

INTERNATIONAL  
STANDARD

**ISO**  
**9177-3**

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**Mechanical pencils —**

**Part 3:**

Black leads — Bending strengths of HB leads

*Porte-mine —*

*Partie 3: Mines graphite — Résistance à la flexion des mines HB*



Reference number  
ISO 9177-3:1994(E)

## Foreword

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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.

International Standard ISO 9177-3 was prepared by Technical Committee ISO/TC 10, *Technical drawings, product definition and related documentation*, Subcommittee SC 9, *Media and equipment for drawing and related documentation*.

ISO 9177 consists of the following parts, under the general title *Mechanical pencils*:

- *Part 1: Classification, dimensions, performance requirements and testing*
- *Part 2: Black leads — Classification and dimensions*
- *Part 3: Black leads — Bending strengths of HB leads*

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## Mechanical pencils —

### Part 3:

### Black leads — Bending strengths of HB leads

#### 1 Scope

This part of ISO 9177 specifies bending strengths and a test method for black leads of HB hardness degree used for mechanical pencils for technical drawings.

#### 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 9177. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9177 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 9177-2:1989, *Mechanical pencils — Part 2: Black leads — Classification and dimensions*.

#### 3 Definitions

For the purposes of this part of ISO 9177 the definitions given in ISO 9177-2 as well as the following definition apply.

**3.1 bending strength:** Quality requirement of lead strength as determined by bending the lead to its breaking point, using a prescribed test method and formula.

#### 4 Bending strength

##### 4.1 General

Bending strength of HB leads used for mechanical pencils shall be tested in accordance with clause 5 and shall satisfy the requirements specified in 4.2.

##### 4.2 Bending strength of HB leads for mechanical pencils

The bending strength ( $\sigma$ ) shall be not less than the value specified in table 1 corresponding to the respective nominal diameter.