



Environment, Safety and Health Management System

ES&H Compliance Guideline

ESH-104

Power Tools

An Important Note

1. Using this guideline is subject to the conditions in our [Disclaimer](#).
2. This document (including the legislative references) is regularly updated. Please check that this is the current, up-to-date version before using the information below. **Highlighted text** indicates changes incorporated in the latest update of this document.

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1. Scope

This Guideline covers the requirements associated with power tools, including explosive tools, compressed air tools, cord and battery operated electrical tools, and petrol and diesel powered tools. It covers the storage, operation, inspection maintenance and safe operation of these tools, and the training and qualifications of persons operating such tools.

For general plant and equipment safety, refer ES&H Guideline [ESH-057](#).

For testing of electrical equipment (including electrical power tools), refer ES&H Guideline [ESH-099](#).

2. Objectives

To ensure that:

- All power tools are maintained in good working order at all times
- All power tools are used safely and only for the purpose for which they are intended.
- All personnel operating such tools are appropriately qualified and trained.

3. Definitions

Power Tools

For the purpose of this guideline this means any tool which is powered by means of explosives, compressed air, electricity (including batteries) petrol or diesel, and which has the potential to cause harm to personnel or to the environment.

4. Issues to be Addressed

Please Note

This section of the ES&H Guideline needs to be expanded and further developed by users into a full operational procedure. This is done by incorporating details to reflect your company's structure, work process and local circumstances; legislative and other requirements; and technical details from publications and guidance notes. Assistance with developing procedures is available from Management Systems Australia.

The major issues addressed in this guideline are as follows:

4.1. Purchasing of Power Tools

All new power tools purchased shall be suitable for the intended task, and shall comply with the relevant Australian or international standards. Refer ES&H Guideline [ESH-021](#).

Purchasing specifications shall nominate required safety features, as applicable to the intended task(s).

4.2. Power Tools Registration

All power tools shall be identified and registered. The register shall be used for the hazard identification and risk assessment process, and for scheduled maintenance and inspections.

4.3. Hazard Identification and Risk Assessment

The hazards associated with each type of tool shall be identified and the risks assessed and minimised (refer ES&H Guideline [ESH-028](#)). The hazards and assessed risks shall be documented.

The risk assessment shall take into consideration at least:

- The tasks for which the tools are expected to be used
- The working environment, layout and physical conditions when these tools are to be used (eg. working at heights)
- Expected competence of persons who would operate the tools
- The procedures, work instructions and work practices for the tools
- Foreseeable abnormal conditions, break-down and emergencies (including abnormal weather conditions, power failures, power surges, etc)

Following the assessment, risk control measures in accordance with the hierarchy of controls (refer ES&H Guideline [ESH-028](#)) shall be implemented.

4.4. Storage of Power Tools and Associated Materials

Storage of power tools shall be in accordance with documented work instructions (refer ES&H Guideline [ESH-054](#)). This particularly applies to petrol, explosive and battery-operated tools.

Where required, Material Safety Data Sheets shall be available for stored materials such as petrol, explosives, etc for use with these tools (refer ES&H Guideline [ESH-023](#)).

4.5. Modifications of Power Tools

Power tools shall not be modified unless an assessment in accordance with ES&H Guideline [ESH-031](#) has been carried out.

4.6. Inspections

Power tools shall be inspected on a regular basis, so that conditions which may lead to failure can be identified. The use of tools which are considered unsafe shall cease immediately and they shall be repaired or replaced. Records of all inspections, their outcome and actions taken shall be kept.

4.7. Operation of Power Tools

Controlled work instructions shall be issued to ensure all power tools are operated and maintained strictly in accordance with the legislative requirements, manufacturer's instructions and safe work practices. Persons operating such

equipment must ensure it is used in the correct manner and only for the purpose for which it is intended.

Personnel operating power tools shall use the appropriate Personal Protective Equipment (refer ES&H Guideline [ESH-052](#)).

All persons operating power tools shall be adequately trained in the correct use of the tools and where required qualified and certificated.

4.8. Electrical Power Tools

Wherever possible, electrical power tools shall have the following safety features:

- A safety catch or switch to prevent accidental switching on of the tool;
- A 'soft start' to prevent kick-back on start-up;
- A safety clutch to disengage the tool if a kick-back occurs;
- An automatic switch-off mechanism which operates on contact with live mains conductors.

4.9. Control of Vibration

The vibration risk associated with hand-tools shall be identified and assessed (refer ES&H Guideline [ESH-028](#)). The assessment shall take into consideration at least the following:

- The vibration level;
- The frequency, direction and acceleration of the source of vibration; and
- The length of time workers are exposed to the vibration.

Control measures to manage vibration may include:

- Speed adjustment to reduce vibration;
- Internal damping;
- Vibration-isolated handles (e.g. rubber or foam)
- Automatic shut-off when the tool is not in operation;
- Rotation of workers;
- Personal protective equipment such as vibration-absorbing gloves (refer ES&H Guideline [ESH-052](#)).

For general requirements related to vibration, refer ES&H Guideline [ESH-118](#).

5. Responsibilities of Personnel

The following personnel should assume the primary responsibility for the activities covered by this guideline:

- Line Managers
- Engineering Manager
- Maintenance Manager
- Operations Personnel
- Maintenance Personnel



- Engineering Personnel
- Any other person using power tools

6. Supporting Documents

Work Instructions

Specific work instructions for the inspection, testing and maintenance and storage of each type of power tool

Forms

Power Tools Register
Power Tools Inspection and Maintenance Schedule
Power Tools Inspection and Test Sheets

7. Related ES&H Guidelines

ESH-021	Procurement
ESH-023	Material Safety Data Sheets
ESH-028	Hazard and Risk Management
ESH-031	Management of Change
ESH-052	Personal Protective Equipment
ESH-054	Storage and Warehousing
ESH-057	ES&H Aspects of Plant and Machinery
ESH-099	Testing of Electrical Equipment
ESH-118	Control of Workplace Vibration

8. External References

This section includes references to external (i.e. not controlled by the company or the organisation) references specifically related to the issues covered by this Guideline. These include acts, regulations, codes of practice, management system standards, Australian standards, guidance notes and publications.

