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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Woodworking machines — Double-end tenoning machines — Nomenclature and acceptance conditions

Machines à bois — Machines doubles à tenonner — Nomenclature et conditions de réception

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Reference number
ISO 7988 : 1988 (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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 7988 was prepared by Technical Committee ISO/TC 39, *Machine tools*.

Annex A of this International Standard is for information only.

Woodworking machines — Double-end tenoning machines — Nomenclature and acceptance conditions

1 Scope

This International Standard specifies the nomenclature appropriate to each part of the machine and, with reference to ISO 230-1, the geometrical and practical tests for double-end tenoning 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; these are published under the responsibility of the member bodies for Germany, F.R. (DIN), Spain (AENOR), 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 applies to those machines designated by the number 82.2 in ISO 7984¹⁾.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 230-1 : 1986, *Acceptance code for machine tools — Part 1: Geometric accuracy of machines operating under no-load or finishing conditions*.

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.

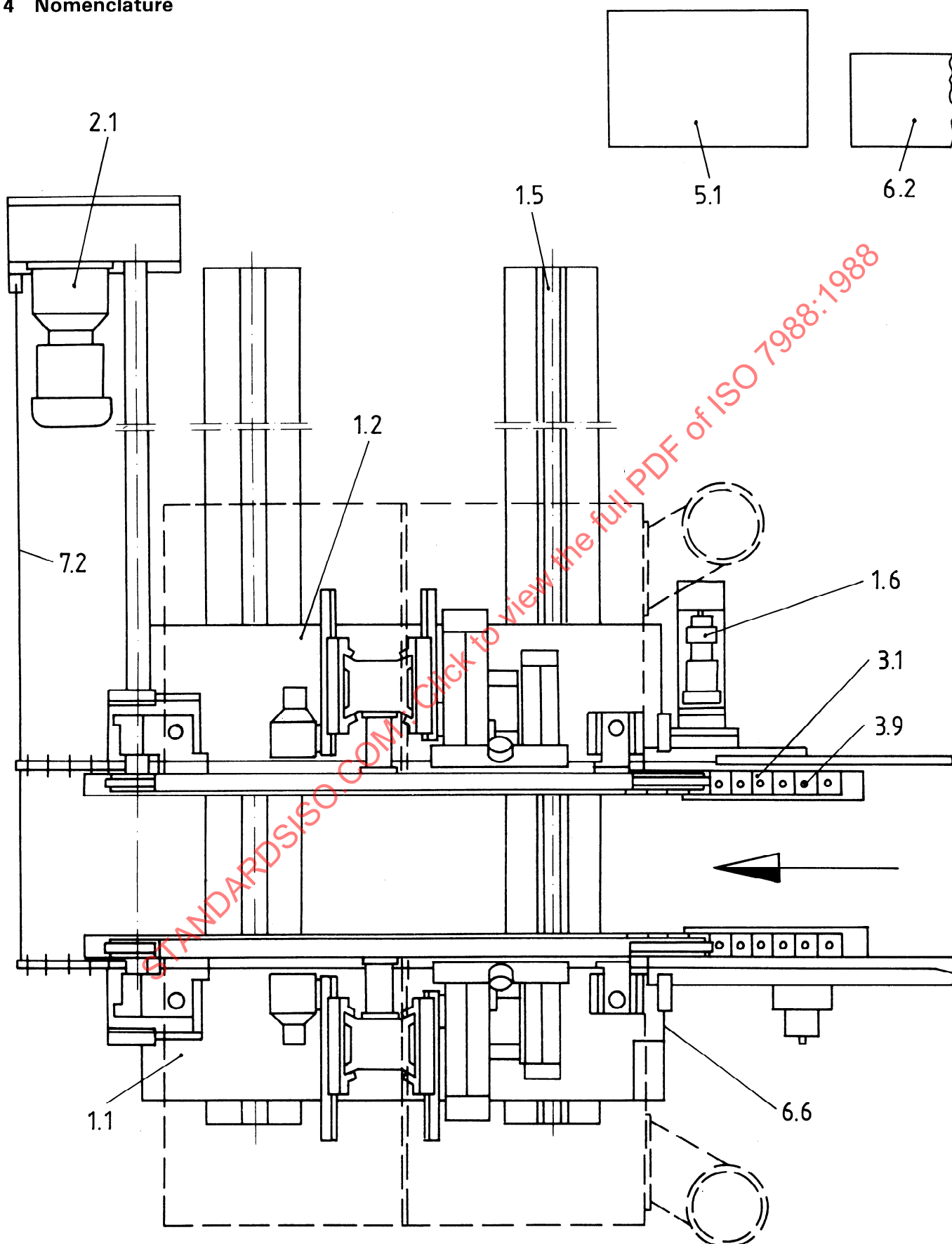
3.5 It is up to the user to choose, in agreement with the manufacturer, those tests relating to the properties which are of interest to him, but these tests shall be clearly stated when ordering a machine.

