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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF DESTRUCTIVE TESTING OF WELDS IN METAL

PART 3: BEND TESTS

AS 2205.3.1
METHOD 3.1: TRANSVERSE GUIDED BEND TEST

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

2 REFERENCED DOCUMENT. The document below is referred to in this Standard.

AS
2205 Methods of destructive testing of welds in metal
Part 1: General requirements for tests (AS 2205.1)

3 PRINCIPLE. The face, root or side of a transverse weld section is placed in tension by bending with a former of specified dimensions, then examined to assess the soundness and transverse ductility of the joint at the weld zone.

4 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), (b), (d) and (g) as follows:

(i) Figure 1(a)—face and root bend test specimens, plate ⩽ 20 mm and pipe ⩽ 12 mm.

(ii) Figure 1(b)—face and root bend test specimens, plate > 20 mm.

(iii) Figure 1(d)—side bend test specimen in roller jig.

(iv) Figure 1(g)—joggle butt face and root bend test specimen.

(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 joint—for parent metal thickness up to 20 mm.

Where the thickness exceeds 20 mm, the specimen thickness may be reduced to a minimum of 10 mm by cutting as indicated in Figure 1(b). Alternatively, where the thickness of plate exceeds 20 mm, or the thickness of pipe exceeds 12 mm, and where not restricted by the application Standard, side bend specimens may be substituted for face or root bend specimens.

Where the specimen thickness is reduced in accordance with the foregoing paragraph, 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) *Side bend specimen.* The thickness of a side bend specimen shall be 10 mm. The width of a side bend test specimen shall be equal to the full thickness of the parent material at the welded joint (see Figure 1(d)—width *b*) except when that thickness exceeds 40 mm. In such a case, two or more specimens of equal width (to represent the full thickness of the weld) may be cut from the parent material provided that the width of each specimen is not less than 20 mm and not more than 40 mm.

(d) *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.

(e) *Reduced thickness dressing (pipe).* For pipe, 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)). Test specimens prepared from pipe shall not be flattened before testing.

(f) *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.

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