

ICS 25.160.40

CCS J 33



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 39167-2020

**Test method of tensile shear for resistance spot and embossed
projection welds**

Issued on: October 11, 2020

Implemented on: May 1, 2021

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Equipment	2
5 Sample	2
6 Test Step	4
7 Test report	5

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the redrafting method to amend and adopt ISO 14273.2016 "Destructive Test of Resistance Welding Seam Resistance Spot Welding and Projection Welding"

Size and Procedure of Shear Test Specimen for Joints".

Compared with ISO 14273.2016, this standard has many structural adjustments. Appendix A lists this standard and ISO 14273.2016.

A list of changes in the chapter number

Compared with ISO 14273.2016, there are technical differences between this standard, and the clauses involved in these differences have been passed on the outer margins.

The set vertical single line (|) is marked, and a list of the corresponding technical differences and their reasons is given in Appendix B.

This standard has made the following editorial changes.

---Modified the standard name;

---References are deleted.

This standard was proposed and managed by the National Welding Standardization Technical Committee (SAC/TC55).

Drafting organizations of this standard. CRRC Qingdao Sifang Locomotive and Rolling Stock Co., Ltd., Harbin Welding Research Institute Co., Ltd., Anhui Fengyuan Vehicle

Industry Co., Ltd., Shanghai Materials Research Institute, CRRC Changchun Railway

Vehicle Co., Ltd., Tianjin Seven High-tech Co., Ltd., Hangzhou Huaguang Welding
Jie New Materials Co., Ltd., Beijing Aerospace Fresh Air Machinery Equipment Co., Ltd.

1 Scope

This standard specifies the equipment, specimens, test procedures and test equipment for tensile shear test of resistance spot welding and projection welding lap joints of metallic materials.

Inspection report.

This standard applies to metal plates with a thickness of 0.5mm~10mm, and a maximum solder joint diameter of $7t$ (t is the plate thickness, when the plate thickness is different, t is thinner plate thickness) resistance welding joints.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 3375 welding terminology

GB/T 16825.1 Inspection of static uniaxial testing machine Part 1. Inspection and calibration of force measuring system of tensile and (or) compression testing machine

Standard (GB/T 16825.1-2008, ISO 7500-1:2004, IDT)

3 Terms and definitions

The following terms and definitions defined in GB/T 3375 apply to this document.

3.1

Tensile shear test

Destructive test to determine the mechanical properties of the lap joint sample by applying tensile force.

3.2

Tensile shear force

The force applied to the specimen during the tensile shear test.

3.3

Saturation intensity condition

(Resistance welding) When the sample exceeds a certain width and lap length, the solder joint strength does not increase.

3.4

Solder joint diameter

After the destructive test, without the help of metallographic inspection, the average diameter of the melting area measured on the bonding surface.

3.5

Boss

Button

Part of the metal peeled from the solder joint in a destructive test.

Note. Some metals may include all nuggets, partial nuggets, heat-affected zones and base metals.