Please Note

Click on any of the links below to access the relevant web site and gain access to the required documentation, as referenced below.

8.1. Acts and Regulations

Commonwealth

<http://www.comlaw.gov.au>

Occupational Health and Safety Act 1991 – Part 2 Div 1 (amended November 2009)
(amended January 2010)

Occupational Health and Safety (Safety Standards) Regulations 1994 – Part
4 Div 5, and Part 12 Div 12.5 (amended December 2008)

New South Wales

<http://www.legislation.nsw.gov.au>

Energy and Utilities Administration Act 1987 (amended July 2009)

Energy and Utilities Administration Regulation 2006 (amended March 2010)
(amended April 2010)

Occupational Health and Safety Act 2000 - Part 2, Division 1 (amended October 2009)

Occupational Health and Safety Regulation, 2001 - Chapter 5, and Chapter 9 Part 9.2 (amended September 2009) (amended February 2010)

Protection of the Environment Operations Act 1997 (amended December 2009)

Protection of the Environment Operations (Noise Control) Regulation 2008 (amended February 2010)

Victoria

www.legislation.vic.gov.au

Electricity Safety Act 1998 (amended December 2009) (amended January 2010)

Electricity Safety (Equipment) Regulations 2009 (commenced April 2009)

Equipment (Public Safety) Act 1994 - Part 2 (amended August 2006)

Equipment (Public Safety) Regulations 2007 (commenced July 2007)

Gas Safety Act 1997 (amended December 2009) (amended January 2010)

Gas Safety (Safety Case) Regulations 2008 (commenced January 2009)

Occupational Health and Safety Act 2004 (amended January 2010) (amended March 2010)

Occupational Health and Safety Regulations 2007 – Parts 3.5 and 4.3 (amended April 2010)

Queensland

<http://www.legislation.qld.gov.au/Legislation.htm>

Coal Mining Safety and Health Act 1999 (amended November 2009) (amended April 2010)

Coal Mining Safety and Health Regulation, 2001 – Chapter 3 Part 9 (amended July 2009)

Electrical Safety Act 2002 (amended September 2009) (amended October 2009) (amended November 2009)

Electrical Safety Regulation 2002 (amended September 2009) (amended October 2009) (amended November 2009)

Electrical Safety Amendment Regulation (No. 2) 2009 (commenced November 2009)

Environmental Protection Act 1994 - Chapter 7 Part 1 (amended October 2009) (amended March 2010)

Environmental Protection (Noise) Policy 2008 (commenced January 2009)

Mining and Quarrying Safety and Health Act 1999 - Part 3, Division 3 (amended November 2009) (amended April 2010)

Workplace Health and Safety Act 1995 - Part 3, Division 2 (amended November 2009 - remaining amendment provisions commenced December 2009 and January 2010) (amended March 2010)

Workplace Health and Safety Regulation 2008 – Part 13 Division 2 (amended September 2009) (amended October 2009)

Western Australia

<http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html>

Occupational Safety and Health Act 1984 (amended December 2009)

Occupational Safety and Health Regulations 1996 - Part 4, Division 4 (amended February 2010) (amended March 2010)

South Australia

<http://www.legislation.sa.gov.au>

Environment Protection Act 1993 (amended July 2009)

Environmental Protection (Noise) Policy 2007 (commenced March 2008)

Occupational Health, Safety and Welfare Act 1986 (amended January 2008)

Occupational Health, Safety and Welfare Regulations, 1995 - Parts 3 and 5 (amended August 2009)

Tasmania

<http://www.thelaw.tas.gov.au/>

Workplace Health and Safety Act 1995 - Part 3 (amended December 2009)
(amended February 2010)

Workplace Health and Safety Regulations, 1998 - Part 4 Division 3 (repeal postponed in November 2009 till January 2011)

Northern Territory

<http://notes.nt.gov.au/dcm/legislat/legislat.nsf/341afdad77c15dc4692565a6000e3509?OpenView>

Workplace Health and Safety Act 2007 – Part 5 Division 1 (amended September 2009)

Workplace Health and Safety Regulations 1992 – Part 10 Division 10 (amended July 2008)

Australian Capital Territory

<http://www.legislation.act.gov.au/>

Machinery Act 1949 (amended September 2009)

Machinery Regulations 1950 (amended April 2004)

Work Safety Act 2008 (provisions commenced October 2009)

New Zealand

<http://www.legislation.govt.nz/>

Health and Safety in Employment Act 1992 (amended December 2004)

Health and Safety in Employment Regulations, 1995 – Parts 2, 3 and 4 (amended October 2003)

8.2. Statutory Codes of Practice

Commonwealth

<http://www.safeworkaustralia.gov.au/>

- National Code of Practice for the Management and Control of Asbestos in Workplaces 2005 - Section 11.8
- National Code of Practice for the Safe Removal of Asbestos 2nd Edition 2005 - Sections 9, 10 and 12
- National Standard for Construction Work, April 2005
- National Standard for Plant 1994

<http://www.amsa.gov.au/>

- Code of Safe Working Practice for Australian Seafarers – Sections 12 and 16

New South Wales

<http://www.workcover.nsw.gov.au/>

- Code of Practice for Cutting and Drilling Concrete and other Masonry Products 1997 - Sections 4 and 5 (commenced March 1997)
- Code of Practice for Low Voltage Electrical Work – Chapter 7 (2nd Edition issued January 2007)
- Code of Practice for Safety in Forest Harvesting Operations, January 2003

