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## **Metallic materials — Tensile testing at high strain rates —**

Part 2:

### **Servo-hydraulic and other test systems**

*Matériaux métalliques — Essai de traction à vitesses de déformation élevées — Partie 2: Systèmes d'essai servo-hydrauliques et autres systèmes d'essai*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 26203-2 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 1, *Uniaxial testing*.

ISO 26203 consists of the following parts, under the general title *Metallic materials — Tensile testing at high strain rates*:

- *Part 1: Elastic-bar-type systems*
- *Part 2: Servo-hydraulic and other test systems*

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## Introduction

The deformation behaviour of many technical materials shows a positive strain-rate effect up to ductile failure, i.e. with increasing strain rate, an increase of yield stress and strain to failure can be observed. This information is of great importance for the reliable assessment of crashworthiness of automobile structures, which is increasingly determined by numerical methods to minimize the need for cost-intensive and time-consuming crash tests. For the numerical simulation of crash-type loads, stress-strain curves determined at higher strain rates are required. The quasi-static values determined according to ISO 6892-1, i.e. strain rates lower than or equal to  $0,008 \text{ s}^{-1}$ , are not suitable for the description of the behaviour of the material of a component under dynamic load, i.e. at strain rates higher than those in quasi-static tests.