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First edition  
2014-10-01

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## **Metallic materials — Sheet and strip — Biaxial tensile testing method using a cruciform test piece**

*Matériaux métalliques — Tôles et bandes — Méthode d'essai de  
traction biaxiale sur éprouvette cruciforme*



Reference number  
ISO 16842:2014(E)

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Published in Switzerland

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## Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 164, *Mechanical testing of metals*, Subcommittee 2, *Ductility testing*.

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## Introduction

This International Standard specifies the testing method for measuring the biaxial stress-strain curves of sheet metals subject to biaxial tension at an arbitrary stress ratio using a cruciform test piece made of flat sheet metals. The International Standard applies to the shape and strain measurement position for the cruciform test piece. The biaxial tensile testing machine is described in [Annex C](#), only in terms of the typical example of the machine and the requirements that the machine should comply with.

The cruciform test piece recommended in this International Standard has the following features:

- a) the gauge area of the test piece ensures superior homogeneity of stress, enabling measurement of biaxial stress with satisfactory accuracy;
- b) capability of measuring the elasto-plastic deformation behaviour of sheet metals at arbitrary stress or strain rate ratios;
- c) free from the out-of-plane deformation as is encountered in the hydrostatic bulge testing method;
- d) easy to fabricate from a flat metal sheet by laser cutting, water jet cutting, or other alternative manufacturing methods.