
International Standard



1984/0

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

Conditions de réception des machines à fraiser à table à hauteur fixe, 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.

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International Standard ISO 1984/0 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 fixed height, with horizontal or vertical spindle — Part 0 : General introduction

1 Scope and field of application

This part of ISO 1984 defines the machining processes that can be carried out on milling machines with table of fixed height, with horizontal or vertical spindle, and describes the different types of machines.

Milling machines with table of variable height are covered by ISO 1701.

This part of ISO 1984 also gives a terminology for the main elements of the machine.

NOTE — In addition to terms used in the three official ISO languages (English, French and Russian), this International Standard 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 (NII), Spain (IRANOR) and Sweden (SIS). However, only the terms given in the official languages can be considered as ISO terms.

2 References

ISO 1701/0, *Test conditions for milling machines with table of variable 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 milling operations can be divided into three categories :

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

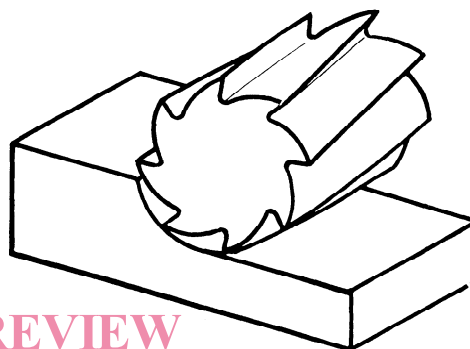


Figure 1 — Slab milling operation

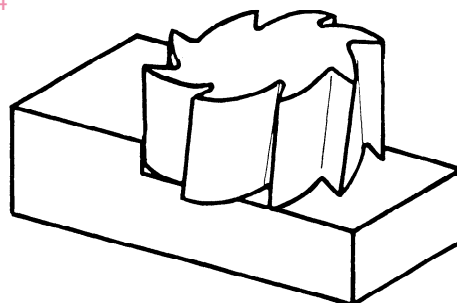


Figure 2 — Face milling operation

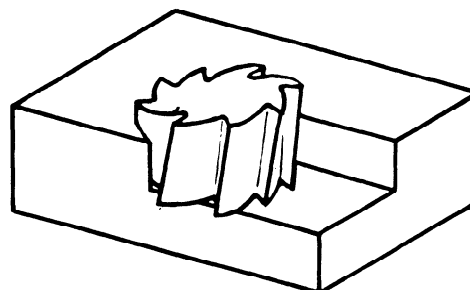


Figure 3 — End milling operation

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 a table of fixed height and with a horizontal or vertical spindle, the bed is rigidly fixed to the column (see figures 4 and 5).

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 spindle head;

- 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;

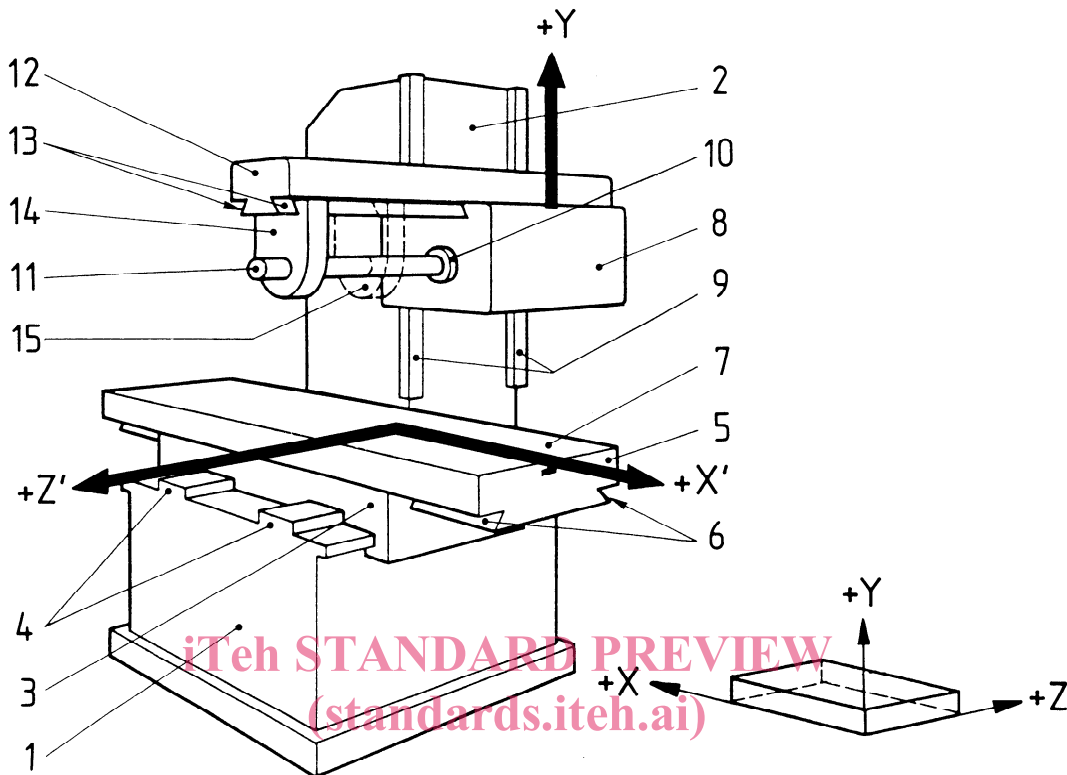
NOTE — All these feed movements may be carried out by a rapid traverse of the elements in question.