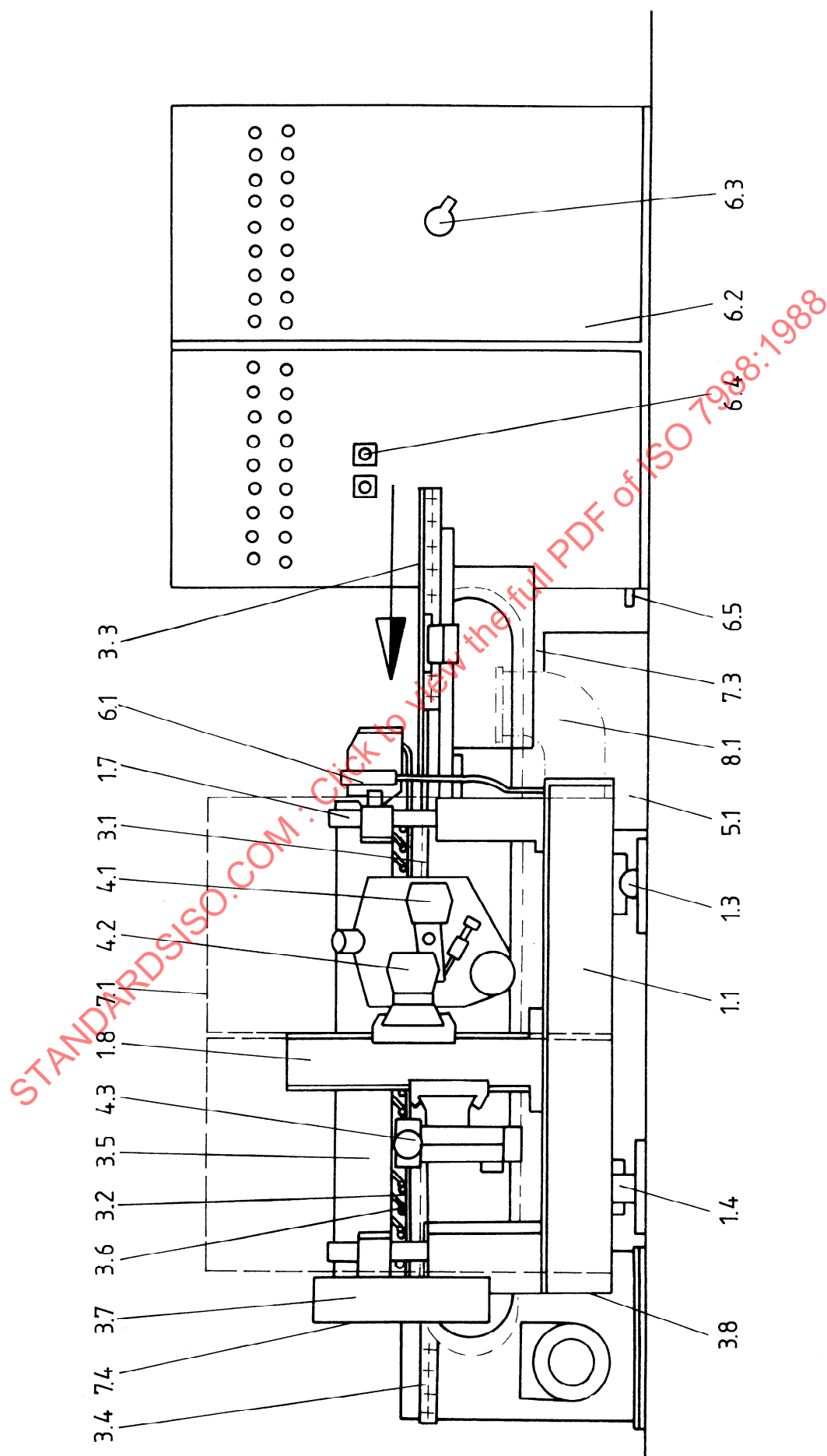
3.6 A movement is longitudinal when it takes place in the working direction of the piece.

