
**Steel and steel products — Location
and preparation of samples and test
pieces for mechanical testing**

*Acier et produits en acier — Position et préparation des échantillons
et éprouvettes pour essais mécaniques*



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 377 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 20, *General technical delivery conditions, sampling and mechanical testing methods*.

This second edition of ISO 377 cancels and replaces ISO 377-1:1989, which has been technically revised.

Annex A forms an integral part of this International Standard.

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Steel and steel products — Location and preparation of samples and test pieces for mechanical testing

1 Scope

This International Standard specifies requirements for the identification, location and preparation of samples and test pieces intended for mechanical tests on steel sections, bars, rod, flat products and tubular products as defined in ISO 6929. If agreed in the order this standard may also apply to other metallic products. It does not apply to non-destructive tests.

These samples and test pieces are for use in tests which are carried out in conformity with the methods specified in the product or material standard or, in the absence of this, in the test standard.

Where the requirements of the order or product standard differ from those given in this International Standard, then the requirements of the order or product standard apply.

2 Normative references

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

ISO 3785:—¹⁾, *Metallic materials — Designation of test piece axes*.

ISO 6929:1987, *Steel products — Definitions and classification*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 6929 and the following apply.

3.1 test unit: Number of pieces or the tonnage of products to be accepted or rejected together, on the basis of the tests to be carried out on sample products in accordance with the requirements of the product standard or order. (See figure 1.)

3.2 sample product: Item (e.g. bar, sheet, coil) selected for inspection and/or testing. (See figure 1.)

1) To be published. (Revision of ISO 3785:1976)