Victoria

<http://www.workcover.vic.gov.au/>

- Code of Practice for Plant 1995 (amended October 1998)
- Foundries Compliance Code 2008 (commenced September 2008)
- Managing Asbestos in Workplaces - Compliance Code 2008 (commenced September 2008)
- Removing Asbestos in Workplaces Compliance Code 2008 (commenced September 2008)

<http://www.ocei.vic.gov.au/>

- Code of Practice for Safe Electrical Work 1997 - Section 11.2

Queensland

<http://www.deir.qld.gov.au/workplace/index.htm/>

- Abrasive Blasting Industry Code of Practice 2004 (amended December 2008)
 - Forest Harvesting Code of Practice 2007 (amended December 2008)
 - Manual Tasks Code of Practice 2010
 - Plant Code of Practice 2005 - Sections 6 and 7 (amended December 2008)
- <http://www.eso.qld.gov.au/>
- Code of Practice Electrical Equipment - Rural Industry March 2006 (repealed January 2010)

Western Australia

<http://www.commerce.wa.gov.au/WorkSafe/>

- Code of Practice for Concrete and Masonry Cutting and Drilling 2004
- <http://www.energysafety.wa.gov.au>
- Safe electrical Work on Low Voltage Electrical Installations

Tasmania

<http://www.wst.tas.gov.au/>

- Code of Practice for Sawmill Operation
 - Forest Safety Code (Tasmania) 2007 – Sections 3, 4 and 14
- <http://www.safeworkaustralia.gov.au/>
- National Code of Practice for the Safe Removal of Asbestos 2nd Edition 2005 - Sections 9, 10 and 12 (referenced by the Tasmanian Dangerous Substances (Safe Handling) Regulations 2009)

Northern Territory

<http://www.nt.gov.au/deet/worksafe/>

- National Standard for Construction Work, April 2005 (adopted by Northern Territory, September 2006)

New Zealand

<http://www.osh.dol.govt.nz/>

- Approved Code of Practice for Powder-actuated Hand-held Fastening Tools

Australian Capital Territory

<http://www.ors.act.gov.au/WorkCover>

- Occupational Health and Safety (National Standard for Construction Work) Code of Practice 2008 (National Standard adopted February 2008)

8.3. Management System Standards

<http://www.saiglobal.com/shop/Script/search.asp>

AS/NZS ISO 9001-2008 Quality Management Systems - Requirements (Sections 6.3, 7.4 and 7.6)

ISO 14001-2004 Environmental Management Systems - Requirements with Guidance for Use (Section 4.4.6)

AS/NZS 4801- 2001 Occupational Health and Safety Management Systems – Specifications with Guidance for Use (Section 4.4.6)

AS 4581-1999 Management System Integration – Guidance to Business, Government and Community Organizations (Section 7)

AS 4292.1-2006 Rail Safety Management - Part 1: General Requirements (Section 6)

<http://www.workcover.vic.gov.au/>

SafetyMAP	Auditing Health and Safety Management Systems, 4 th Edition – Elements 3.9 and 3.10 http://www.comcare.gov.au
Comcare	National Self Insurer OHS Audit Tool, 2007 – Element 3.10 http://www.worksafe.vic.gov.au
NAT	National Self Insurer OHS Audit Tool, 2007 – Element 3.10

8.4. Australian and New Zealand Standards

<http://www.saiglobal.com/shop/Script/search.asp> (for Australian standards)
<http://www.standards.co.nz> (for New Zealand standards)

Please Note	Standards which are referenced in legislation (i.e. acts and regulations) are shown in <u>underlined text</u> . In addition, it should be noted that many acts and regulations, in various jurisdictions, contain provisions that certain matters are to be in accordance with the “appropriate Australian Standard” or “relevant Australian standard” without specifically nominating a standard by number or title.
AS 1223-1991	Industrial Hand Cleaners in (Petroleum Solvent Type)
AS 1627.2 – 1989	Metal Finishing – Preparation and Pretreatment of Surfaces – Power Tool Cleaning
<u>AS 1788</u>	<u>Abrasive Wheels; referenced in:</u> <u>Queensland Plant Code of Practice, 2005</u> <u>Queensland Tunnelling Code of Practice 2007</u> <u>SA OHS&W Regulations 1995</u>
<u>AS 1788.1-1987</u>	<u>Design, Construction and Safeguarding</u>
<u>AS 1788.2-1987</u>	<u>Selection, Care and Use</u>
<u>AS 1873</u>	<u>Power-actuated (PA) Hand-held Fastening Tools; referenced in:</u> <u>Victoria Code of Practice for Plant 1995</u> <u>Queensland Workplace H&S Regulation 2008</u> <u>Queensland Plant Code of Practice, 2005</u> <u>Queensland Tunnelling Code of Practice 2007</u> <u>WA Mines Safety and Inspection Regulations 1995</u> <u>WA OH&S Regulations 1996</u> <u>Tas Workplace Health and Safety Regulations 1998</u> <u>NZ Approved Code of Practice for Powder-actuated Hand-held Fastening Tools</u>
<u>AS/NZS 1873.1-2003</u>	<u>Power-actuated (PA) Hand-held Fastening Tools - Selection, Operation and Maintenance (issued March 2003); referenced in:</u> <u>WA OH&S Regulations 1996</u>
<u>AS/NZS 1873.2-2003</u>	<u>Power-actuated (PA) Hand-held Fastening Tools - Design and Construction (issued March 2003); referenced in:</u> <u>WA OH&S Regulations 1996</u>
<u>AS/NZS 1873.3-2003</u>	<u>Power-actuated (PA) Hand-held Fastening Tools - Charges (issued March 2003); referenced in:</u> <u>WA OH&S Regulations 1996</u>
<u>AS/NZS 1873.4-2003</u>	<u>Power-actuated (PA) Hand-held Fastening Tools - Fasteners (issued March 2003); referenced in:</u> <u>WA OH&S Regulations 1996</u>