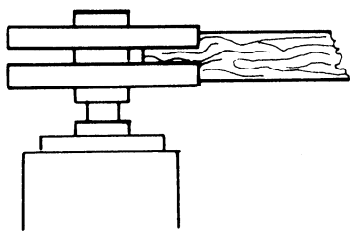
3.7 When establishing the tolerance for a measuring range different from that given in this International Standard (see subclause 2.311 in ISO 230-1), it should be taken into consideration that the minimum value of the tolerance is 0,01 mm.

1) ISO 7984 : 1988, *Woodworking machines — Technical classification of woodworking machines and auxiliary machines for woodworking*.

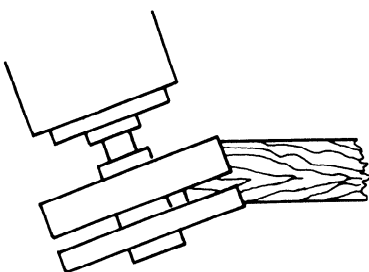
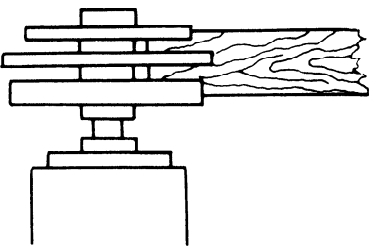
4 Nomenclature



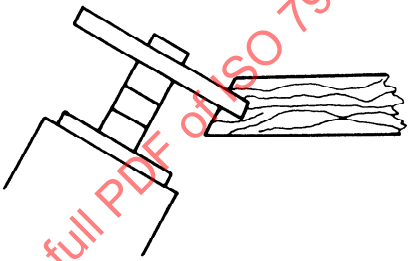




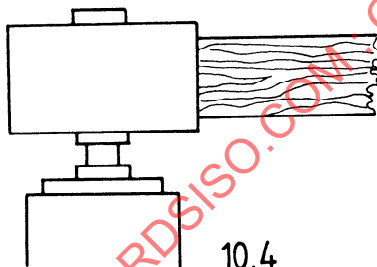
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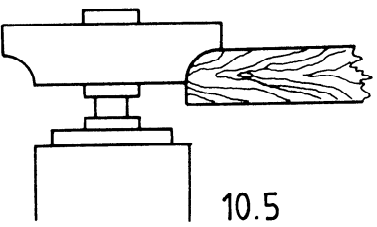
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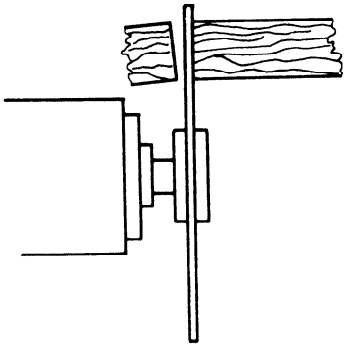
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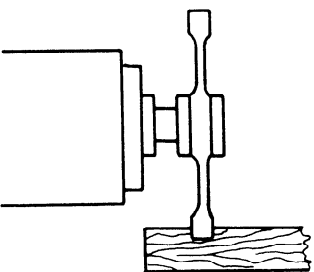
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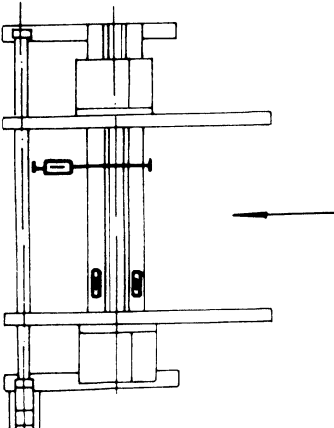
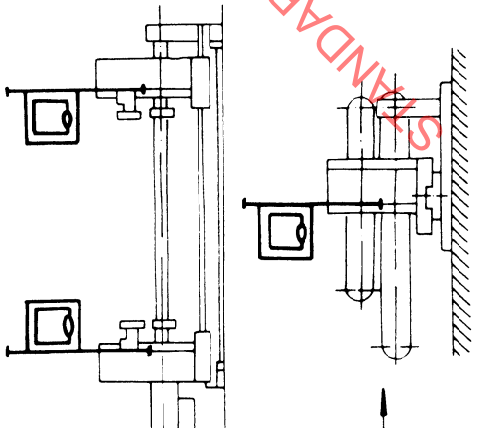


