BRITISH STANDARD

BS EN
50144-2-14:2001

Safety of hand-held electric motor operated tools —

Part 2-14: Particular requirements for planers

The European Standard EN 50144-2-14:2001 has the status of a British Standard

ICS 25.080.25; 25.140.20; 79.120.20

National foreword

This British Standard is the official English language version of EN 50144-2-14:2001. It supersedes BS EN 50144-2-14:1997 which will be withdrawn on 2001-12-01.

The UK participation in its preparation was entrusted by Technical Committee CPL/61, Safety of household and similar electrical appliances, to Subcommittee CPL/61/6, Portable motor operated tools, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

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This British Standard, having been prepared under the direction of the Electrotechnical Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 June 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 14, an inside back cover and a back cover.

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EUROPEAN STANDARD **EN 50144-2-14**

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English version

Safety of hand-held electric motor operated tools Part 2-14: Particular requirements for planers

Sécurité des outils électroportatifs à moteur
Partie 2-14: Règles particulières pour les rabots

Sicherheit handgeführter motorbetriebener Elektrowerkzeuge
Teil 2-14: Besondere Anforderungen an Hobel

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 50144-2-14:2001 E

Foreword

This European Standard has been prepared by the Technical Committee CENELEC TC 61F, Hand-held and transportable electric motor operated tools. The text of the draft was submitted to the Unique Acceptance Procedure (UAP) in February 1994 and was approved by CENELEC as EN 50144-2-14 on 1994-10-04.

A draft for an amendment was submitted to UAP in April 1994 and was approved by CENELEC on 1994-10-04 for inclusion into the European Standard.

A further amendment was submitted to UAP in May 1996 and was approved by CENELEC as amendment A1 to EN 50144-2-14 on 1996-12-09.
Amendments to fulfill the essential requirements of the Machinery Directive were submitted to the formal vote in June 1998 and were approved by CENELEC on 1998-10-01 for inclusion, together with the earlier amendment, into a second edition of EN 50144-2-14.

This European Standard supersedes EN 50144-2-14:1996.

The following dates were fixed:

- latest date by which the EN has to be implemented at a national level by publication of an identical national standard or by endorsement (dop) 2001-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-12-01

This standard is divided into two parts:

Part 1: General requirements which are common to most hand-held electric motor operated tools (for the purpose of this standard referred to simply as tools).

Part 2: Requirements for particular types of tool which either supplement or modify the requirements given in Part 1 to account for the particular hazards and characteristics of these specific tools.

This European Standard has been prepared under a mandate given to CEN/CENELEC by the European Commission and the European Free Trade Association and supports the essential health and safety requirements of the Machinery Directive.

Compliance with the clauses of Part 1 together with this Part 2 provides one means of conforming with the essential health and safety requirements of the Directive.

For noise and vibration this standard covers the requirements for their measurement, the provision of information arising from these measurements and the provision of information about the personal protective equipment required. Specific requirements for the reduction of the risk arising from noise and vibration through the design of the tool are not given as this reflects the current state of the art.
As with any standard, technical progress will be kept under review so that any developments can be taken into account.

CEN TC/255 is producing standards for non-electrically powered tools.

Warning: Other requirements and other EC Directives can be applicable to the products falling within the scope of this standard.

This standard follows the overall requirements of EN 292-1 and EN 292-2.

Subclauses, tables and figures which are additional to those in Part 1 are numbered starting from 101.

NOTE In this European Standard the following print types are used:
- Requirements proper;
- *Test specifications;*
- Explanatory matter.

Contents

1 Scope

This clause of Part 1 is applicable except as follows:

Addition:

This standard applies to planers with a cutting width up to 150 mm.

This standard does not give requirements for the design of the tool for the reduction of the risk arising from noise and vibration.

2 Definitions

This clause of Part 1 is applicable except as follows:

2.2.18 *Replacement:*

2.2.18 **normal load**: The load obtained when the planer is operated continuously, the load being such that the input, in watts, is equal to rated input.

The normal load is based on the rated voltage or on the upper limit of the rated voltage range.

Additional definition:

2.2.101 **cutting head**: The assembly of blades, drums, blade fixing elements, relevant screws and spindle, the whole being ready for working.

3 General requirements

This clause of Part 1 is applicable.

4 General conditions for the tests

This clause of Part 1 is applicable except as follows:

4.10 *Addition:*

For tests carried out under normal load, the spindle of the motor may be loaded by means of a brake.

