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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

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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*

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 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.