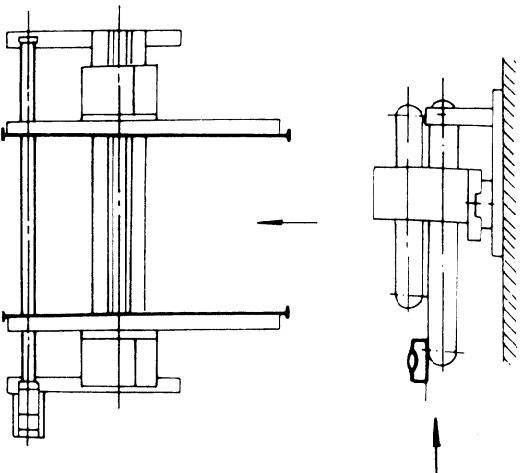
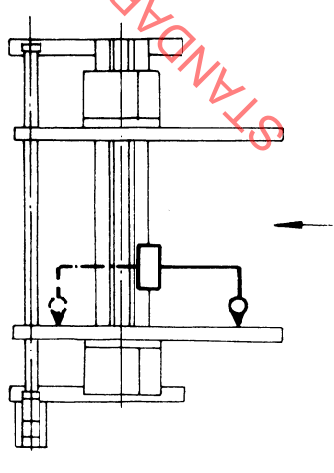
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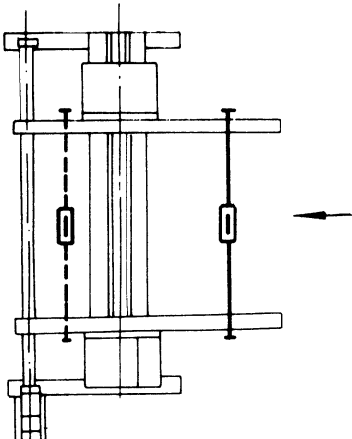
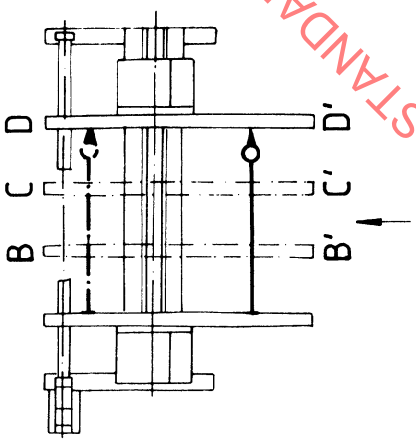
Reference	English	French	Russian
	Double-end tenoning machine	Machine double à tenonner	Станок шипорезный двухсторонний
1	Framework	Ossature	Каркас
1.1	Main frame saddle (fixed)	Bâti principal — montant fixe	Главная станина, неподвижная
1.2	Main frame saddle (adjustable)	Bâti principal — montant mobile	Главная станина, подвижная
1.3	Bed — guide-rail (front)	Banc — crémaillère ronde	Стол — круглая зубчатая рейка
1.4	Bed — guide-rail (rear)	Banc — crémaillère plate	Стол — плоская зубчатая рейка
1.5	Traverse screw(s)	Système fileté de déplacement transversal	Поперечный ходовой винт
1.6	Traverse motor	Moteur de déplacement transversal	Двигатель поперечного перемещения
1.7	Support for top holddown pressure assembly	Support de presseurs supérieurs	Суппорт верхнего прижима
1.8	Cutter head column	Montant porte-unités	Колонна рабочей головки
2	Feed of workpiece and/or tools	Déplacement des pièces et/ou outils	Подача деталей и/или инструмента
2.1	Feed drive	Moteur d'entraînement	Двигатель подачи
3	Workpiece support, clamp and guide	Support, maintien et guidage des pièces	Опора, крепление и направление деталей
3.1	Chain feed	Chaîne d'alimentation	Направляющая цепь
3.2	Top pressure belt (or chain)	Chaîne de pressage supérieur	Ремень (или цепь) верхнего прижима
3.3	Infeed fence	Guide d'alimentation	Направляющая цепи
3.4	Outfeed support	Guide de sortie	Выходная направляющая
3.5	Top pressure beam	Poutre de pressage supérieur	Балка верхнего прижима
3.6	Top pressure wheel assembly	Levier de rouleau	Рукоятка прижимного ролика
3.7	Drive for top pressure belt (or chain)	Entraînement du pressage supérieur	Привод верхнего прижима
3.8	Height adjustment for top pressure assembly	Réglage vertical du presseur supérieur	Вертикальная регулировка верхнего прижима
3.9	Feed dogs	Taquets	Фиксаторы
4	Tool-holders and tools	Porte-outils et outils	Державки инструмента и инструмент
4.1	Scoring cutter	Unité d'incisage	Головка прорезной пилы
4.2	Hogging head and/or trimmer	Unité de déchiquetage	Зачистная головка
4.3	Vertical milling head (or cope)	Unité de fraisage	Фрезерная головка
5	Workhead and tool drives	Unité de travail et son entraînement	Рабочая головка и ее приводы
5.1	Frequency changer	Changeur de fréquence	Преобразователь частоты
6	Controls	Commandes	Управление
6.1	Operator's console	Boîte de commande	Пульт управления
6.2	Electrical enclosure	Armoire électrique	Электрошкаф
6.3	Master switch	Interrupteur principal	Главный рубильник
6.4	Frequency changer switch	Commutateur de fréquence	Частотный переключатель
6.5	Electrical connection	Branchement électrique	Электропроводка
6.6	Compressed air connection	Branchement air comprimé	Подсоединение сжатого воздуха
7	Safety devices (examples)	Dispositifs de sécurité (exemples)	Предохранительные устройства (примеры)
7.1	Sound enclosure	Capot d'insonorisation	Шумозащитный кожух
7.2	Emergency trip-wire	Fil interrupteur urgence	Провод аварийной остановки
7.3	Infeed chain guard	Protecteur chaîne alimentation	Защита направляющей цепи
7.4	Top holddown drive guard	Protecteur-presseur supérieur	Защита верхнего прижима
8	Miscellaneous	Divers	Прочее
8.1	Dust exhaust outlet	Buse d'aspiration	Отсасывающий патрубок
9	(clause free)	(chapitre libre)	(свободный раздел)
10	Examples of work	Exemples de travail	Примеры работы
10.1	Coping	Tenonnage simple et double	Двойное или одиночное шипование
10.2	Angle coping	Tenonnage angulaire	Угловое шипование
10.3	Angle grooving	Rainurage angulaire	Угловая прорезка канавок
10.4	Vertical or edge milling	Dressage de chant	Выравнивание кромок
10.5	Edge profiling	Fraisage de chant	Фрезерование кромок
10.6	Saw cutting or trimming	Tronçonnage	Торцовка
10.7	Grooving, single and double	Rainurage simple et double	Одиночная или двойная прорезка канавок