5 Rating

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable.

7 Marking and information for use

This clause of Part 1 is applicable except as follows:

7.1 *Addition:*

Planers shall be marked with:

— the rated no-load speed in revolutions per minute where the rated no-load speed is the speed measured on the cutting head obtained after the planer has been running idle for 10 min;

— a clear indication of the direction of rotation of the cutting head by means of an arrow, raised or sunk, or by any other means no less visible and indelible.

7.13.1 *Addition:*

The instructions sheet shall also contain the following information:

— instructions for the fitting of the blades and their adjustment to the correct position;

— types of cutting heads which can be used;

— information on the correct use of the dust collection equipment.

7.13.2 *Addition:*

Instructions shall also include the substance of the following:

— only use sharp blades;

— wait for complete run-down before putting the tool aside.

Additional subclause:

7.13.101 The instruction sheet shall also include the following: "Hearing protection should be worn".

8 Protection against electric shock

This clause of Part 1 is applicable.

9 Starting

This clause of Part 1 is applicable.

10 Input and current

This clause of Part 1 is applicable except as follows:

10.1 This subclause is not applicable.

10.2 *Addition:*

Compliance is checked by measuring the current after the planer has been operating for 10 min.

11 Heating

This clause of Part 1 is applicable except as follows:

11.5 *Replacement:*

The planer is operated for 30 min.

12 Leakage current

This clause of Part 1 is applicable.

13 Environmental requirements

This clause of Part 1 is applicable except as follows:

13.1.2 *Replacement:*

The tests under working conditions, orientation within the cabin and material to be worked shall be in accordance with the following:

Material	Beech of sawn section 400 mm $\times$ B $\times$ any convenient thickness, where B = maximum planing width less 15 mm.
Feed-speed	At as brisk pace without overloading the tool.
Depth of cut	1 mm
Width of cut-off	Not applicable.
Tool bit/cutter/ abrasive	New blades, as recommended by the manufacturer, at the start of each test.
Integral collection (if any)	Emptied during 10 minute rest time.
Orientation	Across the width of the cabin with the airflow from the left to the right of the operator (see Figure 101).
Test cycle	Cuts along the 400 mm length for 2 minutes working time followed by 10 minutes rest time (total 12 minutes).
Test period	Five complete cycles (total 1 hour).

Working time is the time the tool is actually doing work and does not include the non-working time at the end of each stroke and before the beginning of the next stroke.

13.2.3 *Replacement:*

Planers are tested at no load.

Three consecutive tests shall be carried out and the result of the test (L_{wa}) shall be the arithmetic mean, rounded off to the nearest decibel, of the three tests.

The tool is suspended in such a way as to correspond to normal use.

13.2.4 *Addition:*

The base plate shall be horizontal.

13.3.7 *Replacement of paragraphs 1 and 3:*

Planers are tested under load under the conditions shown in Table 101.

Table 101 - Test conditions

Material	Softwood 400 mm x *B* x 90 mm, where *B* is the maximum planing width less 15 mm
Orientation	Planing along the 400 mm x *B* surface of the material which is fixed to the bench
Tool bit/cutter/ abrasive	Blades as recommended by the manufacturer
Feed force	Just sufficient to cut at a brisk pace
Test cycle	Depth of cut to be 1 mm, or as near as the design allows

14 Moisture resistance

This clause of Part 1 is applicable.

15 Insulation resistance and electric strength

This clause of Part 1 is applicable.

16 Endurance

This clause of Part 1 is applicable.

17 Abnormal operation

This clause of Part 1 is applicable.

18 Mechanical hazards

This clause of Part 1 is applicable except as follows:

18.1 *Modification:*

For the requirements given in 18.108, 18.109 and 18.110, only the test finger shown in Figure 104 is used.

Additional subclauses:

18.101 Cutting heads shall have a circular section along the whole cutting width except for the blades, the fixing screws and full chip clearance area.

18.102 The blades when aligned with the fixed shoe shall not project by more than 1,1 mm radially beyond the drum (as per dimension “a” in Figure 102).

Compliance is checked by measurement.

18.103 The maximum chip clearance distances (see Figure 102), in mm, to be provided are given by the formula:

For $d \leq 80$ mm: $S_{max} = 0{,}235\,d + 7{,}2$

For $d > 80$ mm: $S_{max} = 0{,}1\,d + 18$

where d = outside diameter of the drum.

