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Woodworking machines — Routing machines — Nomenclature and acceptance conditions

Machines à bois — Machines à déformer — Nomenclature et conditions de réception

Reference number
ISO 7948 : 1987 (E)

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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7948 was prepared by Technical Committee ISO/TC 39, *Machine tools.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Woodworking machines — Routing machines — Nomenclature and acceptance conditions

1 Scope and field of application

This International Standard specifies the nomenclature appropriate to each part of the machine and, with reference to ISO 230-1, the geometrical tests for routing machines, and gives the corresponding permissible deviations which apply to machines of general purpose use and normal accuracy.

NOTE — In addition to terms used in the three official ISO languages (English, French and Russian), this International Standard gives the equivalent terms in the German, Spanish, Italian and Swedish languages in an annex; 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), Spain (IRANOR), Italy (UNI) and Sweden (SIS). However, only the terms given in the official languages can be considered as ISO terms.

This International Standard deals only with the verification of the accuracy of the machine. It does not apply to the testing of the running of the machine (vibrations, abnormal noises, stick-slip motion of the components, etc.), nor to its characteristics (speeds, feeds, etc.) which should generally be checked before the accuracy is tested.

This International Standard does not impose any practical test. For routing machines, practical tests are an exception and need be performed only where there is prior agreement between the manufacturer and the user.

This International Standard applies to those machines designated by the number 12.315.12 in ISO 7984.

The annex does not form an integral part of this International Standard.

2 References

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

ISO 7984, *Woodworking machines — Technical classification of woodworking machines and auxiliary machines for woodworking.*

3 Preliminary remarks

3.1 In this International Standard all dimensions and permissible deviations are expressed in millimetres.

3.2 To apply this International Standard, reference should be made to ISO 230-1, especially for installation of the machine before testing, the warming up of the main spindle and other moving parts, and the description of the measuring methods. The measuring instruments shall not permit measurement errors over 1/3 of the checked tolerances.

3.3 The sequence in which the geometrical tests are given is related to the sub-assemblies of the machine, and this in no way defines the practical order of testing. In order to make mounting of instruments and gauging easier, tests may be applied in any order.

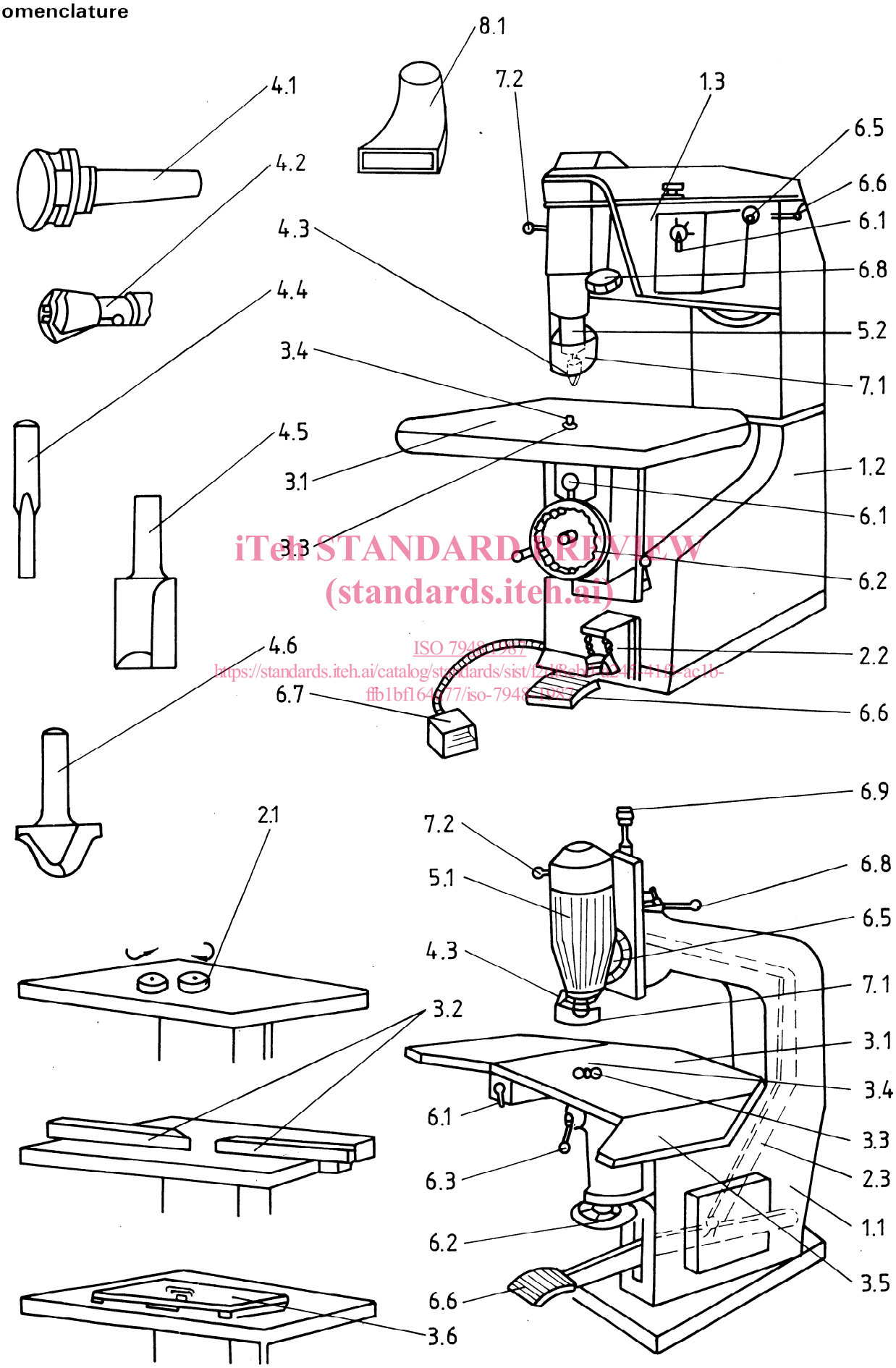
3.4 When inspecting a machine, it is not always possible or necessary to carry out all the tests given in this International Standard.

