
International Standard



1701/0

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Test conditions for milling machines with table of variable height, with horizontal or vertical spindle — Part 0 : General introduction

*Conditions de réception des machines à fraiser à table à hauteur variable, à broche horizontale ou verticale —
Partie 0 : Introduction générale*

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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 developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 1701/0 was developed by Technical Committee ISO/TC 39, *Machine tools*, and was circulated to the member bodies in April 1982.

It has been approved by the member bodies of the following countries:

Belgium	Ireland	Spain
Brazil	Italy	Sweden
China	Japan	Switzerland
Czechoslovakia	Korea, Dem. P. Rep. of	United Kingdom
Egypt, Arab Rep. of	Korea, Rep. of	USA
France	Mexico	USSR
Germany, F.R.	Poland	Yugoslavia
Hungary	Romania	
India	South Africa, Rep. of	

No member body expressed disapproval of the document.

Test conditions for milling machines with table of variable height, with horizontal or vertical spindle — Part 0 : General introduction

1 Scope and field of application

This part of ISO 1701 defines the machining processes that can be carried out on milling machines with table of variable height with horizontal or vertical spindle, and describes the different types of machines.

Milling machines with table of fixed height are covered by ISO 1984.

This part of ISO 1701 also gives a nomenclature for the main elements of the machine.

NOTE — In addition to terms used in the three official ISO languages (English, French and Russian), this part of ISO 1701 gives the equivalent terms in German, Italian, Dutch, Spanish and Swedish; these have been included at the request of Technical Committee ISO/TC 39 and are published under the responsibility of the Member Bodies for Germany, F.R. (DIN), Italy (UNI), the Netherlands (NNI), Spain (IRANOR) and Sweden (SIS). However, only the terms given in the official languages can be considered as ISO terms.

2 References

ISO 1984/0, *Test conditions for milling machines with table of fixed height, with horizontal or vertical spindle — Part 0 : General introduction.*

ISO 3855, *Milling cutters — Nomenclature.*

3 Definitions of the machining processes that can be carried out

3.1 Milling operations

Milling is a machining operation which consists of removing material by means of a rotary tool called a "milling cutter" of which there are several different types.

The usual operations of milling can be divided into three categories :

- slab milling operations (see figure 1);
- face milling operations (see figure 2);
- end milling operations (see figure 3).

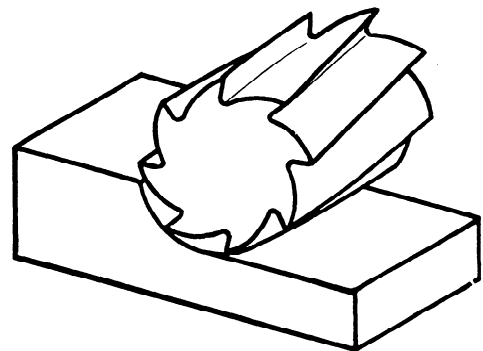


Figure 1 — Slab milling operation

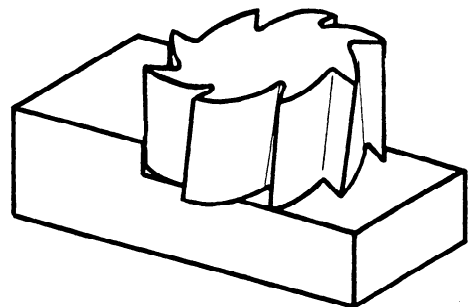


Figure 2 — Face milling operation

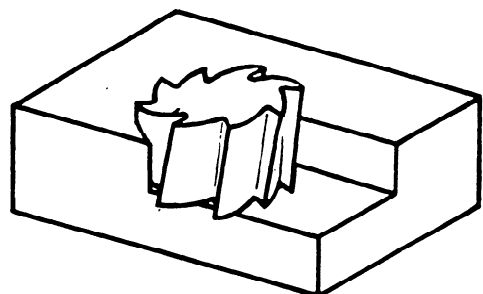


Figure 3 — End milling operation

3.2 Other operations

In addition to normal milling operations as described in 3.1, other operations such as boring and metal slitting (by the use of a metal slitting saw) may be carried out on milling machines.

4 Description of machines

In milling machines with table of variable height with horizontal or vertical spindle, the base-plate is rigidly fixed to the column (see figures 4, 5 and 6).

In this type of machine, the cutting movement is given by the spindle, the axis of which is horizontal or vertical.

The feed movements are as follows :

4.1 Spindle with a horizontal axis (see figure 4)

- the X axis of motion constitutes the longitudinal movement of the table;
- the Y axis of motion constitutes the vertical movement of the table;
- the Z axis of motion is parallel to the spindle axis and constitutes the transverse movement of the table.

4.2 Spindle with a vertical axis (see figure 5)

- the X axis of motion constitutes the longitudinal movement of the table;
- the Y axis of motion constitutes the transverse movement of the table;
- the Z axis of motion is parallel to the spindle axis and constitutes the vertical movement of the spindle head;
- the W axis of motion constitutes the vertical movement of the table.

4.3 Movable head with horizontal or vertical spindle axis (see figure 6).

- the X axis of motion constitutes the longitudinal movement of the table;
- the Y axis of motion constitutes the transverse movement of the table;
- the Z axis of motion constitutes the vertical movement of the table.

NOTE — All these feed movements may be carried out by a rapid traverse of the element in question.