Compliance is checked by measurement.

18.104 The distance “b” (see Figure 102) between the rotating circle of the cutting edges and the lips of the adjustable shoe shall not exceed 5 mm, from zero planing depth to the maximum adjustable planing depth.

Compliance is checked by measurement and by inspection.

18.105 The blades shall be secured in the drum in such a way that friction alone is not relied upon to prevent the ejection of the blades.

When clamping screws or bolts are fixed directly into a steel drum (see Figure 103) they shall engage for a minimum of five full threads.

When the drum is made of a material other than steel, the clamping arrangement shall have the same degree of strength etc. as that provided by the requirements for the clamping screw for steel drums.

Compliance is checked by measurement and by inspection.

18.106 The system for securing blades in the drum shall be so designed and made that replacement and adjustment of the blades does not compromise safety.

Compliance is checked by measurement and by manual test.

18.107 The clamping screws or the blade fixing elements used to secure the blades in the drum shall be made of steel with a hardness of at least 20 HRC and a tensile strength of at least 800 N/mm^2.

Clamping screws or bolts shall not project beyond the maximum diameter of the drum.

Compliance is checked by verification of the material specification and inspection.

18.108 It shall not be possible to touch rotating parts from the sides of the planer.

Compliance is checked by the following test:

The planer is positioned with the shoes resting on a flat surface. The accessibility of rotating parts is checked by means of the test probe shown in Figure 104.

18.109 Planers with rabbeting facilities shall be provided with a guard that avoids inadvertent contact at the sides with the blades.

Compliance is checked by inspection and by applying the test probe of Figure 104 without any force with the planer in the same position as required in 18.108.

18.110 It shall not be possible to touch the blades through the chip ejection opening.

Compliance is checked by testing all apertures for chip ejection with the test probe of Figure 104. It shall not be possible to touch the blades in the cutting head at any angle of the probe.

18.111 If a parallel guide is provided, its guiding and top surface shall have no openings or projections. Openings having a maximum dimension not exceeding 10 mm are disregarded. The parallel guide and guard shall be so designed that for any cutting width the unused part of the cutting head is covered.

Planers may be provided with an integrated non-detachable and non-lockable guard which automatically moves to the closed position, where it covers the whole width of the cutting head, when the planer is not in use.

The guard provided shall return automatically to the closed position at the end of the planing operation.

Examples of parallel guide and guards are given in Figure 105.

Any contact between guards manufactured from steel and other hard materials and the blades is to be avoided. If either the guard or parallel guide is designed in such a way that elimination of contact with the cutting head cannot be ensured, they shall be manufactured from soft material (e.g. aluminium, plastic, wood).

Compliance is checked by inspection.

18.112 Planers shall stop within 10 s of switching off, unless the tool is fitted with an automatic closing guard.

Compliance is checked by inspection and by measurement.

19 Mechanical strength

This clause of Part 1 is applicable.

20 Construction

This clause of Part 1 is applicable except as follows:

20.11 *Replacement:*

Planers shall be fitted with a mains switch such that the motor is switched off automatically as soon as the actuating member of the switch is released. This switch shall have no arrangement to lock it in the ON-position.

For planers without an automatic closing guard, the mains switch shall incorporate an interlock in the OFF-position which requires two separate sequential operations before the switch will operate.

Compliance is checked by inspection and by manual test.

20.21 *Addition:*

Planers are considered to be tools where a considerable amount of dust is produced.

21 Components

This clause of Part 1 is applicable.

22 Internal wiring

This clause of Part 1 is applicable.

23 Supply connection and external flexible cables and cords

This clause of Part 1 is applicable.

24 Terminals for external conductors

This clause of Part 1 is applicable.

25 Provision for earthing

This clause of Part 1 is applicable.

26 Screws and connections

This clause of Part 1 is applicable.

27 Creepage distances, clearances and distances through insulation

This clause of Part 1 is applicable.

28 Resistance to heat, fire and tracking

This clause of Part 1 is applicable.

29 Resistance to rusting

This clause of Part 1 is applicable.

30 Radiation

This clause of Part 1 is applicable.