3.5 It is up to the user to choose, in agreement with the manufacturer, those tests relating to the properties which are of interest to him, but these tests shall be clearly stated when ordering a machine.

3.6 A movement is longitudinal when it takes place in the working direction of the piece.

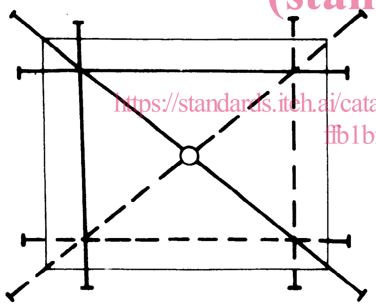
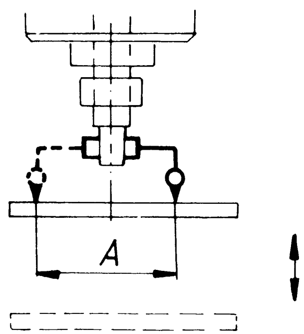
3.7 When establishing the tolerance for a measuring range different from that given in this International Standard (see subclause 2.311 in ISO 230-1), it should be taken into consideration that the minimum value of the tolerance is 0,01 mm.

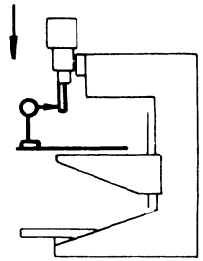
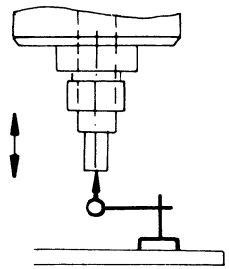
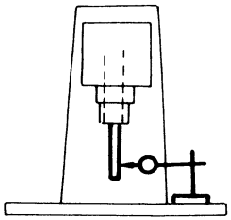
4 Nomenclature

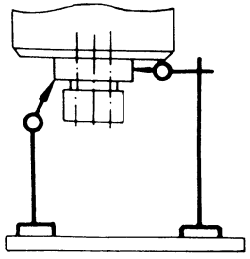
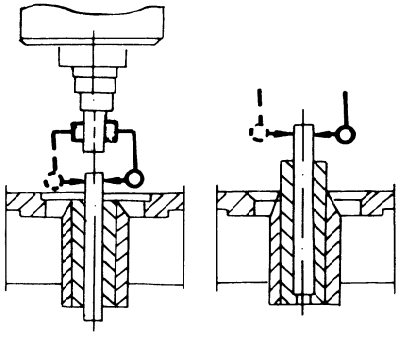