<u>AS 2397-1993</u>	<u>Safe Use of Lasers in the Building and Construction Industry; referenced in:</u> <u>Commonwealth Occupational Health and Safety (Safety Standards) Regulations 1994</u> <u>NSW Occupational Health and Safety Regulation 2001</u> <u>NSW Coal Mine Health and Safety Regulation 2006</u> <u>Victoria Code of Practice for Plant 1995</u> <u>Queensland Plant Code of Practice, 2005</u> <u>Queensland Tunnelling Code of Practice 2007</u> <u>WA OH&S Regulations 1996</u> <u>WA Code of Practice: Excavation, 2005</u> <u>SA OHS&W Regulations 1995</u>
<u>AS 2726-1984</u>	<u>Chainsaws - Safety Requirements ; referenced in:</u> <u>Queensland Forest Harvesting Code of Practice 2007 (amended December 2008)</u> <u>Tas Forest Safety Code (Tasmania) 2007</u>
<u>AS 2726.1-2004</u> <u>AS 2726.2-2004</u> <u>AS 2727-1997</u>	<u>Chainsaws for General Use (issued April 2004)</u> <u>Chainsaws for Tree Service (issued May 2004)</u> <u>Chainsaws - Guide to Safe Working Practices (re-issued July 1997) ; referenced in:</u> <u>Tas Forest Safety Code (Tasmania) 2007</u>
<u>AS 2763-1988</u>	<u>Vibration and Shock – Hand Transmitted Vibration – Guidelines for Measurement and Assessment of Human Exposure; referenced in:</u> <u>Commonwealth Occupational Health and Safety Code of Practice 2008</u> <u>Victoria Foundries Compliance Code 2008</u> <u>Queensland Abrasive Blasting Industry Code of Practice 2004 (amended December 2008)</u> <u>Queensland Foundry Industry Code of Practice 2004</u> <u>Queensland Sugar Industry Code of Practice, 2005</u> <u>Queensland Sugar Industry Code of Practice, 2005 – Sugar Mill Safety</u>
<u>AS 3114-1993</u>	<u>Approval and Test Specification - Electric Soldering Irons (amendment 2 issued April 1997)</u>
<u>AS/NZS 3160:2009</u>	<u>Approval and test specification - Hand-held portable electric tools (issued October 2009)</u>
Please note: <u>AS 3534-1988</u>	<u>AS 3160-2001 was superseded, October 2009</u> <u>Acoustics - Methods for measurement of airborne noise emitted by powered lawnmowers, edge and brush cutters and string trimmers; referenced in:</u> <u>Queensland Environment Protection (Noise) Policy 1997</u> <u>NZ Approved Code of Practice for the Management of Noise in the Workplace</u>
<u>AS 3544-1988</u>	<u>Industrial Vacuum Cleaners for Particulates Hazardous to Health; referenced in:</u> <u>National Code of Practice for the Management and Control of Asbestos in Workplaces, 2005</u> <u>Queensland Abrasive Blasting Industry Code of Practice, 2004</u> <u>SA Code of Practice for the Safe Removal of Asbestos, 1989</u> <u>SA Code of Practice for Asbestos Work (Excluding Asbestos Removal)</u> <u>NT Workplace Health and Safety Regulations 1992</u> <u>NT Petroleum (Occupational Health and Safety) Regulations 2001</u>

	<u>NZ Health and Safety in Employment (Asbestos) Regulations 1998</u>
<u>AS 3575-1995</u>	<u>Clearing Saws, Brush Cutters and Grass Trimmers - Safety Requirements (issued December 1995) (amendment 1 issued July 1997) ; referenced in:</u> <u>Tas Forest Safety Code (Tasmania) 2007</u>
<u>AS 3576-1998</u>	<u>Clearing Saws, Brushcutters and Grass Trimmers - Guide to Safe Working Practices (re-issued April 1998) ; referenced in:</u> <u>Tas Forest Safety Code (Tasmania) 2007</u>
AS 4233	High Pressure Water (Hydro) Jetting Systems
AS 4233.1 - 1999	Guidelines for Safe Operation and Maintenance (issued January 1999)
AS 4233.2 - 1999	Construction and Performance (issued July 1999)
<u>AS 4453</u>	<u>Protective Clothing for Users of Hand-held Chainsaws ; referenced in:</u> <u>Tas Forest Safety Code (Tasmania) 2007</u>
AS/NZS 4453.1-1997	Test Rig for Testing Resistance to Cutting by a Chainsaw (issued March 1997)
AS/NZS 4453.2-1997	Test Methods for Leg protectors (issued March 1997)
AS/NZS 4453.3-1997	Protective Legwear (issued March 1997) (amendment 1 issued July 1998)
AS 4820-2006	Bonded abrasive products - Permissible unbalances of grinding wheels as delivered - Static testing (issued September 2006)
<u>AS 4839-2001</u>	<u>The Safe Use of Portable and Mobile Oxy-Fuel Gas Systems for Welding, Cutting, Heating and Allies Processes (issued September 2001); referenced in:</u> <u>Commonwealth Marine Notice 20/2007: Oxy-acetylene welding systems</u> <u>WA Storage and Handling of Dangerous Goods Code of Practice 2008</u> <u>Tas Dangerous Substances (Safe Handling) Regulations 2009</u>
AS 60335	Household and Similar Electrical Appliances – Safety
AS/NZS 60335.1-2002	General Requirements (issued May 2002) (amendment 3 issued November 2007)
<u>AS/NZS 60335.2.45-2004</u>	<u>Particular requirements for portable heating tools and similar appliances (issued October 2004); referenced in:</u> <u>Queensland Electrical Safety Regulation 2002</u>
AS/NZS 60335.2.54:2005	Household and similar electrical appliances - Safety - Particular requirements for surface-cleaning appliances for household use employing liquids or steam (issued June 2005) (amendment 1 issued November 2007)
AS/NZS 60335.2.67-2002	Particular Requirements for Floor Treatment and Floor Cleaning Machine for Industrial and Commercial Use (issued November 2002) (amendment 1 issued October 2006)
AS/NZS 60335.2.68-2003	Particular Requirements for Spray Extraction Appliances for Industrial and Commercial Use (issued May 2003) (amendment 1 issued October 2006) (amendment 2 issued November 2007)
AS/NZS 60335.2.69-2003	<u>Household and similar electrical appliances - Safety Particular Requirements for Wet and Dry Vacuum Cleaners Including Power Brush for Industrial and</u>