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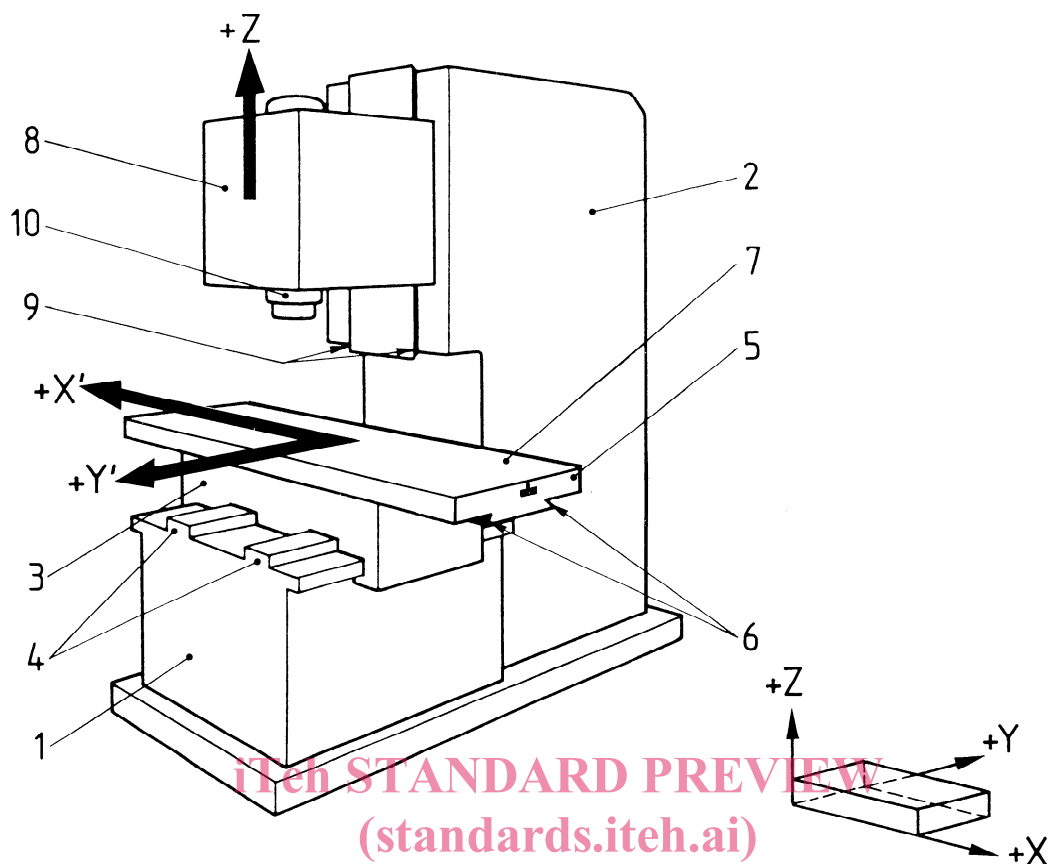
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5 Nomenclature



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Figure 4 – Milling machine with table of fixed height and with horizontal spindle and a sliding vertical saddle spindle head

Ref.	Designation		
	English	French	Russian
1	Bed	Banc	Станина
2	Column	Montant	Стойка
3	Saddle	Chariot transversal	Салазки
4	Saddle slideways	Glissières du mouvement transversal de la table	Направляющие салазок
5	Table	Table porte-pièce	Стол
6	Table slideways	Glissières du mouvement longitudinal de la table	Направляющие стола
7	Table surface	Surface utile de la table	Рабочая поверхность стола
8	Spindle head	Tête porte-broche	Шпиндельная бабка
9	Spindle head slideways	Glissière du mouvement vertical de la tête porte-broche	Направляющие шпиндельной бабки
10	Spindle nose	Nez de broche	Передний конец шпинделя
11	Arbor	Arbre porte-fraise	Оправка
12	Overarm	Bras-support	Хобот
13	Overarm slideways	Glissière du bras-support	Направляющая хобота
14	Front arbor support	Lunette avant	Передняя серьга
15	Rear arbor support	Lunette arrière	Задняя серьга



