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TECHNICAL REPORT

Live working – Guidance for end users for the selection of personal protective equipment against the hazards of an electric arc

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LIVE WORKING – GUIDANCE FOR END USERS FOR THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT AGAINST THE HAZARDS OF AN ELECTRIC ARC

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IEC TR 63491 has been prepared by IEC technical committee 78: Live working. It is a Technical Report.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
78/1479/DTR	78/1514/RVDTR

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

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

Terms defined in Clause 3 are written in *italics* throughout this document.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

This document has been prepared to provide guidance to end users for the selection, use and maintenance of electrical arc flash *personal protective equipment* (PPE). There is a need for this document to highlight the choices that the end user will have in protecting their workers against the thermal effects of the arc flash hazard using IEC standards. It is deliberately brief and deals only with those factors that are essential for the end user to be aware of; more detailed technical explanation will be given in a future IEC Technical Report on guidance for risk assessment, selection, use, care and maintenance of PPE against the hazards of an *electric arc*.

Selected arc protective PPE always meets the requirements of the PPE-specific IEC product standard, e.g. IEC 61482-2 for arc protective clothing.

There are currently two electrical arc flash test methods that are used to determine the protective qualities of clothing:

– determination of the *arc rating* (ELIM, ATPV and/or EBT) of clothing materials and protective clothing using an open arc in accordance with IEC 61482-1-1.
– determination of *arc protection class* of material and clothing by using a constrained and directed arc (box test) in accordance with IEC 61482-1-2.

The above methods are used by IEC standards to determine the protective qualities of other items of arc flash PPE. This includes face, head and eye protection as specified in IEC 62819:2022, and also hand protection for which a new series of standards is currently under development in IEC TC 78.

It is the responsibility of the end user to identify the correct PPE according to their needs. These needs are based upon a quantitative assessment of the hazard at a specific distance from a potential arcing source to determine either the *arc rating* or *arc protection class* depending upon which of the above arc flash test methods is used.

This document does not address all the safety concerns. It is the responsibility of the persons and organizations that use this document and any other standards related to PPE:

a) to conduct a risk assessment;
b) to select the PPE, as well as ensure that it provides a holistic protection, only when the compatibility has been assessed including understanding the workplace and the work environment;
c) to determine the properties of arc protective PPE;
d) to establish health and safety practices.

NOTE Within the European Union and the United Kingdom (GB), Regulation (EU) 2016/425 and as amended for GB states that live working is a Category III risk; therefore all arc flash PPE must fulfil the regulatory requirements for Category III products.

LIVE WORKING – GUIDANCE FOR END USERS FOR THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT AGAINST THE HAZARDS OF AN ELECTRIC ARC

1 Scope

This document provides guidance for the selection, use and maintenance of electrical arc flash *personal protective equipment*. It is intended for use by end users.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 61482-1-1, *Live working – Protective clothing against the thermal hazards of an electric arc – Part 1-1: Test methods – Method 1: Determination of the arc rating (ELIM, ATPV and/or EBT) of clothing materials and of protective clothing using an open arc*

IEC 61482-1-2, *Live working – Protective clothing against the thermal hazards of an electric arc – Part 1-2 Test methods – Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)*

IEC 61482-2, *Live working – Protective clothing against the thermal hazards of an electric arc – Part 2: Requirements*