	Commercial Use (issued May 2003) (amendment 3 issued March 2010); referenced in: <u>Victoria Managing Asbestos in Workplaces Compliance Code 2008</u> <u>Victoria Removing Asbestos in Workplaces Compliance Code 2008</u>
AS/NZS 60335.2.72-2003	Particular Requirements for Automatic Machines for Floor Treatment for Industrial and Commercial Use (issued May 2003) (amendment 1 issued October 2006)
<u>AS/NZS 60335.2.74:2005</u>	<u>Household and similar electrical appliances - Safety - Particular requirements for portable immersion (issued June 2005) (amendment 1 issued November 2007) referenced in:</u> <u>Queensland Electrical Safety Regulation 2002</u>
AS/NZS 60335.2.76-2003	Particular Requirements for Electric Fence Energizers (issued May 2003) (amendment 1 issued October 2006)
AS/NZS 60335.2.77-2002	Particular Requirements for Pedestrian Controlled Mains Operated Lawn Mowers (issued November 2002) (amendment 1 issued November 2003)
AS/NZS 60335.2.79-2002	Particular Requirements for High Pressure Cleaners and Steam Cleaners for Industrial and Commercial Use (issued November 2002) (amendment 1 issued November 2005)
<u>AS/NZS 60335.2.91-2008</u>	<u>Particular Requirements for Walk-behind and Hand-held Lawn Trimmers and Lawn Edge-trimmers (issued October 2008); referenced in:</u> <u>Queensland Electrical Safety Regulation 2002</u>
AS/NZS 60335.2.92-2003	Particular Requirements for Pedestrian-controlled, Mains-operated Lawn Scarifiers and Aerators (issued May 2003)
AS/NZS 60335.2.94-2008	Particular Requirements for Scissors-types Grass Shears (issued October 2008)
<u>AS/NZS 60335.2.100-2003</u>	<u>Particular Requirements for Hand-held, Mains-operated Garden Blowers, Vacuums and Blower-vacuums (issued December 2003); referenced in:</u> <u>Queensland Electrical Safety Regulation 2002</u>
AS 60745	Hand-held Motor-operated Electric Tools – Safety
AS 60745.1-2003	General Requirements (issued January 2003) (amendment 1 issued November 2003) (amendment 3 issued November 2007)
AS/NZS 60745.2.1:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for drills and impact drills (issued May 2009)
AS 60745.2.2-2003	Particular Requirements for Screwdrivers (issued November 2003)
AS/NZS 60745.2.4:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for sanders and polishers other than disk type (issued May 2009)
AS/NZS 60745.2.5:2007	Hand-held motor-operated electric tools - Safety - Particular requirements for circular saws (issued May 2007) (amendment 1 issued May 2009)

AS/NZS 60745.2.6:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for hammers (IEC 60745-2-6 Ed 2.2, MOD) (issued May 2009)
AS/NZS 60745.2.8:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for shears and nibblers (IEC 60745-2-8 Ed 2.1, MOD) (issued May 2009)
AS/NZS 60745.2.9:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for tappers (issued May 2009)
AS/NZS 60745.2.11:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for reciprocating saws (jig and sabre saws) (issued May 2009)
AS/NZS 60745.2.12:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for concrete vibrators (IEC 60745-2-12 Ed 2.1, MOD) (issued May 2009)
AS/NZS 60745.2.13:2006	Particular requirements for chain saws (issued October 2006)
AS 60745.2.14-2003	Particular Requirements for Planers (issued November 2003)
AS/NZS 60745.2.16:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for tackers (issued May 2009)
AS 60745.2.17-2003	Particular Requirements for Routers and Trimmers (issued November 2003)
AS/NZS 60745.2.18:2009	Hand-held motor-operated electric tools - Safety - Particular requirements for strapping tools (issued May 2009)
AS 60745.2.20-2003	Particular Requirements for Band Saws (issued November 2003)
AS 60745.2.21-2003	Particular Requirements for Drain Cleaners (issued November 2003)
<u>NZS 5819-1982</u>	<u>Chain saw safety; referenced in NZ Approved Code of Practice for Safety and Health in Tree Work - Part 1</u>
<u>NZS 5840-1988</u>	<u>Specification for protective legwear for chain saw users (amendment 1 issued August 1993); referenced in: NZ Approved Code of Practice for Safety and Health in Tree Work - Part 1</u>

