

Australian Standard™

AS 2205.8.1

Methods for destructive testing of welds in metal**Method 8.1: Longitudinal fillet shear test**

PREFACE

This Standard was prepared by the Standards Australia Committee WD-006, Testing of Welds, to supersede AS 2205.8.1—1997.

The objective of this edition is to update the Standard and include editorial changes in accordance with current Standards Australia editorial policy.

METHOD

1 SCOPE

This Standard sets out a method for longitudinal fillet shear testing of a welded joint. The test determines the shear strength of a test specimen cut from a fillet welded joint having longitudinal welds.

2 REFERENCED DOCUMENT

The following document is referred to in this Standard:

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

3 PRINCIPLE

A test specimen with longitudinal fillet welds is prepared in a specified manner. The lengths of the welds are measured. A force is applied to the test specimen until the welds rupture. The shear strength of the joint and the shear stress of the welds are calculated.

4 PREPARATION OF TEST SPECIMEN

The test specimen shall be prepared in accordance with the requirements of AS 2205.1 and the following:

- (a) It shall be prepared from full material thickness according to the shape and dimensions of Figure 1(a).
- (b) It shall be machined for the test as in Figure 1(b).

5 PROCEDURE

The procedure shall be as follows:

- (a) Before testing, the following measurements shall be made:
 - (i) The length of the individual welds shall be measured in millimetres and, if any weld should vary by more than 2 mm from the length specified in Figure 1, the length of each weld and its location shall be recorded.
 - (ii) The average size of the fillet welds shall be measured in millimetres and recorded, together with other data, to enable the average design throat thickness to be determined.
- (b) The test specimen shall be ruptured under a tensile force and the maximum force, in newtons, shall be determined.
- (c) The following shall be calculated:
 - (i) Shear strength of the joint in newtons per millimetre shall be calculated by dividing the maximum force by the sum of the lengths of the welds which ruptured.
 - (ii) Shear stress of the welds in megapascals shall be calculated by dividing the shear strength (see Step (i) above) by the design throat thickness of the welds.

6 REPORTING OF RESULTS

The test results shall be reported as follows:

- (a) Identification of this and any relevant application Standards (i.e., 'AS 2205.8.1, Longitudinal fillet shear test and').
- (b) Identification of test specimens by any markings (e.g., 'Specimen A').
- (c) Type of test specimen (e.g., as illustrated in Figure 1(a)).
- (d) Type of material and, if known, Standard number and grade.
- (e) Dimensions of test specimen.
- (f) Any special features of the test specimen before testing (e.g., any visible imperfections).
- (g) Any special features of the fracture surface (e.g., presence and type of any defects).
- (h) Lengths and location of any welds that vary more than 2 mm from the length specified in Figure 1.
- (i) Average size of fillet weld.
- (j) Average design throat thickness.
- (k) Maximum force.
- (l) Shear strength, in newtons per millimetre.
- (m) Shear stress, in megapascals.
- (n) Compliance or otherwise with the application Standard, if applicable.