

EDS

Engineering,
GM DAEWOO Auto & Technology
Standards

METHOD OF BEND TEST FOR METALLIC MATERIALS

EDS-T-7155

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1. PURPOSE

This standard aims at examining the existence of defects such as fissure or the like in the outside of bend part when the test specimen is bent so that its bend angle attains the specified value.

2. SCOPE

This standard specifies the method of bend test for metallic materials.

3. DEFINITIONS

3.1. Bend test

A test in which the test specimen shall be bent so that its bend angle attain the specified value, and then the existence of defects such as fissure or the like in the outside of bend part shall be examined.

3.2. Pressing bend method

The pressing bend method shall be defined as the method in which, as shown in Fig. 1, the test specimen is mounted on the two supports, and a bending tool is placed on the central part of the specimen, and gradual load shall be given to the specimen to bend it into the required form.

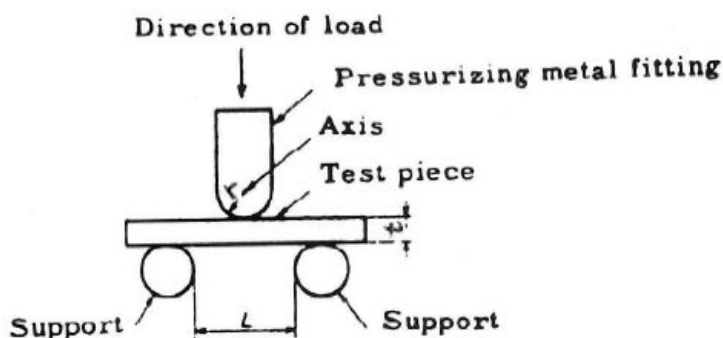


Figure 1

3.3. Winding bend method

The winding bend method shall be defined as the method by means of which, as shown in Fig. 2 or Fig. 3, the test specimen is wound around a shaft or a mould by gradually applying load so that the test specimen shall be formed into the designated form.

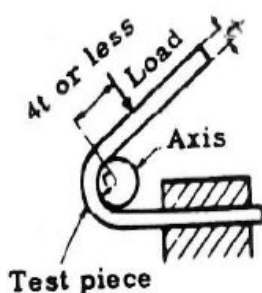


Figure 2

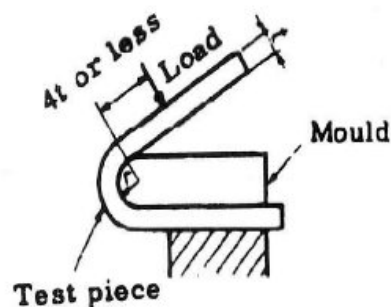


Figure 3

3.4. V-block method

The V-block method shall be defined as the method in which, as shown in Fig. 4, the test specimen is placed upon a V-block, and a bending tool is placed upon the center of the block, and the load is applied gradually so that the test specimen shall be formed into the designated form.

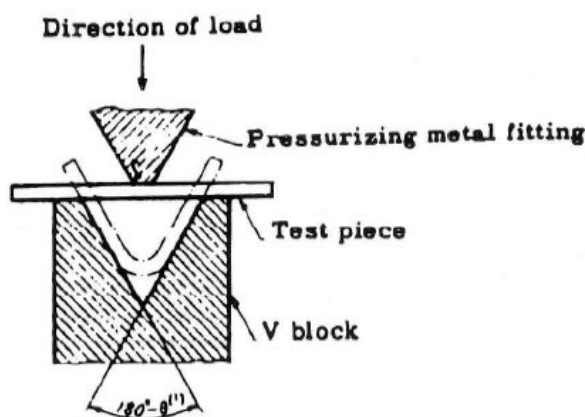


Fig. 4

3.5. Inside radius

The inside radius shall be defined as the radius of curvature of the curved surface when the bending momentum is applied to test specimen. However, the radius of curvature at the tip of the bending tool, bending shaft or bending mould which is used in the test shall be taken as the inside radius.

3.6. Bend angle

The bend angle shall be defined as the angle formed by the straight line parts on both ends of the specimen by deviating from 180° , when the inside surface of the test specimen is exposed to the bending momentum.

3.7. Close contact

The close contact shall be defined as the case in which the inside radius is zero, and the bend angle is 180° .

4. TEST SPECIMEN

The sampling and construction of test pieces shall be done according to each material standard, unless otherwise specified, unnecessary deformation or heating shall be avoided on the part to be used for test pieces.

At least three or more test pieces for initial approval and one or more test pieces for routine quality control shall be tested.

4.1. Type of test piece

4.1.1. First type test piece

This type of test piece is mainly used in the bend test for steel sheets & plates, flat steel and shape steel.