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**Machine tools — Test conditions  
for bridge-type milling machines —  
Testing of the accuracy —**

**Part 2:  
Travelling bridge (gantry-type) machines**

*Machines-outils — Conditions d'essai des machines à fraiser  
à portique — Contrôle de l'exactitude —*

*Partie 2: Machines à portique mobile*



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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 8636-2 was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 2, *Test conditions for metal cutting machine tools*.

This second edition cancels and replaces the first edition (ISO 8636-2:1988) which has been technically revised. Especially,

- a) geometrical tests have been rearranged; the new G numbers compared to the old ones are given in the following table:

ISO 8636-2:2007	1	2(add)	3	4(add)	5	6	7	8	9	10	11	12
ISO 8636-2:1988	2	—	8	—	10	9	6	5	1	4&7	3	13

ISO 8636-2:2007	13	14	15	16(add)	17	18
ISO 8636-2:1988	12, 14, 15	16	11	—	17	18

- b) information has been added in “Object” boxes for G6, G12, G13, G14 and G15. This information has been added because the machines have several milling heads and the test items are applicable to all of the milling heads;
- c) tolerances on accuracy and repeatability of positioning have been changed in accordance with ISO 230-2:2006;
- d) new test for geometric accuracy of axes of rotation of workholding spindles (R1) has been added.

The actual deviations of all parameters are shown as test results, but the tolerances are limited only to certain parameters.

ISO 8636 consists of the following parts, under the general title *Machine tools — Test conditions for bridge-type milling machines — Testing of the accuracy*:

- *Part 1: Fixed bridge (portal-type) machines*
- *Part 2: Travelling bridge (gantry-type) machines*

# Machine tools — Test conditions for bridge-type milling machines — Testing of the accuracy —

## Part 2: Travelling bridge (gantry-type) machines

### 1 Scope

This part of ISO 8636 specifies, with reference to ISO 230-1, ISO 230-2, and ISO 230-7, geometric tests, machining tests, and tests for checking accuracy and repeatability of positioning of numerically controlled axes for general-purpose normal accuracy bridge-type milling machines with a travelling bridge (gantry-type). This part of ISO 8636 also specifies the applicable tolerances corresponding to the above-mentioned tests.

This part of ISO 8636 is applicable to machines with travelling bridge and fixed table. It does not include single-column (open sided) machines and those with fixed bridge and moving tables.

This part of ISO 8636 deals only with the verification of the accuracy of the machine. It does not apply to the testing of the machine operation (vibration, abnormal noise, stick-slip motion of components, etc.) nor to machine characteristics (such as speeds, feeds, etc.), which should generally be checked before testing the accuracy.

This part of ISO 8636 provides the terminology used for the principal components of the machines and the designation of the axes with reference to ISO 841.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 230-1:1996, *Test code for machine tools — Part 1: Geometric accuracy of machines operating under no-load or finishing conditions*

ISO 230-2:2006, *Test code for machine tools — Part 2: Determination of accuracy and repeatability of positioning numerically controlled axes*

ISO 230-7:2006, *Test code for machine tools — Part 7: Geometric accuracy of axes of rotation*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1 milling operation

machining operation, which consists of removing material by means of a rotary tool (milling cutter), of which there are several different types

NOTE Typical milling operations mostly involve face milling or end milling. The tools are mounted either in the spindle taper or on the spindle front face.