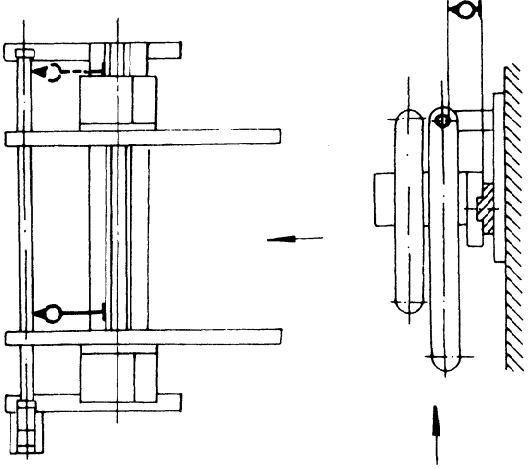
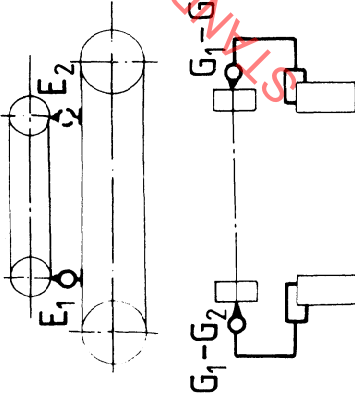
5 Acceptance conditions and permissible deviations

