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**Specimen dimensions and
procedure for shear testing
resistance spot and embossed
projection welded joints**

ICS 25.160.40

Descriptors : spot welding, welded joints, tensile testing, shear testing

Reference number : JIS Z 3136 : 1999 (E)



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55

Z 3136 : 1999

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS Z 3136 : 1989** is replaced with **JIS Z 3136 : 1999**.

In this revision, **ISO/DIS 14273 : 1989** *Specimen dimensions and procedure for shear testing resistance spot and embossed projection welds* has been used as the basis, for the purpose of conformity with International Standards.

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In the event of any doubts arising as to the contents,
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Specimen dimensions and procedure for shear testing resistance spot and embossed projection welded joints

Introduction This Japanese Industrial Standard is based on ISO/DIS 14273 *Specimen dimensions and procedure for shear testing resistance spot embossed projection welds*, issued in 1989 and has adopted the corresponding items (test piece, testing equipment, testing procedure and record) without changing the technical contents, and with adding the following items.

- a) The dimensions of test piece are specified for two types. One is the “normal plate width test piece” specified as before and another is “saturated plate width test piece” specified in ISO/DIS.
- b) The number of test pieces is basically 11 as specified in ISO/DIS. In the case that the standard deviation is not required, the number could be reduced subject to the agreement between the parties concerned.
- c) The test piece of three layers or more welded joints is specified.

1 Scope For the resistance spot and embossed projection welded joints, this standard specifies the dimensions of normal width test plate of 0.3 mm to 5.0 mm thickness with optional size of spot welds, the dimensions and shapes of saturated test plate of 0.5 mm to 10.0 mm thickness with maximum diameter of $5\sqrt{t}$ (t is plate thickness) welded spots, and the testing method of each test piece.

2 Normative references The following standards are referred to this Standard and constitute a part of this Standard and the latest versions of them shall be applied.

JIS Z 2241 *Method of tensile test for metallic materials*

JIS Z 3001 *Welding terms*

JIS Z 8401 *Rules of rounding off of numerical values*

3 Definitions The definitions of the main terms used in this Standard shall be based on JIS Z 3001 and the items below.

- a) **shear strength** The maximum force (load) obtained by this test.
- b) **diameter of welded zone** The diameter of welded zone is the average diameter of plugs fractured, and the average diameter of fusion zone excluding the corona for interface fracture. In the case of partial fracture in which the both types can be seen, the average diameter shown in Fig. 1 shall be taken.
- c) **normal plate width test piece** This is a test piece which has the plate width of nearly the same distance between spots, and this is practically used for resistance spot and projection welding of thin structures.
- d) **saturated plate width test piece** When diameter, thickness and lap dimensions are fixed, the shear strength to be obtained from shear testing would increase and saturate with the enlargement of plate width of test piece. In this Standard, the width of test piece is the equivalent value to the saturated value of $5\sqrt{t}$ welded zone diameter.