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Electrotechnical equipment – Temperatures of touchable hot surfaces

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CONTENTS

FOREWORD 4
INTRODUCTION 5
1 Scope 6
2 Normative references 6
3 Terms and definitions 7
4 Assessment of the risk of burning 8
4.1 Procedure 8
4.2 Identification of surfaces 8
4.2.1 Identification of hot functional surfaces 8
4.2.2 Identification of adjacent surfaces 8
4.2.3 Identification of handles or control knobs including keypads, keyboards and the like 9
4.2.4 Identification of touchable surfaces 9
4.3 Task analysis 10
4.4 Measurement of the surface temperatures 10
4.5 Choice of applicable burn threshold 10
4.6 Comparison between surface temperature and burn threshold 10
4.7 Result of the risk assessment 11
5 Application of protective measures 11
5.1 Touchable surfaces 11
5.2 Adjacent surfaces 11
6 Burn thresholds 12
6.1 Determination of the contact period 12
6.1.1 General 12
6.1.2 Selection of contact periods 12
6.2 Selection of the burn threshold 13
6.3 Texture of the surface 13
7 Documentation 14
Annex A (normative) Burn thresholds 15
Annex B (informative) Scientific background 24
Annex C (informative) Thermal properties of selected materials 26
Annex D (informative) Examples for protective measures against burns 27
Bibliography 29

Figure 1 – Identification of the touchable parts of equipment (cross-hatched area) 8
Figure 2 – Arm’s reach – the distance is interpreted as either a fully stretched person (a) or a person reaching for an item (b) 9
Figure A.1 – Material temperature and contact period 17
Figure A.2 – Burn threshold spread when the skin is in contact with a hot smooth surface made of bare (uncoated) metal 18
Figure A.3a – Rise in the burn threshold spread from Figure A.2 for metals that are coated by shellac varnish of a thickness of 50 μm, 100 μm and 150 μm 19
Figure A.3b – Rise in the burn threshold spread from Figure A.2 for metals coated with the specified materials 20

Figure A.4 – Burn threshold spread when the skin is in contact with a hot smooth surface made of ceramics, glass and stone materials 21
Figure A.5 – Burn threshold spread when the skin is in contact with a hot smooth surface made of plastics 22
Figure A.6 – Burn threshold spread when the skin is in contact with a hot smooth surface made of wood 23

Table 1 – Arm's reach 9
Table 2 – Contact period 12
Table A.1 – Burn threshold for longer contact times 23
Table C.1 – Thermal properties of selected materials (taken from [2]) 26

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROTECHNICAL EQUIPMENT – TEMPERATURES OF TOUCHABLE HOT SURFACES

FOREWORD

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This first edition of IEC Guide 117 has been prepared in accordance with ISO/IEC Directives, Part 1, Annex A, by the IEC Advisory Committee on Safety (ACOS). This is a non-mandatory guide in accordance with SMB Decision 136/8.

This Guide is based on CENELEC Guide 29.

The text of this IEC Guide is based on the following documents:

Four months' vote	Report on voting
C/1619/DV	C/1636/RV

Full information on the voting for the approval of this Guide can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

INTRODUCTION

This Guide was initially prepared by CENELEC BTTF 120-1, Surface temperatures, and was approved by the CENELEC Technical Board as CENELEC Guide 29.

The CENELEC guide has been modified to take into account IEC document preparation procedures and those comments received from National Committees and Technical Committees.

ELECTROTECHNICAL EQUIPMENT – TEMPERATURES OF TOUCHABLE HOT SURFACES

1 Scope

This IEC Guide provides guidance for assessing the risk, to any person, of a burn from contact with hot touchable surfaces of electrotechnical equipment. This Guide establishes surface temperature limits, where such limits are required, and describes the maximum contact periods with a hot surface that any person may be subjected to without being exposed to a risk of burn. Curves of maximum temperatures versus contact times are described for different types of material with different types of surfaces.

These temperature limit values shall be taken into consideration by technical committees in determining surface temperature limits in product standards. In making this determination, consideration should be given to:

– the likelihood of contact with the heated part;
– the size and thermal capacity of the heated part;
– the expertise of the persons and their knowledge and experience relative to the temperatures likely to be encountered in operating or servicing the product;
– the provision of adequate cautions or warnings; and
– other similar factors taking into account the task analysis specified in 4.3.

It is ultimately the responsibility of the technical committee to establish the acceptable temperature limits (which may be higher) that may apply to touchable surfaces of products under their scope. Manufacturers may also use these temperature limit values to assist in their risk assessment if no relevant product standard exists.

It is not within the scope of this Guide to set temperature limits for the following zones or surfaces:

– hot functional surfaces;
– adjacent surfaces;
– handles or control knobs, including keypads, keyboards and the like, that a user needs to touch to operate or adjust the equipment;
– surfaces not likely to be touched.

It is outside of the scope of this Guide to specify protective measures. It is the task of manufacturers and also of standardisation groups to decide upon protective measures appropriate to the intended use of a product. Protective means, if needed, should be provided together with the equipment.

NOTE Although not specified in this Guide, examples of protective measures that may be taken are given in Clause 5 and Annex D. One example of several possible protective measures is the limitation of the surface temperature below the burn threshold. To achieve this, surface temperature limit values may be established at or below the burn threshold in the product standard. It is then the task of the manufacturer of the product to apply technical solutions in order to comply with the established limit values.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13732-1:2006, *Ergonomics of the thermal environment – Methods for the assessment of human responses to contact with surfaces – Part 1: Hot surfaces*