

**SINGAPORE STANDARD**

**Code of practice for safety in welding,  
cutting and other operations involving the  
use of heat**



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*Leeden National Oxygen Ltd*  
*Ministry of Manpower*  
*National Environment Agency*  
*SETSCO Services Pte Ltd*  
*Singapore Institute of Manufacturing Technology*  
*Singapore Welding Society*  
*ST Aerospace Services Co Pte Ltd*  
*The Institution of Engineers, Singapore*

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## Foreword

This Singapore Standard was prepared by a Working Group appointed by the Technical Committee on Workplace Safety and Health under the direction of the General Engineering and Safety Standards Committee.

It is a revision of SS 510 : 2005, "Code of practice for safety in welding and cutting (and other operations involving the use of heat)".

The summary of changes from the 2005 edition is as follows:

- (a) Additional definitions, inclusion of welding and cutting at height, and precautions for radiation.
- (b) Review of oxygen-fuel gas systems for welding and cutting, health protection and ventilation, and Annex A.
- (c) Alignment with current industry practices.

In preparing this standard, reference was also made to the following publications:

1. ANSI Z49.1 Safety in welding, cutting, and allied processes
2. AWS A3.0M/A3.0 Standard welding terms and definitions
3. AWS B2.2/B2.2M Specification for brazing procedure and performance qualification
4. AWS F2.2 Lens shade selector
5. CP 88 Code of practice for temporary electrical installations.  
Part 1: Construction and building sites  
Part 2: Festive lighting, trade-fairs, mini-fairs and exhibition sites  
Part 3: Shipbuilding and ship-repairing yards
6. SS 99 Specification for welded low carbon steel cylinder for storage and transportation of compressed liquefied gases
7. SS 473 Specification for personal eye-protectors  
Part 1: General requirements  
Part 2: Selection, use and maintenance
8. SS 568 Code of practice for confined spaces
9. AWS Welding Handbook. 9<sup>th</sup> edition. Volume 1. Welding science and technology
10. AWS Welding Handbook. 9<sup>th</sup> edition. Volume 2. Welding processes. Part 1
11. AWS Welding Handbook. 9<sup>th</sup> edition. Volume 3. Welding processes. Part 2
12. AWS Welding Handbook. 9<sup>th</sup> edition. Volume 4. Materials and applications. Part 1
13. AWS Welding Handbook. 9<sup>th</sup> edition. Volume 5. Materials and applications. Part 2
14. Workplace Safety and Health (Confined Spaces) Regulations
15. Workplace Safety and Health (General Provisions) Regulations

Figures A.1 and A.2 are from AWS A3.0M/A3.0:2010, Figure A.1, and Table 3 is from ANSI/AWS F2.2:2001, Table 1, reproduced with permission of the American Welding Society (AWS), Miami, Florida.

Acknowledgement is made for the use of information from the above publications.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

**NOTE**

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*
2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

## Code of practice for safety in welding, cutting and other operations involving the use of heat

### 1 Scope

**1.1** This standard covers the protection of persons from injury and illness and the protection of property (including equipment) from damage by fire and other causes arising from welding and cutting equipment, its installation, operation and maintenance.

**1.2** Specific provisions are included for gas welding, shielded-metal-arc welding, submerged-arc welding, gas-metal-arc welding, gas-tungsten-arc welding, brazing, resistance welding, and thermit welding. However, the requirements of this standard are generally applicable to the other welding processes shown in Annex A. Annex B gives brief descriptions and schematic diagrams of different welding and allied processes.

### 2 Normative references

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

BS EN 62135-1	Resistance welding equipment. Safety requirements for design, manufacture and installation
ISO 3821	Gas welding equipment – Rubber hoses for welding, cutting and allied processes
ISO/TR 28821	Gas welding equipment – Hose connections for equipment for welding, cutting and allied processes – Listing of connections which are either standardised or in common use
NFPA No. 50	Standard for bulk oxygen systems at consumer sites
CP 5*	Code of practice for electrical installations
CP 12*	Code of practice for the filling, inspection, testing and maintenance of containers for the storage and transport of compressed gases. Part 1: Seamless metal containers for gases, excluding dissolved acetylene Part 2: Containers for dissolved acetylene gas
CP 88	Code of practice for temporary electrical installations. Part 1: Construction and building sites Part 2: Festive lighting, trade-fairs, mini-fairs and exhibition sites Part 3: Shipbuilding and ship-repairing yards
SS 99	Specification for welded low carbon steel cylinders for storage and transportation of compressed liquefied gases
SS 152	Specification for identification of contents of industrial gas containers
SS 473	Specification for personal eye-protectors Part 1: General requirements Part 2: Selection, use and maintenance

\* Under revision

SS 568 Code of practice for confined spaces

SS 597 Code of practice for bulk liquid oxygen storage installations on user premises

Workplace Safety and Health (Confined Spaces) Regulations

Workplace Safety and Health (General Provisions) Regulations