8.5. International Standards

<http://www.iso.ch/iso/en/ISOOnline.frontpage>

<http://www.saiqglobal.com/shop/Script/search.asp>

IEC 60745-1 Ed. 3.2 en:2003	Hand-Held Motor-Operated Electric Tools - Safety - Part 1: General Requirements
IEC 60745-2-1 Amd.1 Ed. 2.0 2008	Hand-held motor-operated electric tools - Safety - Part 2-1: Particular requirements for drills and impact drills
IEC 60745-2-11 Amd.1 Ed. 2.0 2008	Hand-held motor-operated electric tools - Safety - Part 2-11: Particular requirements for reciprocating saws (jig and sabre saws)
IEC 60745-2-12 Amd.1 Ed. 2.0 2008	Hand-held motor-operated electric tools - Safety - Part 2-12: Particular requirements for concrete vibrators

- IEC 60745-2-14 Ed. 2.0 en:2003 Hand-held motor-operated electric tools - Safety - Part 2-14: Particular requirements for planers
- IEC 60745-2-17 Ed. 2.0 en:2003 Hand-held motor-operated electric tools - Safety - Part 2-17: Particular requirements for routers and trimmers
- IEC 60745-2-18 Ed. 1.0 en:2003 Hand-held motor-operated electric tools - Safety - Part 2-18: Particular requirements for strapping tools
- IEC 60745-2-19 Ed. 1.0 b:2005 Hand-held motor-operated electric tools - Safety - Part 2-19: Particular requirements for jointers
- IEC 60745-2-2 Amd.1 Ed. 2.0 2008 Hand-held motor-operated electric tools - Safety - Part 2-2: Particular requirements for screwdrivers and impact wrenches
- IEC 60745-2-20 Amd.1 Ed. 1.0 2008 Hand-held motor-operated electric tools - Safety - Part 2-20: Particular requirements for band saws
- IEC 60745-2-21 Amd.1 Ed. 1.0 2008 Hand-held motor-operated electric tools - Safety - Part 2-21: Particular requirements for drain cleaners
- IEC 60745-2-4 Amd.1 Ed. 2.0 2008 Hand-held motor-operated electric tools - Safety - Part 2-4: Particular requirements for sanders and polishers other than disk type
- IEC 60745-2-5 Ed. 3.0 en:2003 Hand-held motor-operated electric tools - Safety - Part 2-5: Particular requirements for circular saws and circular knives
- IEC 60745-2-6 Amd.2 Ed. 2.0 2008 Hand-held motor-operated electric tools - Safety - Part 2-6: Particular requirements for hammers
- IEC 60745-2-8 Amd.1 Ed. 2.0 2008 Hand-held motor-operated electric tools - Safety - Part 2-8: Particular requirements for shears and nibblers
- IEC 60745-2-9 Ed. 2.0 en:2003 Hand-held motor-operated electric tools - Safety - Part 2-9: Particular requirements for tappers
- ISO 3767-2:1991 Tractors, Machinery for Agriculture and forestry, Powered Lawn and Garden Equipment - Symbols for Operator Controls and Other Displays - Part 2: Symbols for Agricultural Tractors and Machinery
- ISO 3767-3:1995 Tractors, Machinery for Agriculture and forestry, Powered Lawn and Garden Equipment - Symbols for Operator Controls and Other Displays - Part 3: Symbols for Powered Lawn and Garden Equipment
- ISO 3767-4:1993 Tractors, Machinery for Agriculture and forestry, Powered Lawn and Garden Equipment - Symbols for Operator Controls and Other Displays - Part 4: Symbols for forestry Machinery
- ISO 6531:2008 Machinery for forestry - Portable chain-saws - Vocabulary
- ISO 6534:2007 Forestry machinery - Portable chain-saw hand-guards - Mechanical strength
- ISO 6535:2008 Portable chain-saws - Chain brake performance
- ISO 7112:2008 Machinery for forestry - Portable brush-cutters and grass-trimmers - Vocabulary
- ISO 7182:1984 Acoustics - Measurement at the Operators Position of Airborne Noise Emitted by Chain Saws'
- ISO 7917:1987 Acoustics - Measurement at the Operators Position of Airborne Noise Emitted by Brush Saws'
- ISO 8662-1:1988 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 1: General

- ISO 8662-10:1998 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 10: Nibblers and Shears
- ISO 8662-11:1999 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 11: Fastener Driving Tools (Amendment 1 Issued, 2001)
- ISO 8662-12:1997 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 12: Saws and Files with Reciprocating Action and Saws with Oscillating or Rotating Action
- ISO 8662-13:1997 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 13: Die Grinders
- ISO 8662-14:1996 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 14: Stone-Working Tools and Needle Scalers
- ISO 8662-2:1992 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 2: Chipping Hammers and Riveting Hammers
- ISO 8662-3:1992 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 3: Rock Drills and Rotary Hammers (Amendment 1 Issued, 1999)
- ISO 8662-4:1994 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 4: Grinders
- ISO 8662-5:1992 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 5: Pavement Breakers and Hammers for Construction Work
- ISO 8662-6:1994 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 6: Impact Drills
- ISO 8662-7:1997 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 7: Wrenches, Screwdrivers and Nut Runners with Impact, Impulse or Ratchet Action
- ISO 8662-8:1997 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 8: Polishers and Rotary, Orbital and Random Orbital Sanders
- ISO 8662-9:1996 Hand-Held Portable Power Tools - Measurement of Vibrations at the Handle - Part 9: Rammers
- ISO 9207:1995 Manually Portable Chain-Saws with Internal Combustion Engine - Determination of Sound Power Levels - Engineering Method (Grade 2)
- ISO 11393-1:1998 Protective Clothing for Users of Hand-Held Chain-Saws - Part 1: Test Rig Driven By a Flywheel for Testing Resistance to Cutting by a Chain-Saw
- ISO 11393-2:1999 Protective Clothing for Users of Hand-Held Chain-Saws - Part 2: Test Methods and Performance Requirements for Leg Protectors
- ISO 11393-3:1999 Protective Clothing for Users of Hand-Held Chain-Saws - Part 3: Test Methods for Footwear
- ISO 11393-4:2003 Protective Clothing for Users of Hand-Held Chain-Saws - Part 4: Test Methods and Performance Requirements for Protective Gloves
- ISO 11393-5:2001 Protective Clothing for Users of Hand-Held Chain-Saws - Part 5: Test Methods and Performance Requirements for Protective Gaiters
- ISO 11681-1:2004 Machinery for Forestry - Portable Chain-Saw Safety Requirements And Testing - Part 1: Chain-Saws For Forest Service