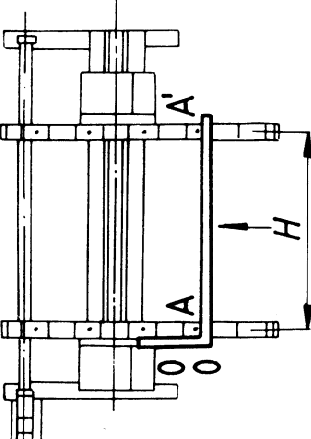
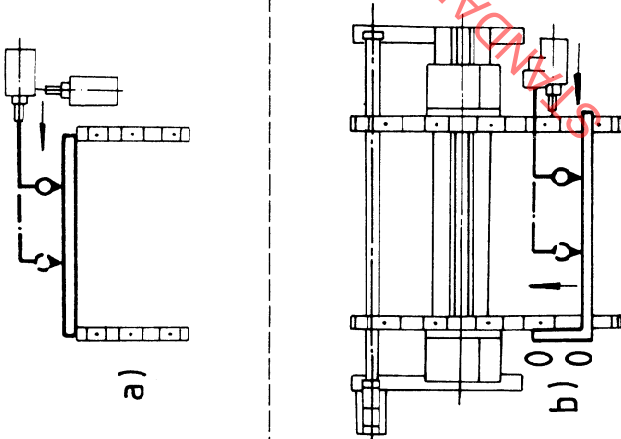
5.1 Geometrical tests

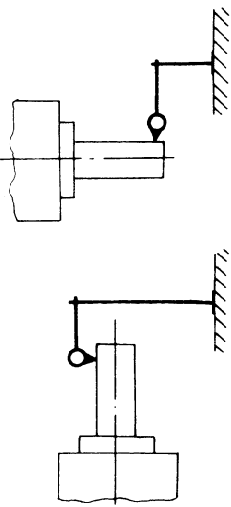
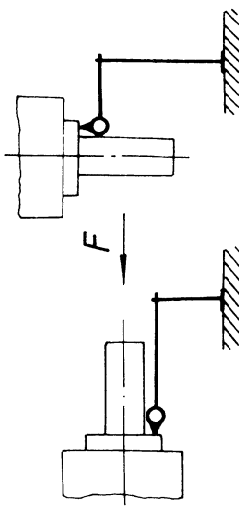
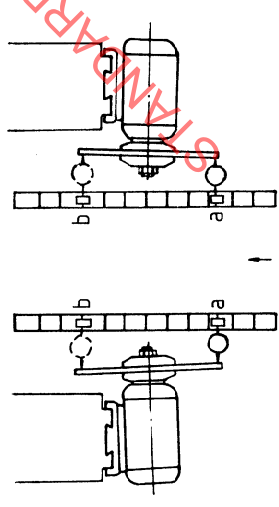
No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G1		Checking of straightness of the horizontal slides : a) longitudinal straightness b) transverse straightness	a) and b) 0,1 for a measuring length of 1 000	Level and straightedge	Subclause 5.22 Check every 500.
G2		Checking of squareness of the vertical slides to the plane of the horizontal slides	0,2/1 000	Level and straightedge	Subclause 5.512.2

No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G3		Checking of straightness of the chain-ways	0,1 for a measuring length of 1 000	Level, straightedge and feeler gauge	Subclause 5.22 Check every 500.
G4		Checking of squareness of the fixed chain-way with respect to the bed slide	0,1 for a measuring length of 1 000	Dial gauge and special gauge support	Subclause 5.512.3

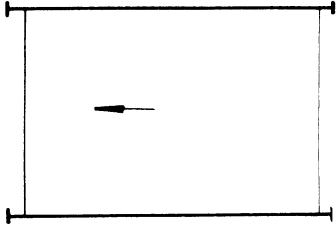
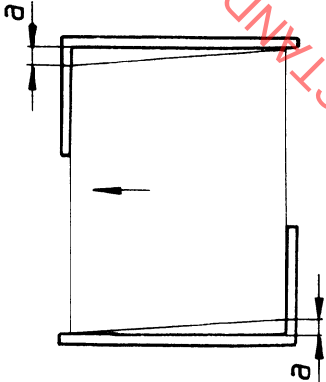
No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G5		Checking of alignment of the chain-ways	0,1 for a measuring length of 1 000	Level and straightedge	Subclause 5.442
G6		Checking of parallelism of the chain tracks in the horizontal plane at settings B – B', C – C' and D – D'	0,1 for a measuring length of 1 000	Slide gauge or dial gauge and special gauge support	Subclause 5.422.2

