODIFY the “bending center” in the full text to “bending die”;

- ADD the content that test pieces with special requirements may be subjected to bend test with reference to Annex A (see 4.3 of this Standard);

- MODIFY “tests required to be carried out under controlled conditions" to "tests with strict temperature requirements" (see 6.1 of this Standard, 6.1 of the 2008 edition);

- MODIFY “welded tube” to “straight seam welded tube” [see 6.3 and 7e) of this Standard, 6.3 and 7e) of the 2008 edition];

- ADD the content of the informative annex “Special tube bending testing machine and test method” (see Annex A of this Standard).

This Standard uses the redrafting method to modify ISO 8491:1998 “Metallic materials - Tube (in full section) - Bend test”.

There are technical differences between this Standard and ISO 8491:1998. The clauses involved in these differences have been marked by a single vertical line (|) on the outer margins. The specific technical differences and their reasons are as follows:

- MODIFY the symbol of the wall thickness of the tube from “*a*” to “*t*”, to harmonize with Chinese standards (see Table 1 of this Standard, Table 1 of ISO 8491:1998);

- ADD the content that test pieces with special requirements may be subjected to bend test with reference to Annex A, to meet China’s national conditions (see 4.3 of this Standard);

Metallic materials - Tube - Bend test method

1 Scope

This Standard specifies the test principle, test equipment, test piece, test procedure and test report of the bend test method for metallic tubes.

This Standard applies to the determination of the full-section bending plastic deformation capacity of circular cross-section metallic tubes with an outer diameter not greater than 65 mm. The outer diameter range of the applicable metallic tubes of this Standard can be specified in more detail in the relevant product standards.

NOTE: The bend test of the transverse strip test piece of metallic tubes is carried out according to GB/T 232[1], to increase the original bending rate of the test piece.

2 Symbols, names and units

The symbols, names and units used in this Standard are shown in Table 1.

Table 1 -- Symbols, names and units

3 Test principle

A full-section metallic straight tube is bent around a bending die with a specified radius and grooves until the bending angle reaches the value specified in the relevant product standard (see Figure 1).

in close contact with the metallic tube bending die until the specified bending angle is reached.

6.3 During the bend test of straight seam welded tubes, the position of the weld seam relative to the bending plane shall meet the requirements of the relevant product standards. If there are no specific requirements, the weld seam shall be located at 90° to the bending plane (i.e., the neutral line of the bending).

6.4 It shall explain the results of the bend test according to the requirements of the relevant product standards. When it is not specified in the product standard, and if there is no visible crack without using a magnifying lens, it shall be assessed as qualified.

7 Test report

The shall provide the test report according to the requirements of relevant product standards. The test report shall contain at least the following content:

a) serial number of this Standard;

b) identification of the test piece;

c) dimension of the test piece;

d) bending angle α and bending die's radius r;

e) the position of the weld seam relative to the bending plane, if it is a straight seam welded tube;

f) test results.

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------