ISO 13772:2009	Forestry machinery - Portable chain-saws - Non-manually actuated chain brake performance
ISO 15744:2002	Hand-Held Non-Electric Power Tools - Noise Measurement Code - Engineering Method (Grade 2)
ISO 17066:2007	Hydraulic tools - Vocabulary
ISO 17080:2005	Manually portable agricultural and forestry machines and powered lawn and garden equipment - Design principles for single-panel product safety labels
ISO 17249:2004/Amd 1:2007	Safety footwear with resistance to chain saw cutting
ISO 19432:2006	Building construction machinery and equipment - Portable, hand-held, internal combustion engine driven cut-off machines - Safety requirements and testing
ISO 21628:2008	Gardening machinery - Powered material-collecting systems - Safety
ISO 22868:2005	Forestry machinery - Noise test code for portable hand-held machines with internal combustion engine – Engineering method (Grade 2 accuracy)
ISO 28927-1:2009	Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 1: Angle and vertical grinders
ISO 28927-6:2009	Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 6: Rammers
ISO 28927-7:2009	Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 7: Nibblers and shears
ISO 28927-8:2009	Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 8: Saws, polishing and filing machines with reciprocating action and small saws with oscillating or rotating action
ISO 28927-9:2009	Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 9: Scaling hammers and needle scalers
ISO/TR 22520:2005	Portable hand-held forestry machines - A-weighted emission sound pressure levels at the operators' station - Comparative data in 2002
ISO/TR 22521:2005	Portable hand-held forestry machines – Vibration emission values at the handles - Comparative data in 2002
ISO/TR 27609:2007	Vibration in hand-held tools - Vibration measurement methods for grinders - Evaluation of round-robin test

8.6. Guidance Notes and Publications

Federal Safety Commissioner

<http://www.fsc.gov.au/>

- OHSE Management Plan

National Offshore Petroleum Safety Authority (NOPSA)

<http://www.nopsa.gov.au/index.asp>

- Information Sheet - 240V hand tools: the risks
- Safety Alert 20 - Risks from electric hand tools

APPEA (Australian Petroleum Production and Exploration Association)

<http://www.appea.com.au>

- Sharing Safety Solutions - Getting a grip - Controlling hand and finger injuries

Comcare Australia

<http://www.comcare.gov.au>

- OHS Risks of Electrically Powered Equipment in the Workplace

WorkCover Authority – NSW

<http://www.workcover.nsw.gov.au/>

- A Guide to Safety in the Metal Fabrication Industry
- A Guide to Safety in the Wood Products Manufacturing Industry
- Chainsaw Safety: Guide
- Fact Sheet - Cutting fuel drums and empty containers - Explosion hazard
- Fatal Electric Shock from Sander Polishers
- Formwork, Explosive Power Tool Operator Application Form
- Hydraulically Operated Post Drivers: Safety Alert
- Licensing, Registration and Notification - Repeal of formwork and explosive-powered tools
- Managing Risks associated with bandsaws in the retail, meat, seafood and poultry industries
- Mobile Wood Chipping Machines
- Operators of Explosive-Powered Tools Guide
- Post Drivers Safety Standard
- Safe Hire Self Assessment Tool – Checklist
- Wood Splitters - Industry Safety Standard
- Work Near Underground Assets

Environment Protection Authority - NSW

<http://www.environment.nsw.gov.au/home.htm>

- Look for the Noise Label on New Grass Cutting Machines and Chainsaws (1988)

NSW Department of Primary Industries – Minerals and Petroleum

<http://www.dpi.nsw.gov.au/minerals>

- General Workplace Inspection Checklist (Including Prescribed Hazards)
- Plant Registration for Coal Workplaces
- Safety Bulletin - Portable Power Tools

WorkCover Authority - Victoria

<http://www.workcover.vic.gov.au/>

- Cleaning inside agitator barrels of concrete trucks
- Concrete Cutting - Dangers of using hand-held equipment
- Concrete saws - Oversized blades are dangerous
- Construction - Preventing nail gun injuries during framing
- Electrical tools and equipment - Poor maintenance can kill
- Explosive power tool fastener kills worker
- Explosive-powered tool injures workers
- Health and Safety for Cleaners: Selecting the right Mopping Equipment
- Hiring out construction plant & equipment checklist
- Identifying faulty portable electrical tools and equipment
- Industry Standard – Safety in Forestry Operations
- Knives in the meat and food industries - Safe use and maintenance
- Lathe Operator: fatality

- Machinery Circular cut-up saw safety when processing poultry
- Metal Fabrication Industry - A guide to safety
- Nail gun injuries are avoidable
- Operation of Circular Bench Presses
- Operation of Circular Bench Saws
- Poorly Maintained Electrical Tools and Equipment Can Kill
- Post Drivers Industry Safety Standard (NSW WorkCover publication adopted in Victoria)
- Post-hole digger incidents
- Poultry cut-up saw safety
- Preventing electrical shock from power tools and electric leads
- Preventing misuse of angle grinders
- Roof Tile Cutting Silica Dust Exposure
- Router Incident
- Safe use of Knives in the Meat and Food Industries
- Safe use of knives in the meat industry
- **SellSafe - Information package for suppliers**
- Shearing equipment - Risk of injury from some types of handpieces
- Wood Products Manufacturing Industry - A guide to safety
- Working safely with trees