Reference	English	French	Russian
	Routing machines	**Machines à défoncer**	**Вертикально-фрезерные станки**
1	**Framework**	**Ossature**	**Каркас**
1.1	Body	Bâti	Станина
1.2	Base	Socle	Станина
1.3	Over-arm	Bras	Консоль
2	**Feed of workpiece and/or tools**	**Déplacement des pièces et/ou outils**	**Подала деталей и/или инструмента**
2.1	Automatic feed drive	Entraîneur automatique	Автоматическая подача
2.2	Pedal ratchet	Crémaillère de blocage de pédale	Храповик педали
2.3	Head movement linkage	Articulation du mouvement de tête	Управление движением головки
3	**Workpiece support, clamp and guide**	**Support, maintien et guidage des pièces**	**Опора, крепление и направление деталей**
3.1	Table	Table	Стол
3.2	Fence	Guide	Направляющая
3.3	Table ring	Rondelle de table	Кольцо стола
3.4	Guide pin	Doigt de guidage	Направляющий палец
3.5	Table extension	Allonge de table	Удлинитель стола
3.6	Jig	Gabarit	Копир
4	**Tool-holders and tools**	**Porte-outils et outils**	**Державки инструмента и инструмент**
4.1	Eccentric chuck	Mandrin excentré	Эксцентрическая оправка
4.2	Collet	Mandrin à pince	Зажимной патрон
4.3	Spindle chuck	Arbre porte-mandrin	Шпиндельная оправка
4.4	Single-edged spoon bit	Mèche à une coupe	Фреза с одной режущей кромкой
4.5	Double-edged panel cutter	Mèche à deux coupes	Фреза с двумя режущими кромками
4.6	Solid shaped cutter	Mèche de forme	Фреза для фигурной обработки
5	**Workhead and tool drives**	**Unité de travail et son entraînement**	**Рабочие головки и привод инструмента**
5.1	High frequency head	Tête à très grande vitesse	Высокочастотная головка
5.2	Belt driven spindle	Broche à entraînement par courroie	Шпиндель с ременным приводом
6	**Controls**	**Commandes**	**Управление**
6.1	Speed select switch	Commutateur de vitesses	Переключатель скорости
6.2	Table rise and fall adjustment	Commande de réglage en hauteur de la table	Рукоятка вертикальной регулировки стола
6.3	Guide pin raise lever	Levier de réglage en hauteur du téton	Рукоятка регулировки направляющего пальца
6.4	Belt tension knob	Levier de tension de courroie	Рукоятка регулировки натяжения ремня
6.5	Head tilt lock	Commande de blocage de la tête	Рукоятка блокировки головки
6.6	Head downfeed pedal (mechanical)	Pédale de soulèvement de la tête (mécanique)	Педаль вертикальной регулировки головки (механическая)
6.7	Head control pedal (pneumatic)	Pédale de soulèvement de la tête (pneumatique)	Педаль вертикальной регулировки головки (пневматическая)
6.8	Depth stop turret	Commande de tourelle de profondeur	Регулировка упора по глубине
6.9	Depth stop fine adjustment	Butée de réglage de précision en profondeur	Тонкая регулировка упора по глубине
7	**Safety devices** (examples)	**Dispositifs de sécurité** (exemples)	**Предохранительные устройства** (примеры)
7.1	Cutter guard	Protecteur de mèche	Защита фрезы
7.2	Spindle brake	Frein de broche	Тормоз шпинделя
8	**Miscellaneous**	**Divers**	**Прочее**
8.1	Exhaust outlet	Buse d'aspiration	Отсасывающий патрубок
9	(clause free)	(chapitre libre)	(свободная глава)
10	**Examples of work**	**Exemples de travail**	**Примеры работ**
	Numerous	Nombreux	Многочисленные

5 Acceptance conditions and permissible deviations — Geometrical tests

No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G1		Checking of flatness of the table a) longitudinally b) transversely c) diagonally	a) and b) 0,1 for $L^* \leqslant 630$ 0,15 for $630 < L \leqslant 1\,250$ 0,2 for $L > 1\,250$ c) 0,15 for $L \leqslant 630$ 0,25 for $630 < L \leqslant 1\,250$ 0,3 for $L > 1\,250$	Straightedge and feeler gauges	Subclause 5.322 * L is the length of the table
G2		Checking of squareness of the spindle axis to the table surface	0,1/400 *	Dial gauge	Subclause 5.512.4 Head slide at mid-position; checked with table in upper and lower positions and head slide locked. Carry out the checking in two perpendicular planes. * Diameter A

No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G3		Checking of parallelism of the spindle movement to its axis of rotation	0,05 for a movement of the spindle of 100	Dial gauge and test mandrel	Subclause 5.422.3
G4		Measurement of axial play of the spindle, with preloaded bearings	0,02	Dial gauge	Subclause 5.622 Measured at normal operating temperature.
G5		Measurement of run-out of the spindle	0,03	Dial gauge and test mandrel	Subclause 5.612.2 Measure at 80 mm from the shoulder.

