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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF DESTRUCTIVE TESTING OF WELDS IN METAL

PART 3: BEND TESTS

AS 2205.3.3
METHOD 3.3: LONGITUDINAL GUIDED BEND TEST

1 SCOPE. This Standard sets out the method for the longitudinal guided bend test of a welded joint.

2 APPLICATION. The test should be used in place of the transverse guided bend test (see AS 2205.3.1) where the weld and base metal properties differ markedly in yield strength, and ductility of one member of the joint cannot be assessed in the transverse bend test.

3 REFERENCED DOCUMENTS. The documents below are referred to in this Standard.

AS
2205 Methods of destructive testing of welds in metal
Part 1: General requirements for tests (AS 2205.1)
Part 3: Bend tests
Method 3.1: Transverse guided bend test (AS 2205.3.1)

4 PRINCIPLE. The face or root surface of the weld, which longitudinally bisects the test specimen, is subjected to tension by bending with a former of specified dimensions, then examined to assess the soundness of the weld metal and the general condition of the specimen after bending.

5 PREPARATION OF TEST SPECIMEN. The test specimen shall be prepared in accordance with AS 2205.1 and the following:

(a) *Form and dimensions.* The form and dimensions of the test specimen shall be in accordance with Figure 1(a) and (b).

(b) *Face and root bend specimen—thickness.* A face or root bend test specimen shall be the full thickness of the parent material at the welded joints, up to a parent metal thickness of 20 mm.

Where the thickness exceeds 20 mm, the specimen thickness may be reduced to a minimum of 20 mm by cutting as indicated in Figure 1(b), AS 2205.3.1.

If so reduced, the face bend test specimen shall be prepared by removing the material from the root surface of weld. The root bend test specimen shall be prepared by removing the metal from the face surface.

(c) *Full thickness dressing.* Surfaces of the test specimens shall be dressed according to the application Standard and AS 2205.1, Clause 5.4. Unless otherwise specified in the application Standard, the weld reinforcement shall be removed.

(d) *Reduced thickness dressing (pipe).* For pipe, the test specimen should be dressed by removal of parent material on the compression side just sufficient to obtain a flat surface over its full width (see Figure 1(a), AS 2205.3.1). Test specimens prepared from pipe shall not be flattened before testing.

(e) *Unequal thickness.* Where parent materials of different thicknesses are welded, the thicker plate shall be machined to the thickness of the thinner material unless otherwise specified in the application Standard.

(f) *Corner radius (all specimens).* The longitudinal corners of a test specimen shall be rounded to a radius (r) not exceeding 10 percent of the thickness of the specimen (see Figure 1(b)).

(g) *Length (all specimens).* The length of a test specimen shall be such that, after bending, it is sufficient for the test requirement.

NOTE: The location of the weld may be checked by etching the test piece before final machining.

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