No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G7		Checking of parallelism of the feedshaft to the bed	0,1 for a measuring length of 1 000	Dial gauge and special gauge support	Subclauses 5.412.31 and 5.412.4
G8		Checking of parallelism of the top pressure belt (or chain-beams) to the feed chain-tracks	$E_1 - E_2$ 0,5 $G_1 - G_2$ 0,15	Dial gauge and special gauge support	Subclause 5.422.1

No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G9		Checking of squareness of the feed dogs with respect to the feed motion (measure at A or A')	0,05/300^{*)}	Square and feeler gauge	Subclause 5.512.6 Repeat the checks for all feed dogs. Square trued with respect to the feed motion. ^{*)} Distance <i>H</i>
G10		Checking of parallelism of head horizontal movement with respect to the track top	a) 0,04 for a measuring length of 100 b) 0,04/100	Straightedge, square and dial gauge	Subclause 5.422.2 Subclause 5.522.2 Square to be independent of the feed dogs. Square trued with respect to the feed motion.

No.	Diagram	Object	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
G11		Measurement of run-out of the spindle	0,02 for a spindle length of 100	Dial gauge	Subclause 5.611.4
G12		Measurement of camming of the spindle shoulder	0,01	Dial gauge	Subclause 5.632 Apply an axial pressure F as recommended by the manufacturer.
G13		Checking of the alignment of the saw blade with the feed chain (control disc mounted in place of saw blade)	0,25/1 000 Deviation at b > deviation at a	Control disc and dial gauge	Subclause 5.442

5.2 Practical tests

No.	Diagram	Nature of test and execution conditions	Permissible deviation	Measuring instruments	Observations and references to the ISO 230-1 acceptance code
P1		Checking of straightness of saw cuts. Feed speed approximately 10 m/min	Left and right 0,15 for a measuring length of 1 000	Straightedge and feeler gauge	Subclause 5.212.1 Test piece: precut chipboard 2 000 × 1 000 × 15 to 20.
P2		Checking of squareness of saw cuts	Left and right 0,2 */1 000	Set square and feeler gauge	Subclause 5.512.2 Test piece: precut chipboard 2 000 × 1 000 × 15 to 20. *) Deviation α

Annex A (informative)

Equivalent terms

Refer- ence	German	Spanish	Italian	Swedish
	Zweiseitige Zapfenmaschine und Doppelendprofiler	Perfiladoras dobles	Tenonatrici doppie	Dubbeltappmaskin
1	Ständer	Armazón	Intelaiatura	Stativkonstruktion
1.1	Maschinenständer, feststehend	Bastidor principal — montante fijo	Struttura principale — fissa	Stativ, fast
1.2	Maschinenständer, verstellbar	Bastidor principal — montante móvil	Struttura principale — regolabile	Stativ, rörligt
1.3	Maschinenbett (Rundführung)	Banco — cremallera redonda	Banco — cremagliera circolare	Maskinbädd — rundgejd
1.4	Maschinenbett (Flachführung)	Banco — cremallera plana	Banco — cremagliera piana	Maskinbädd — flatgejd
1.5	Breitenverstellspindel	Husillo para el desplazamiento transversal	Filettatura per lo spostamento trasversale	Skruv för breddomställning
1.6	Breitenverstellmotor	Motor de desplazamiento transversal	Motore per lo spostamento trasversale	Motor för breddomställning
1.7	Abstützung Oberdruck	Soporte de los presores superiores	Supporto per pressori superiori	Slid för övre tryckbalk
1.8	Fräsständer	Montante porta-unidades	Montante portautensili	Stativ för fråshuvud
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	Vorschubantrieb	Motor de alimentación	Motore di trazione	Matningsdrivning
3	Werkstückauflage, -halterung und -führung	Soporte, sujeción y guiado de las piezas	Supporto, fissaggio e guida dei pezzi	Upplag, hållare och styrning för arbetsstycke
3.1	Transporkette	Cadena de alimentación	Catena di alimentazione	Transporkedja (matta)
3.2	Oberdruck-Keilriemen	Cadena de presión superior	Catena di pressione superiore	Kilrem för övre tryck
3.3	Einlauflineal	Guía de alimentación	Guida di alimentazione	Inmatningsanhåll
3.4	Auslauflineal	Guía de salida	Guida di uscita	Utmatningsanhåll
3.5	Oberdruck	Viga del presor superior	Trave superiore di pressione	Övre tryckbalk
3.6	Rollenhebel	Brazo del rodillo	Braccio scorrevole di pressione superiore	Rullhåvarm (övre tryckbalk)
3.7	Antrieb Oberdruck	Alimentación del presor superior	Trascinamento del sistema superiore di pressione	Drivordning för övre tryckblak
3.8	Höhenverstellung Oberdruck	Reglaje vertical del presor superior	Regolazione dell'altezza del sistema supe- riore di pressione	Anordning för höjdljusvering av övre tryckbalk
3.9	Anschlagnocken	Topes	Flange di trascinamento	Anslagsstopp
4	Werkzeugträger und Werkzeuge	Porta-herramientas y herramientas	Portautensili ed utensili	Verktöghållare och verktyg
4.1	Vorritzaggregat	Unidad incisora	Unità di incisione	Ritsaggregat
4.2	Zerspaneraggregat	Unidad de desmenuzado	Unità di dilaniamento	Spåntuggaggregat (spåntuggnings- garnityr)
4.3	Säge- oder Standardfräsaggregat	Unidad de fresado	Unità di fresatura	Fräsaggregat
5	Einbauteile und Teile für den Werkzeugantrieb	Unidad de trabajo y su transmisión	Unità operatrice e suo azionamento	Bearbetningsenheter och drivsystem
5.1	Frequenz-Umformer	Convertidor de frecuencia	Variatore di frequenza	Frekvensomvandlare
6	Bedienungs- und Überwachungs- organe	Mandos	Comandi	Manöverorgan
6.1	Steuerpult	Botonera de control	Pannello di comando	Manöverpanel
6.2	Schaltschrank	Armario eléctrico	Cassetta elettrica	Manöverskåp

