

EDS

Engineering,
GM DAEWOO Auto & Technology
Standards

METHOD OF FLATTENING TEST FOR METALLIC TUBE

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1. PURPOSE

This standard aims at helping test personnel perform the tests in an appropriate method by describing the method of flattening test for judging formability of metallic materials.

2. SCOPE

This standard is applicable to seam tube(welded tube) and seamless tubes with circular cross-section. Sizes of applicable tubes are as follows.

Table 1. The material and size of applicable tube

Material	Outside diameter of tube (mm)
Steel	400 max.
Aluminum and aluminum alloy	150 max.
Copper and copper alloy	100 max.

3. DEFINITION OF TERMINOLOGY

3.1. Welded tube: Cylindrical molded product whose seam parts are welded or roll welded.

3.2. Seamless tube: A tube without seam that is manufactured either by hot rolling, extrusion and drawing or by machine finishing after piercing.

4. TEST PIECE

4.1. A test piece 50mm or over in length shall be cut off from the end of a tube. For the tube whose wall thickness is 15% or over of its outside diameter, C type test piece (b of Fig. 1) made by removing part of the circumference of a whole test piece may be used.

4.2. Cut section shall be vertical to the tube length direction and shall not be sharp.

5. TEST MACHINE

Test machine which has two hard pressure plates in parallel or press bias etc shall be used. In this case, the length and width of pressure plate shall be more than 1.6 times the length of the tube after flattening test and outside diameter.

6. TEST METHOD

6.1. Pinch the test piece between two flat plates of test machine. Especially, in case of welded tube, install it so that welded portion may be placed in the center of upper and lower flat plates.