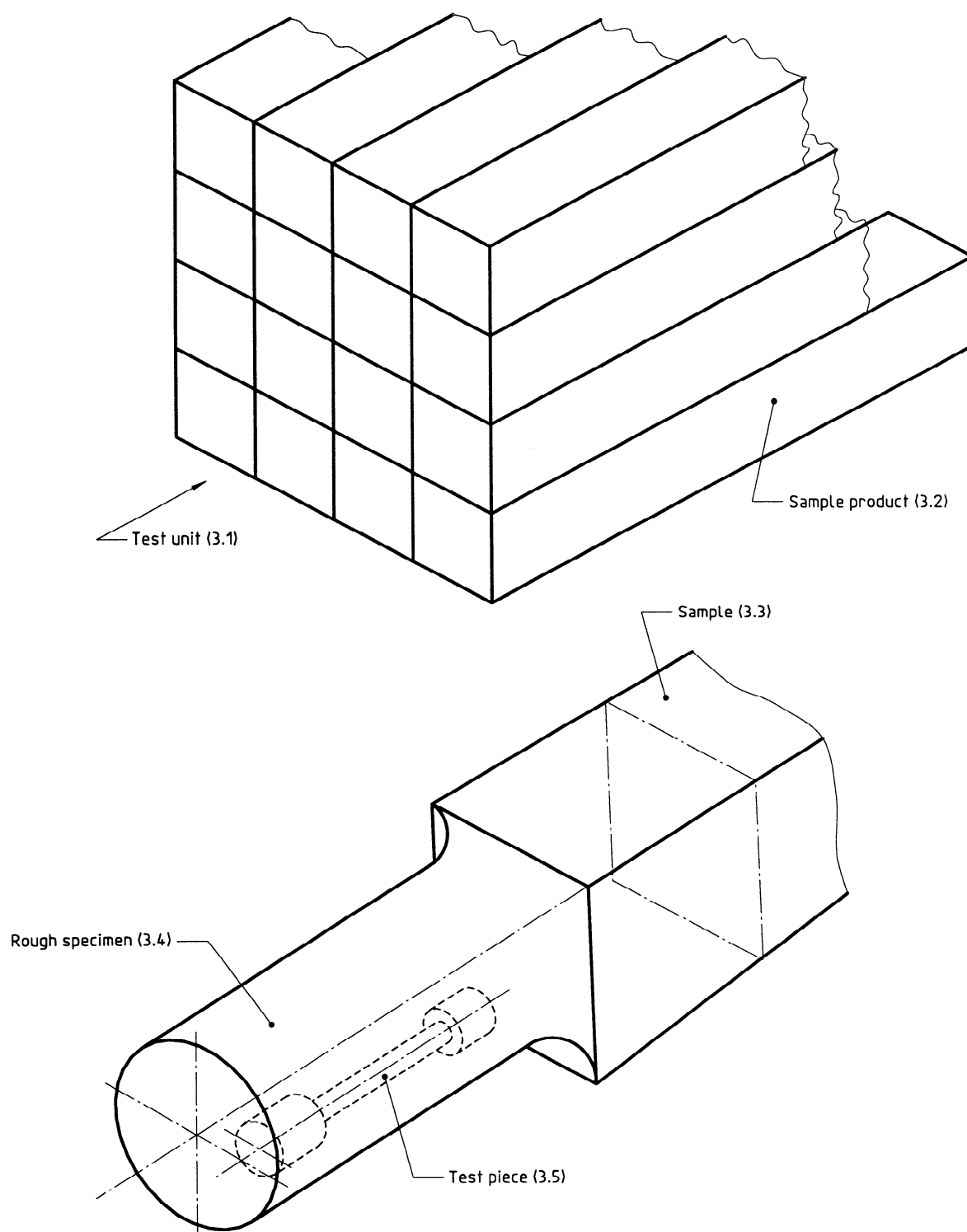


Figure 1 — Examples of terms defined in clause 3

3.3 sample: Sufficient quantity of material taken from the sample product for the purpose of producing one or more test pieces. (See figure 1.)

NOTE — In certain cases, the sample may be the sample product.

3.4 rough specimen: Part of a sample having undergone mechanical treatment, for the purpose of producing a test piece. (See figure 1.)

3.5 test piece: Part of a sample or rough specimen, with specified dimensions, machined or unmachined, brought to a required condition for submission to a given test. (See figure 1.)

NOTE — In certain cases, the test piece may be the sample or the rough specimen.

3.6 reference condition: Condition of a sample, rough specimen or test piece having undergone a heat treatment to represent the intended final condition of the product.

NOTE — In such cases the sample, rough specimen or test piece is called the reference sample, reference rough specimen or reference test piece.

4 General requirements

4.1 Representative testing

Sample, rough specimens and test pieces selected in accordance with annex A, shall be considered to be representative of the product.

NOTE — As a result of their production sequence i.e. melting, casting hot and/or cold forming, heat treatment etc., steel products are not homogeneous. The mechanical properties of samples taken from other locations may be different.

4.2 Identification of sample products, samples, rough specimens and test pieces

Sample products, samples, rough specimens and test pieces shall be marked to ensure traceability to the original product and their location and orientation in that product. For this purpose, if, during the preparation of the sample, rough specimen and/or test pieces, removal of the marks cannot be avoided, transfer of these marks shall be carried out before the existing marks are removed or in the case of automatic preparation equipment before the test piece is removed from the equipment. In the case of specific inspection and testing and where requested by the purchaser the transfer of the marks shall be carried out in the presence of the purchaser's representative.

In the case of fully automatic in line preparation and testing systems, marking of samples, rough specimens and test pieces is not necessary if an adequate control system exists, which clearly defines the procedures to be followed in the event of system failure.

5 Preparation of samples and selection of test pieces

5.1 Selection and dimensions of samples and location of test pieces

The sample shall be selected so that the test piece can be located as indicated in annex A. The sample shall have sufficient dimensions to allow sufficient test pieces required for carrying out specified tests, and for any retests which may be necessary.

5.2 Direction of axis of test pieces

The direction of the test piece axis relative to the principle direction of working shall be as specified in the appropriate product standard or order. The designation of the test piece axis shall be in accordance with ISO 3785.



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