No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G6		Measurement of run-out and camming of the outside diameter of the spindle	0,02	Dial gauge	Subclauses 5.612.2 and 5.632 Check only if the tool is located on the outside diameter.
G7		Checking of alignment of the axis of the spindle and the guide pin	0,03	Dial gauge	Subclause 5.442 Check in two positions with the guide pin retracted and fully extended.

Annex

Equivalent terms

(This annex does not form an integral part of the standard.)

Reference	German	Spanish	Italian	Swedish
	Oberfräsmaschinen	**Fresadora vertical**	**Fresatrice verticale**	**Överfräsmaskin**
1	**Ständer**	**Armazón**	**Intelaiatura**	**Stativkonstruktion**
1.1	Ständer-Oberteil	Bastidor	Corpo	Överdel
1.2	Ständer-Unterteil	Zócalo	Basamento	Underdel
1.3	Ständerarm	Brazo	Braccio	Arm
2	**Vorschub von Werkstück und/oder Werkzeug**	**Desplazamiento de las piezas y/o de las herramientas**	**Spostamento dei pezzi e/o degli utensili**	**Matning av arbetsstycke och/eller verktyg**
2.1	Automatische Vorschubeinheit	Dispositivo de avance automático	Avanzamento automatico	Automatisk matningsenhet
2.2	Fußpedal mit Raste	Cremallera de blocaje del pedal	Cremagliera di bloccaggio del pedale	Pedalspärr
2.3	Verbindungsstück zum Fräskopf	Articulación del movimiento del cabezal	Articolazione del movimento della testa	Länkarm för fräshuvudmatning
3	**Werkstückauflage, -halterung und -führung**	**Soporte, amarre y guiado de las piezas**	**Supporto, fissaggio e guida dei pezzi**	**Upplag, hållare och styrning för arbetsstycke**
3.1	Tisch	Mesa	Tavola	Bord
3.2	Oberfräslineal	Guía	Guida	Anhåll
3.3	Tischeinlegering	Orificio de la mesa	Rondella della tavola	Bordring
3.4	Kopierstift	Dedo de guía	Nottolino di guida	Kopierstift
3.5	Tischverbreiterung	Mesa auxiliar	Prolunga della tavola	Bordförlängning
3.6	Kopier-Aufspannvorrichtung	Plantilla	Maschera di montaggio	Fräsjigg
4	**Werkzeugträger und Werkzeuge**	**Porta-herramientas y herramientas**	**Portautensili ed utensili**	**Verktygshållare och verktyg**
4.1	Exzentrisches Spannfutter	Mandrino excéntrico	Mandrino eccentrico	Excentrisk chuck
4.2	Spannzange	Mandrino con pinza	Mandrino a pinze	Spännhylsa
4.3	Überwurfmutter	Arbol porta-mandrino	Albero portamandrino	Verktygsfäste
4.4	Einschneidiger Oberfräser	Broca de un corte	Punta a taglio singolo	Enskärig fräs
4.5	Zweischneidiger Oberfräser	Broca de dos cortes	Punta a taglio doppio	Tvåskärig fräs
4.6	Zweischneidiger Profil-Oberfräser	Broca de forma	Punta sagomata	Profilfräs
5	**Einbauteile und Teile für den Werkzeugantrieb**	**Unidades de trabajo y su accionamiento**	**Unità operatrice e suo azionamento**	**Bearbetningsenheter och drivsystem**
5.1	Hochfrequenzmotor	Cabezal de gran velocidad	Testa ad alta frequenza	Höghastighetsmotor
5.2	Frässpindel mit Riemenantrieb	Husillo con transmisión por correa	Mandrino con comando a cinghia	Remdriven frässpindel
6	**Bedienungs- und Überwachungsorgane**	**Controles**	**Comandi**	**Manöverorgan**
6.1	Geschwindigkeitswahlschalter	Selector de velocidades	Commutatore di velocità	Varvtalsomkopplare
6.2	Tischhöhenverstellung	Volante para el reglaje en altura de la mesa	Regolazione in altezza del tavolo	Höjdinställning av bord
6.3	Höhenverstellung des Kopierstiftes	Palanca para reglaje en altura del dado	Leva di regolazione in altezza del nottolino	Höjdinställning av kopierstift
6.4	Einstellung der Riemenspannung	Palanca de tensión de la correa	Leva di tensione della cinghia	Remspänningsspak
6.5	Arretierung für Frässpindelschrägstellung	Control de blocaje del cabezal	Comando di bloccaggio della testa	Låsning av frässpindelns vinkelinställning
6.6	Höhenverstellung des Fräskopfes (mechanisch)	Pedal de elevación del cabezal (mecánico)	Pedale di sollevamento della testa (meccanico)	(Mekanisk) höjdinställning av spindeln