Division of Workplace Health and Safety – Queensland

<http://www.deir.qld.gov.au/workplace/index.htm/>

- Building and Construction Industry: Workplace Health and Safety guide, 2005
- Deep fat fryers, frying pans and similar appliances fact sheet
- Floor treatment machines and wet scrubbers fact sheet
- Food waste disposers fact sheet
- Grills, toasters and similar portable cooking appliances
- Kitchen machines fact sheet
- Machinery and equipment for takeaway food retail
- Multi-cutters and other discs on power tools and air tools
- Plant, machinery and equipment
- Portable heating tools and similar appliances fact sheet
- Shearing Industry Guide
- Vacuum cleaners and water suction appliances fact sheet
- Vibration – Working with Hand Tools, January 2000

Queensland Department of Mines and Energy

<http://www.dme.qld.gov.au>

- Exploration Safety Guidelines
- Eye penetration injury whilst grinding
- Safety Alert - Inappropriate modification and use of wrenches and stilsons
- Safety Alert 34 - Use of Hand Tools
- Significant Incident Report 71 – Serious Injury – Hydraulic Torque Wrench
- Using cheater bars on handtools

WorkSafe - WA

<http://www.commerce.wa.gov.au/WorkSafe/>

- Agricultural Workbook
- Angle Grinders
- Boilermaker loses eye in cutting disc accident (21/2001)
- Chasing saws and carbon monoxide
- Concrete cutting saw causes death (01/2001)
- Controlling wood dust hazards at work
- Danger – Petrol Powered Saws (SafetyLine #59, December 2004)
- Grinder incident (02/2005)
- Nailing Tools
- OHSE Management Plan
- Operator loses control of ride-on mower (13/2005)
- Post Drivers: Industry Safety Standard
- Post drivers (NSW WorkCover publication adopted in WA)
- Problems with concrete cutting saw blades (04/2001)
- Safety and health alert - Nail gun eye injury
- Safety and Health Alert 09/09: Masonry cutting grinder causes death
- Significant Incident Summary - Operator loses control of ride-on mower
- Two meat workers shot bu cattle stun guns (03/1997)
- Use of electrical tools on board fishing vessels (07/2000)
- Young worker amputates finger with radial saw (02/2002)
- Young worker using an angle grinder (20/1996)

Energy Safety WA

<http://www.energysafety.wa.gov.au>

- Apprentice safety assessment guidelines

WA Department of Mines and Petroleum

<http://www.dmp.wa.gov.au/index.aspx>

- Use of Compressed Air for Cleaning Purposes

SafeWork - SA

<http://www.safework.sa.gov.au/>

- Brush Cutter Safety Safeguard
- Chain Saw Safety Safeguard
- Cutting wheel Hazards Safeguard
- Disc grinder safety in the shearing industry
- Firewood Saws Safeguard
- Hazard Alert No 79 Dangers of using steel hammers on hardened steel implements
- Makita 71/4" portable power saw, Model No. 5806B Hazard Alert
- Use of Concrete Cutting Saws Hazard Alert

Workplace Standards Authority Tasmania

<http://www.wst.tas.gov.au/>

- Safety Alert No. 1 - Mining operator suffers serious eye injury with high pressure grouter
- Safety Alert No. 5 - Cut-resistant clothing must comply with standards

- Safety in the use of portable grinders

WorkCover Tasmania

<http://www.workcover.tas.gov.au>

- Abrasive Wheels – Safety in the Use of Portable Disc and Angle Grinders
- Cut-resistant clothing
- Explosive Power Tools Certificate, updated May 2005
- Rural Fact Sheets - Hand Tools
- Rural Fact Sheets - Workshop Safety
- Safe use of Hand Router No 4 2002 (SA050)
- Safe Use of Nail Guns
- Safety Attachments on Pneumatic Secateurs No 3 2002 (SA047)
- The Safe Use of Brushcutters (SB005) (updated)
- The Safe Use of Chainsaws (SB027) (updated)

NT WorkSafe

<http://www.worksafe.nt.gov.au/>

- Chainsaw safety
- Circular saws
- Horticulture - Chain saws
- Horticulture - Chain saws checklist
- Licensing - Occupational health and safety licence information
- Portable steam steriliser
- Powered drills
- Powered portable belt sanders

Department of Labour – NZ

<http://www.osh.dol.govt.nz/>

- A Guide to Safety With Chainsaws – re-issued July 2006
- Accident Alert No 8 Blasting powder ignited by sparks from an angle grinder caused serious burns to farmer and worker
- Accident Alert No 31 – King Hitter Post Driver
- Construction Bulletin - Concrete Cutting Safety
- Construction Bulletin - Kickback of Concreting Cutting Saw Results in Serious Injuries to Operator
- Construction Bulletin - Noise Levels Created by Common Construction Tools
- Grease Gun Safety
- Guidelines for the Safe Use of Portable Mechanically Powered Nailers and Staplers
- Guidelines for the Safe Use of Woodworking Machinery
- Kickback of Concreting Cutting Saw Results in Serious Injuries to Operator
- Noise Abatement for Circular Saws
- Noise Levels Created by Common Construction Tools, ,January 2003
- Summary of Approved Code of Practice for Powder-Actuated Hand-Held Fastening Tools



ILO (International Labour Organisation)

<http://www.ilo.org/public/english/protection/safework/index.htm>

- Safe Design and Use of Chain Saws, 1978

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