

# JIS

**JAPANESE INDUSTRIAL STANDARD**

**Method of Fatigue Testing  
for Spot Welded Joint**

**JIS Z 3138**<sup>—1989</sup>

**Translated and Published**

**by**

**Japanese Standards Association**

In the event of any doubt arising,  
the original Standard in Japanese is to be final authority.

## 1. Scope

This Japanese Industrial Standard specifies the methods of the tensile shear fatigue test and the cruciform tension fatigue test for the metal sheets 0.5 mm or over up to and including 6.0 mm in thickness, to be conducted in the atmosphere at room temperature, with the ratio of the minimum load to the maximum load 0.2 or under, by the use of standard fatigue test pieces, hereinafter referred to as the "test pieces", which form single spot welded lap joints.

Remark: The units and numerical values given in { } in this Standard are based on the International System of Units (SI) and are appended for informative reference.

Further, the traditional units and numerical values accompanied by the SI units and converted values in { } shall be replaced by the units and the numerical values given in the Appendix on January 1, 1991.

## 2. Definitions

For the purposes of this Standard the following definitions apply. The other definitions shall be as specified in 2. of JIS Z 2273.

- (1) tensile shear fatigue test The fatigue test that is carried out by repeatedly applying the tensile load, hereinafter referred to as the "load", to the tensile shear fatigue test piece held by the fatigue testing machine.
- (2) cruciform tension fatigue test The fatigue test that is carried out by repeatedly applying the tensile load to the cruciform tensile fatigue test piece held by the fatigue testing machine.
- (3) repeated load ( $L$ ) The load varying simply and periodically between the definite maximum and minimum values.
- (4) maximum load ( $L_{max}$ ) The maximum algebraic value of the repeated load.
- (5) minimum load ( $L_{min}$ ) The minimum algebraic value of the repeated load.
- (6) load range ( $\Delta L$ ) The algebraic difference between the maximum and the minimum loads of the repeated load.
- (7) load amplitude ( $L_n$ ) One half of the algebraic difference between the maximum and the minimum loads of the repeated load.
- (8) mean load ( $L_m$ ) One half of the algebraic sum of the maximum and the minimum loads of the repeated load.
- (9) minimum-maximum load ratio ( $R$ ) The algebraic ratio of the minimum load to the maximum load.