JB 4744—2000

Mechanical Property Tests of Product Welded Test Coupons

for Steel Pressure Vessels

Foreword

This standard is made on the basis of the Annex E of GB 150-1998, with reference to ASME IX of the United States and from the experiences for years in the pressure vessels manufacturing industry in China.

Compared with the Annex E of GB 15-1998, this standard makes the following changes:

1. Applicable Scope

Proposal of the mechanical property test of the identification ring for the welding joints of the forge-welded vessel B can also be performed with reference to the specification of this standard.

2.Add The Normative Reference

3 Preparation of and Requirements On The Product Welding Test Coupons

Add the requirements on and the specifications of the multi-layer vessels and the build-up welded Test Coupons.

4.Bending Test

Abolish the specification in the original standard that the diameter of the bent axis and the bending angle should be different due to the difference of the steel class, specimen class, and the one-side welding or double side welding adopted by the welding. This standard uniformly adopts the specification of the diameter of the bent axis D=4a and the bending angle 180° .

5. Impact Test

5.1 Number of The Specimens For Impact Test

For the specimens for impact test of the weld metals, add the cutting of one specimen group (3 pieces) for special cases and reserve the specification in the original standard for the cutting of one group (3 pieces) in the final run that is 2 mm away from the surface of the steel.

5.2 6.4 Qualification specifications For The Impact Test

Abolish the uniform specification of $Akv \ge 27$ J at the normal temperature in the original standard, resume the specification for absorbed-in-fracture energy respectively required by the tensile strength of the steel and list the requirements for impact at low temperature. Add the 6.4Qualification specifications for the austenite steel weld metals and weigh according to the side swelling capacity of the specimens, the swelling capacity should be more than 0.38 mm.

6 Recheck

Add the recheck for the unqualified items caused by the improper test or the standard-permitted faults, and allow the specimens to be abolished and re-do the test.

This standard replaces JB 150-1998 from the date of its implementation.

This standard is proposed by the China National Standardization Committee for Pressure Vessels and is under jurisdiction of this Committee.

This standard is drafted by: Hefei GM Machinery Research Institute and China National Standardization Committee for Pressure Vessels

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This standard is to be interpreted by China National Standardization Committee on Pressure Vessels.

Mechanical Property Tests of Product Welded Test Coupons For Steel Pressure Vessels

1.Scope

1.1This standard is applicable to the mechanical property tests of product welding test coupons for all kinds of steel pressure vessels with the designed temperature being not less than 196° C, including the requirements on the preparations, test methods, 6.4Qualification specifications and techeck of the specimens for tensile test, bending tests and impact test.

1.2 If the drawings of the product have other specifications or additional requirements, the specifications of the drawings as well as this standard should be observed.

1.3 The mechanical property test of the identification ring for the welding joints of the forge-welded vessel B can also be performed with reference to the specifications in f this standard.

2. Normative Reference

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

GB / T 228 1987 Metal Tensile Test Method

GB / T 229-1994 Metal Charpy Nick Impact Test Method

GB / T 232 1988 Metal Bending Test Method

GB/T 4730-1994 Non-destructive detection of the Pressure Vessels

3. Symbol

L-length of the Test Coupon, mm

B----- width of the Test Coupon, mm

δs----thickness of the Test Coupons, mm

- l—— length of the specimen, mm
- b----width of the specimen, mm
- a-----thickness of the specimen, mm
- hk----width of the weld, mm
- D-----diameter of the bending center, mm;
- L1——length of the center gripping should be specified according to the clamping fixture of the experimental machine, mm
- $\delta s1$ —— thickness of the subbase of composite plate, mm
- δs2-----thickness of the finish of composite plate, mm
- δb1----- low limitof the standard tensile strength of the subbase materials of composite plate, MPa
- δb2-----the Low limit of the standard tensile strength of the finish materials of composite plate, MPa

Approved by

State Bureau of Machine Building Industry and State Bureau of Petroleum and Chemical Industry



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