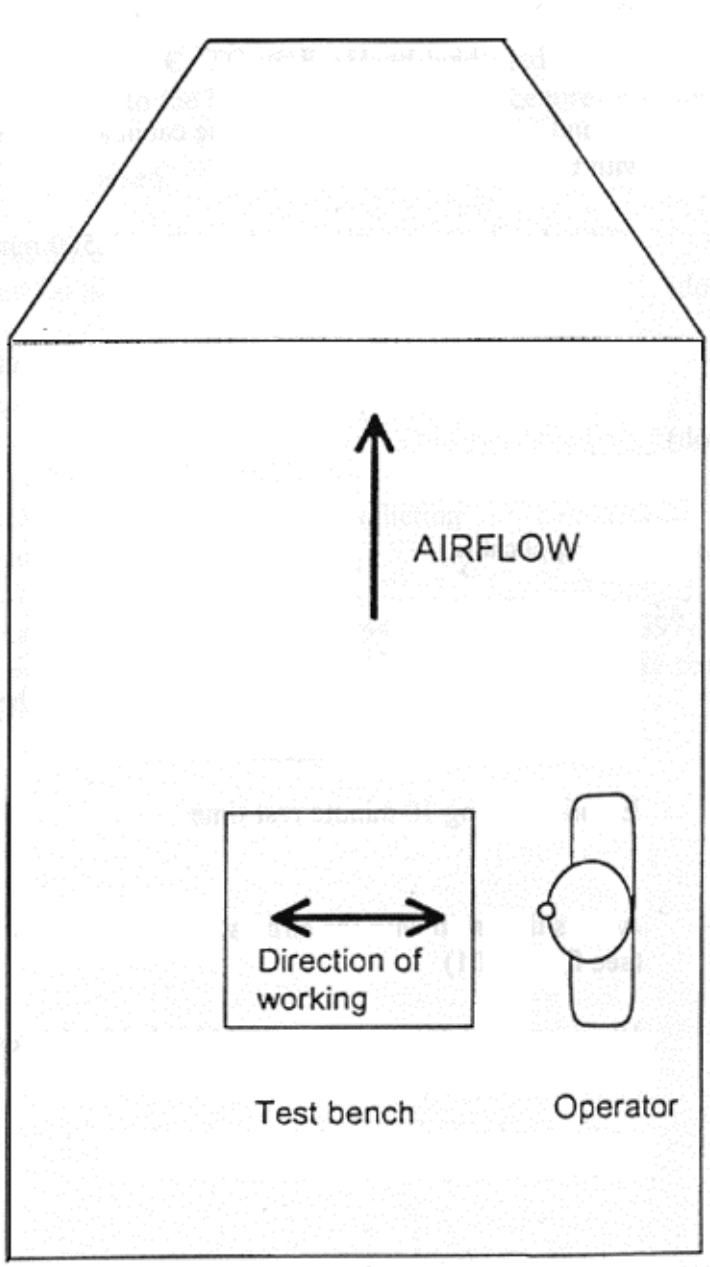
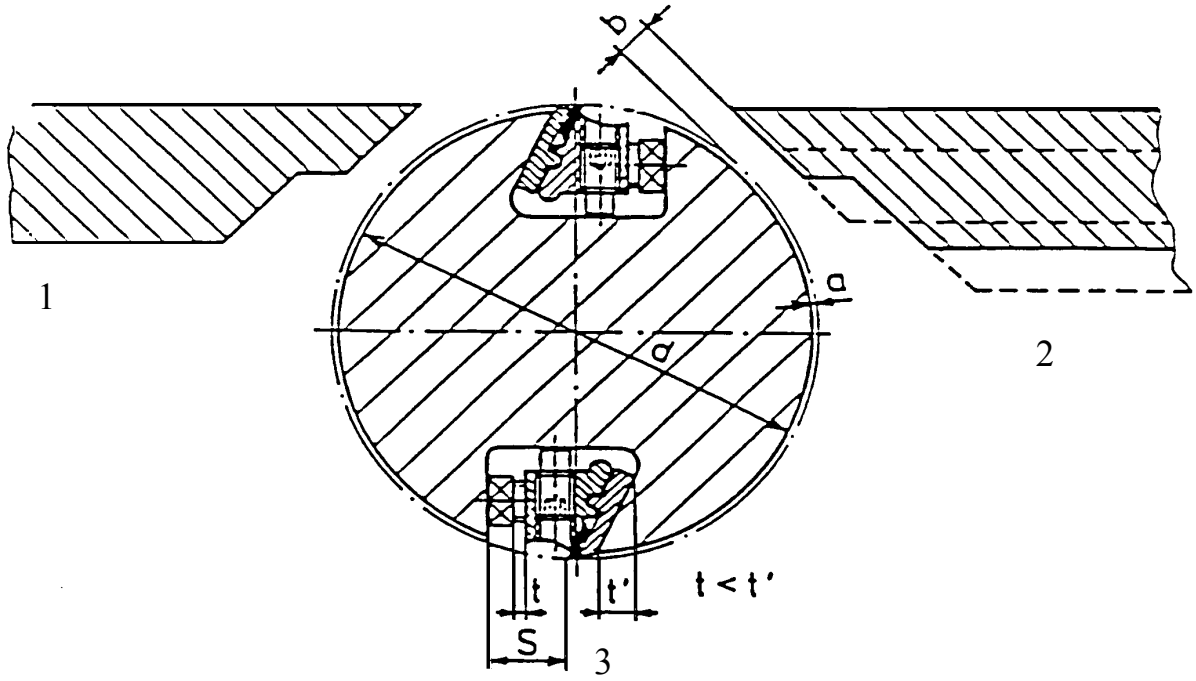