Refer- ence	German	Spanish	Italian	Swedish
	Zweiseitige Zapfenmaschine und Doppellendprofiler	Perfiladoras dobles	Tenonatrici doppie	Dubbeltappmaskin
6.3	Hauptschalter	Interruptor principal	Interruttore principale	Huvudströmbrytare
6.4	Schalter für Frequenz-Umformer	Commutador de frecuencia	Commutatore di frequenza	Manöverdon för frekvensomvandlare
6.5	Elektroanschluss	Conexión eléctrica	Allacciamenti elettrici	Elektrisk anslutning
6.6	Druckluftanschluss	Conexión de aire comprimido	Allacciamenti dell'aria compressa	Tryckluftsanslutning
7	Sicherheitseinrichtungen (Beispiele)	Dispositivos de seguridad (ejemplos)	Dispositivi di sicurezza (esempi)	Säkerhetsanordningar (exempel)
7.1	Lärmschutzverkleidung	Cabina de insonorización	Copertura insonorizzante	Bullerååpa
7.2	Sicherheits-Schaltleine	Cable interruptor de urgencia	Filo d'interruzione d'emergenza	Skyddsstopp i form av lina
7.3	Kettenschutz Einlauf	Protector de la cadena de alimentación	Protezione della catena di alimentazione	Ingreppsskydd för inmatningskedja (matta)
7.4	Kettenschutz Antrieb Oberdruck	Protector del presor superior	Protezione del sistema di pressione superiore	Kedjeskydd vid övre tryckbalk
8	Verschiedenes	Diversos	Varie	Diverse
8.1	Absaugstutzen	Boca de aspiración	Presa d'aspirazione	Stos för spånutsug
9	(freier Abschnitt)	(libre)	(libero)	(vakant)
10	Arbeitsbeispiele	Ejemplos de trabajo	Esempi di lavorazione	Bearbetningsexempel
10.1	Zapfenschneiden	Perfilado simple y doble	Tenonatura	Tappfräsning
10.2	Zapfenschneiden (schräg)	Perfilado angular	Tenonatura angolata	Vinkelappfräsning
10.3	Nuten (schräg)	Ranurado angular	Scanalatura angolata	Vinkelnotning
10.4	Besäumen	Fresado recto	Piallatura dei bordi	Ändplaning
10.5	Radiusfräsen/Profilieren	Fresado de forma	Fresatura dei bordi	Radiefrärsning; profilfräsning
10.6	Trenn- oder Mittelschneiden	Corte	Troncatura (con sega)	Ändkapning
10.7	Nuten	Ranurado simple y doble	Scanalatura	Notning