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Figure 5 – Milling machine with table of fixed height and with vertical spindle and a sliding vertical saddle spindle head

Ref.	Designation		
	English	French	Russian
1	Bed	Banc	Станина
2	Column	Montant	Стойка
3	Saddle	Chariot transversal	Салазки
4	Saddle slideways	Glissières du mouvement transversal de la table	Направляющие салазок
5	Table	Table porte-pièce	Стол
6	Table slideways	Glissières du mouvement longitudinal de la table	Направляющие стола
7	Table surface	Surface utile de la table	Рабочая поверхность стола
8	Spindle head	Tête porte-broche	Шпиндельная бабка
9	Spindle head slideways	Glissière du mouvement vertical de la tête porte-broche	Направляющие шпиндельной бабки
10	Spindle nose	Nez de broche	Передний конец шпинделя

Annex A

Equivalent terms in German, Italian, Dutch, Spanish and Swedish corresponding to figure 4

Ref.	Designation				
	German	Spanish	Italian	Dutch	Swedish
1	Bett	Bancada	Banco	Grondplaat met bak	Bädd
2	Ständer	Columna	Montante	Staander	Pelare
3	Querschlitten (Z-Achse)	Carro transversal	Slitta trasversale	Dwarsslede (Z-as)	Tvärslid
4	Querschlitten- führung	Guías del movimiento transversal de la mesa	Guide della slitta trasversale	Leibanen van de dwarsslede	Tvärslidsgejder
5	Längsschlitten (X-Achse)	Mesa porta-pieza	Tavola	Langsslede (of tafel) (X-as)	Bord
6	Längsschlitten- führung	Guías del movimiento longitudinal de la mesa	Guide della tavola	Leibanen van de langsslede	Bordgejder
7	Aufspanfläche	Superficie útil de la mesa	Piano della tavola	Opspanoppervlak van de tafel	Bordyta
8	Spindelstock (Y-Achse)	Cabezal	Testa	Spilkop	Spindeldocka
9	Spindelstock- führung	Guías del movimiento vertical del cabezal	Guide della testa	Leibanen van de spilkop	Gejder för spindel-docka
10	Spindelnase	Extremo del husillo	Naso del mandrino	Spilneus	Spindelnos
11	Fräserdorn	Eje porta-fresas	Albero portafrese	Gereedschaps of freespil	Fräsdorn
12	Gegenhalter	Brazo-soporte	Slittone	Steunarm	Bom
13	Gegenhalter- führung	Guías del brazo-soporte	Guide dello slittone	Geleiding van de steunarm	Bomgejder
14	Vorderes Gegenhal- terlager	Luneta delantera	Sopporto principale	Voorste frees- spilsteun	Främre dornstöd
15	Hinteres Gegenhal- terlager	Luneta trasera	Sopporto intermedio	Achterste frees- spilsteun	Bakre dornstöd

Annex B

Equivalent terms in German, Italian, Dutch, Spanish
and Swedish corresponding to figure 5

Ref.	Designation				
	German	Spanish	Italian	Dutch	Swedish
1	Bett	Bancada	Banco	Grondplaat met bak	Bädd
2	Ständer	Columna	Montante	Staander	Pelare
3	Querschlitten (Y-Achse)	Carro transversal	Slitta trasversale	Dwarsslede (Y-as)	Tvärslid
4	Querschlitten- führung	Guías del movi- miento transversal de la mesa	Guide della slitta trasversale	Leibanen van de dwarsslede	Tvärslidsgejder
5	Längsschlitten (X-Achse)	Mesa porta-pieza	Tavola	Langsslede (of tafel) (X-as)	Bord
6	Längsschlitten- führung	Guías del movi- miento longitu- dinal de la mesa	Guide della tavola	Leibanen van de langsslede	Bordgejder
7	Aufspannfläche	Superficie útil de la mesa	Piano della tavola	Opspanoppervlak van de tafel	Bordyta
8	Spindelstock (Z-Achse)	Cabezal	Testa	Spilkop	Spindeldocka
9	Spindelstock- führung	Guías del movi- miento vertical del cabezal	Guide della testa	Leibanen van de spilkop	Gejder för spindel- docka
10	Spindelnose	Extremo del husillo	Naso del mandrino	Spilneus	Spindelnos