Australian Standard®

Safety in welding and allied processes

Part 2: Electrical

This Australian Standard was prepared by Committee EL/19, Electrical Welding Plant. It was approved on behalf of the Council of Standards Australia on 26 October 1989 and published on 9 February 1990.

The following interests are represented on Committee EL/19:

Confederation of Australian Industry

Department of Labour, Victoria

Electricity Supply Association of Australia

Railways of Australia Committee

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Welding Technology Institute of Australia

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PREFACE

This Standard was prepared by the Standards Australia Committee on Electrical Welding Plant to supersede AS 2745—1984, *Electrical welding safety*. It is Part 2 of a Standard as follows:

AS
1674 *Safety in welding and allied processes*
1674.2 Part 2: *Electrical*

(AS 1674—1980, *Fire precautions in cutting, heating and welding operations*, is being revised and will be redesignated AS 1674, *Safety in welding and allied processes*, Part 1: *Fire precautions*.)

This edition differs from AS 2745—1984 in that references are included to processes other than arc welding, and to plasma power sources where open-circuit voltages, ranging up to 710 V d.c. for plasma arc cutting equipment, present a greater hazard to welders and maintenance personnel than arc welding equipment.

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Australian Standard

Safety in welding and allied processes

Part 2: Electrical

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard sets out requirements for the prevention of electric shock and the minimizing of certain associated hazards in arc welding and allied processes. The Standard describes the practices and safeguards which should be adopted by welders and the connections for alternating and direct current power sources, together with the requirements for any ancillary equipment.

It also gives examples on how shocks may be received and the action to take in the event of a welder receiving an electric shock.

NOTE: Other aspects of welding safety are covered in other Standards.

1.2 SAFETY REQUIREMENTS.

1.2.1 Power sources. In addition to the requirements specified herein, power sources shall comply with the relevant requirements of AS 1966, AS 3100 and AS 3195.

1.2.2 Electrical safety for welders. Safety precautions, electric shock and treatment of electric shock victims are detailed in Section 4 and Appendix B.

All welders should be familiar with the safety precautions contained in this and other relevant Standards.

1.3 REFERENCED DOCUMENTS. The following documents are referred to in this Standard:

STANDARDS
AS
1336 Recommended practices for eye protection in the industrial environment
1337 Eye protectors for industrial applications
1338 Filters for eye protectors
1338.1 Part 1: Filters for protection against radiation generated in welding and allied operations
1660 Method of test for electric cables, cords and conductors
1966 Electric arc welding power sources
1966.1 Part 1: Transformer type
1966.2 Part 2: Rotary type
1966.3 Part 3: Plasma arc cutting and welding types
1995 Welding cables
2812 Welding, brazing and cutting of metals—Glossary of terms
2826 Manual metal-arc welding electrode holders
2865 Safe working in a confined space
3000 SAA Wiring Rules
3008 Electric installations—Selection of cables
3008.1 Part 1: Cables for alternating voltages up to and including 0.6/1 kV

APPROVAL AND TEST SPECIFICATIONS
AS
3100 Definitions and general requirements for electrical materials and equipment
3108 Isolating transformers and safety isolating transformers
3195 Portable electric arc welding machines — Transformer type

THE WELDING TECHNOLOGY INSTITUTE OF AUSTRALIA

Technical Note No. 7, *Health and safety in welding*

1.4 DEFINITIONS. For the purpose of this Standard, the definitions given in AS 2812 and those below apply.

NOTE: Diagrams for the purpose of illustrating some definitions relating to arc welding installations are given in Figure 1.1.

1.4.1 Allied processes. Allied processes include electric arc cutting and arc spraying.

1.4.2 Authorized inspector—any person authorized by an Authority administering Acts of Parliament or Regulations under such Acts or, in the absence of such Acts and Regulations, any person appointed by the Fire and Accident Underwriters' Association or Electricity Supply or other Authority, to inspect installations.

1.4.3 Authorized person—the person in charge of the premises or the licensed electrical contractor or electrician or other person appointed or selected by the person in charge of the premises to perform certain duties associated with the electrical installation on the premises.

1.4.4 Connecting links—an arrangement of terminals or connecting devices for connecting portions of the output circuit together.

1.4.5 Conductors.

1.4.5.1 *Electrode conductor*—the fixed wiring between the machine 'electrode' terminal and corresponding output terminal.

1.4.5.2 *Work (or return) conductor*—the fixed wiring between the machine 'work' or 'return' terminal and the corresponding output terminal.

1.4.6 Control leads—the leads connecting low voltage equipment for controlling or regulating purposes.

1.4.7 Distribution box—an arrangement of connections, sockets or terminals for a multi-operator installation enclosed in a box or cover, in which the output circuit is divided into two or more branches to supply current for use by several welders.

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