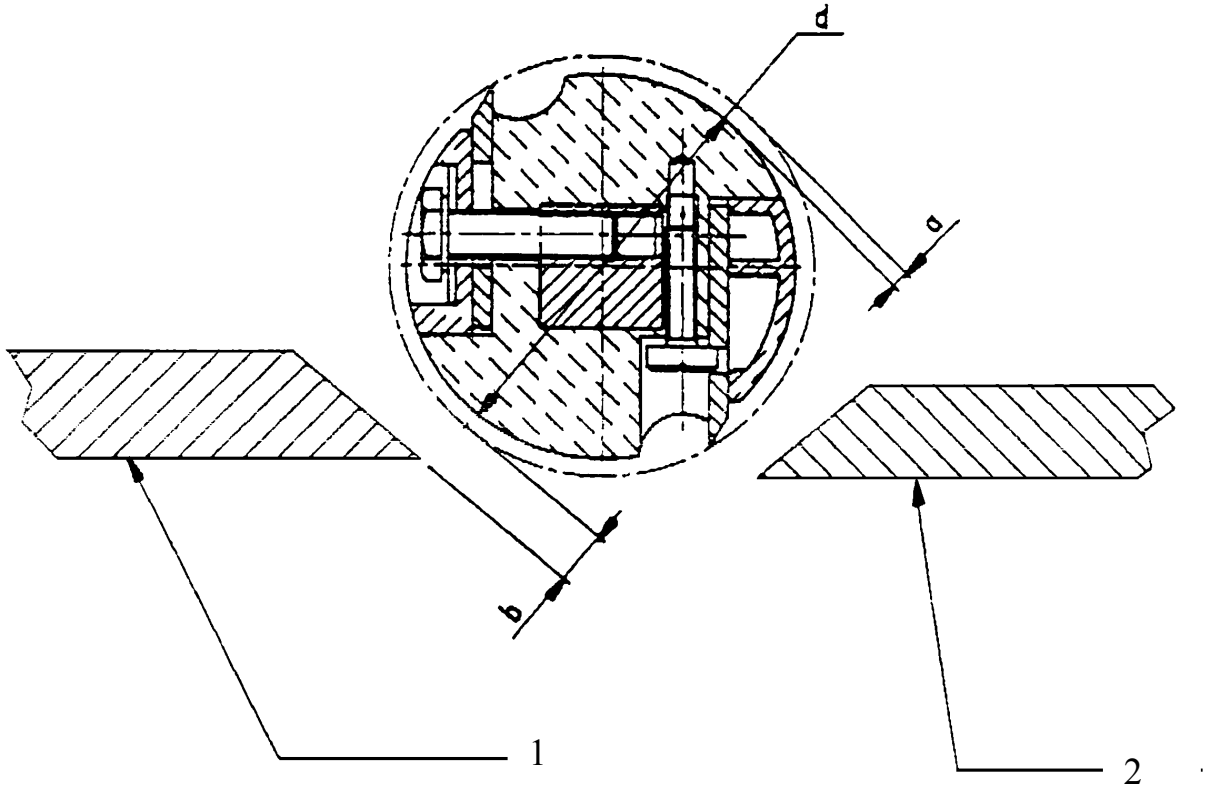


