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## **Metallic materials — Fatigue testing — Axial force-controlled method**

*Matériaux métalliques — Essais de fatigue — Méthode par force axiale  
contrôlée*



Reference number  
ISO 1099:2006(E)

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## Foreword

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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 1099 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 5, *Fatigue testing*.

This second edition cancels and replaces the first edition (ISO 1099:1975), which has been technically revised.

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## Introduction

This International Standard is intended to provide guidance for conducting axial, constant-amplitude, force-controlled cyclic fatigue tests on specimens of a metal for the sake of generating fatigue-life data (i.e. stress vs. cycles to failure).

Nominally identical specimens are mounted on an axial force-type fatigue testing machine and subjected to the required loading conditions that introduce any one of the types of cyclic stress illustrated in Figure 1. The test waveform shall be of constant amplitude, and sinusoidal unless otherwise specified.

The force being applied to the specimen is along the longitudinal axis passing through the centroid of each cross-section.

The test is continued until the specimen fails or until a predetermined number of stress cycles has been exceeded. (See Clauses 4 and 13.)

The test is typically conducted at ambient temperature (ideally between 10 °C and 35 °C).

**NOTE** The results of a fatigue test may be affected by atmospheric conditions, and where controlled conditions are required, subclause 2.1 of ISO 554:1976 applies.