Figure 101 - Orientation of tool and operator



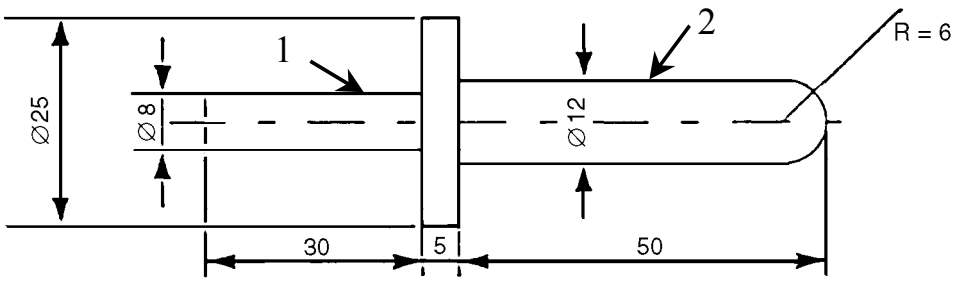
1 Fixed shoe
2 Adjustable shoe
3 Chip clearance distance

Figure 102 - Cutting head showing basic dimension and clearance distances



1 Adjustable shoe
2 Fixed shoe

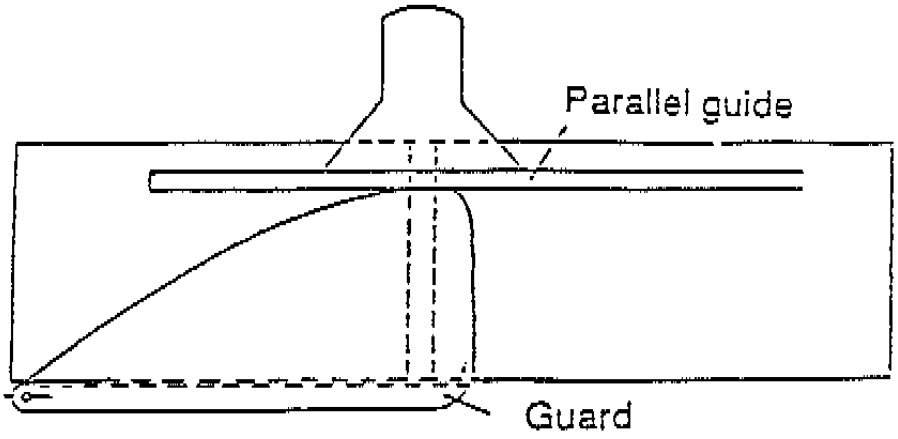
Figure 103 - Arrangement of cutting head



1 Handle section
2 Test section

Dimensions in mm,
Tolerance ≤ 25 = ± 0,05
> 25 = ± 0,1

Figure 104 - Test probe



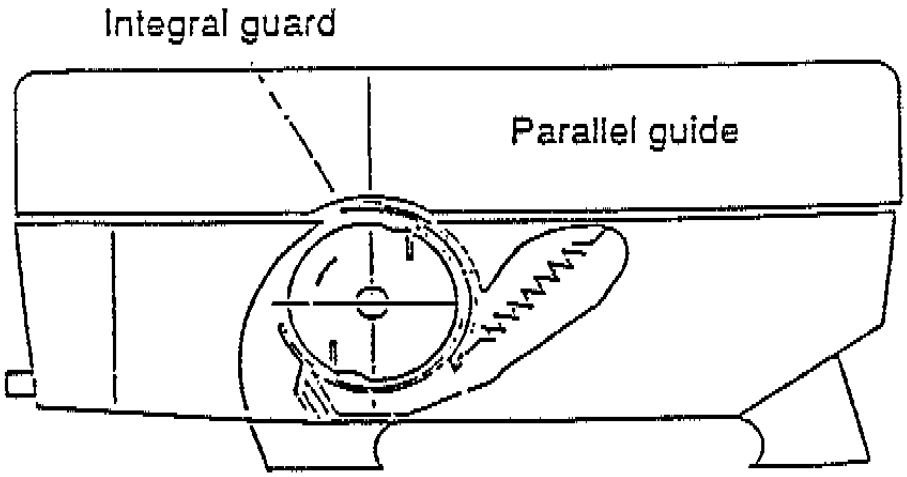


Figure 105 - Examples of guards

Annexes

The Annexes of Part 1 are applicable.

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