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ADVISORY NOTICE

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AUSTRALIAN AND INTERNATIONAL STANDARDS FOR EARTHMOVING MACHINERY

Note: This advisory notice was revised in June 2025 to reflect ongoing Australian and ISO standards harmonisation activities (See Table 2). Additional standards were also added (See Table 1).

A new table of standards (See Table 3) were added for electrified earth-moving machinery (i.e. diesel electric hybrid and fully battery electric machines).

All changes to the August 2024 version are shown in red.

CMEIG members have observed industry confusion as to what Australian and International standards are being specified in customer tenders. The aim of this paper is to clarify the technical standards applicable to earthmoving machinery. Table 1 and 2 provide this detail. In addition, CMEIG notes the following-

- The majority of Australian Standards relating to earthmoving machinery were modified or direct-text adoptions of pre-existing ISO standards. These ISO standards have continued to evolve to represent global industry best practice. Work is ongoing to maintain alignment between AS and ISO standards.

- There is a misconception that Australian Standards carry more 'weight' than international standards under applicable Australian laws. In reality, the Australian Work Health and Safety (WHS) Laws as applied in various Australian States and Territories require risks to health and safety to be addressed so far as is reasonably practicable. This can involve the use of Australian or International Standards, insofar as each addresses the aforementioned legislative requirement to adequately address risks to health and safety.

- It is common for customer tenders to specify 'broad-brush' requests to 'comply' with certain standards. It's important to note that standards may or may not cover each specific application/machine/use-case i.e. it may not be possible to claim 'compliance' or 'conformance' to standards in their entirety. It is also important to note that it may not be possible to claim 'compliance' or 'conformance' to standards published after the machine has already been designed, irrespective of manufacturing date.

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- ME-063 – Standards Australia Technical Committee for Earthmoving Equipment, the primary committee for Australian earthmoving machinery standards development, has recently undertaken a broad-ranging portfolio refresh, removing about 60 aged standards and is now taking a three-pronged strategy of direct international standards adoptions, modified international standards adoptions where warranted, all while continuing to retain Australian benchmark standards. There are around 100 standards in this pipeline to provide Australian industry with a set of contemporary performance-based earthmoving equipment standards.

- State and local government authorities have produced a range of guidelines, codes of practice, recognised standards, position papers for the construction, mining and quarrying industries. Some useful links are provided below:

  SafeWork Australia
  https-//www.safeworkaustralia.gov.au/

  New South Wales (NSW)
  https-//www.resourcesandgeoscience.nsw.gov.au/
  https://www.safework.nsw.gov.au/

  Queensland (QLD)
  https://www.dnrme.qld.gov.au/
  https://www.worksafe.qld.gov.au/

  Western Australia (WA)
  https-//www.dmp.wa.gov.au/
  https://www.commerce.wa.gov.au/worksafe

  Victoria (VIC)
  https://www.worksafe.vic.gov.au/

  Northern Territory (NT)
  https://worksafe.nt.gov.au/

  South Australia (SA)
  https://www.safework.sa.gov.au/

  Australian Capital Territory (ACT)
  https://www.worksafe.act.gov.au/about-worksafe-act

In all cases, it is advisable to consult the ISO catalogue online to ensure that you have the current version of the international standard. Go to - https-//www.iso.org/committee/52172.html

Contact your manufacturer for more details.

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Table 1 - Technical standards commonly referenced in relation to earthmoving machinery

COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	**DESCRIPTION**		
AS 1000-1974	The International System of Units (SI) and its application	**Superseded by AS ISO 1000-1998** AS ISO 1000-1998 has also since been withdrawn and was identical to ISO 1000:199 (still current)	ISO 1000:1992
AS 1019-2000	Internal combustion engines - Spark emission control devices	Specifies requirements for spark arrestors on internal combustion engines. More Information	USDA 5100-1D
AS/NZS 1200-2015	Pressure equipment	A 'parent' document for use by the pressure equipment industry. Refer to comments on AS 1210.	Refer to comments on AS 1210.
AS 1210-2010	Pressure vessels	This is a pressure vessel design standard that is used for the purpose of obtaining Australian pressure vessel design registration for appropriate vessels. Note that other comparable standards/schemes exist. Note that it is also typical for earthmoving machinery manufacturers to provide a Plant Design Registration certificate as evidence of conformance to an appropriate pressure vessel design standard.	ASME BPVC VIII (USA) Pressure Equipment Directive (PED) 2014/68/EU (formerly 97/23/EC (Europe) EN 14359 High Pressure Gas Safety Act (Japan)
AS/NZS 1269 (Series)	Occupational noise management (Series)	These are occupational noise management standards not specific to earthmoving machinery. Earthmoving machines are generally noise tested to ISO 6393/6394/6395/6396	ISO 6393:2008 ISO 6394:2008 ISO 6395:2008 ISO 6396:2008
AS 1271-2003	Safety valves, other valves, liquid level gauges and other fittings for boilers and unfired pressure vessels	Australian standard specifying requirement for the design, construction and testing of various valves. Note that international equivalents exist.	ASME BPVC VIII.I ISO 4126 (series) Pressure Equipment Directive (PED) 2014/68/EU (formerly 97/23/EC (Europe)
AS 1318-1985	Use of colour for the marking of physical hazards and the identification of certain equipment in industry (known as the SAA Industrial Safety Colour Code)	**Withdrawn in 2017** Technically similar to ISO 3864-1:2011 and ISO 3864-2:2016	ISO 3864-1:2011 ISO 3864-2:2016

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COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION		
AS 1319-1994	Safety signs for the occupational environment	AS1319-1994(R2018) applies primarily for the occupational environment. ISO 20474.1:2017 provides more specific guidance. See ISO 9244 for earthmoving machinery safety labels and general principles for their use. Also see ISO 7010 and ISO 3864.	ISO 9244:2006 ISO 3864 (series) ISO 7010:2019 ISO 20474.1:2017
AS 1418 (Series)	Cranes, Hoists and Winches (Series)	These are craneage standards and not an appropriate conformance standard for earthmoving machinery including those used for lifting purposes incidental to their primary task (see specific listing for AS 1418.8)	N/A
AS 1418.8-2018	Cranes, hoists and winches Special purpose appliances	AS 1418.8 includes a section dealing with incidental lifting with earthmoving machinery. Presently, there is some misalignment with the related international standards for earthmoving machinery: ISO 20474.1:2017 ISO 20474.5:2017 ISO 10567:2007 ISO 14397-1:2007 More information – Link 1 and Link 2	ISO 20474.1:2017 ISO 20474.5:2017 ISO 10567:2007 ISO 14397-1:2007
AS/NZS 1554 (Series)	Structural Steel Welding (Series)	These are a series/set of Australian structural steel welding standards. They are not specific to earthmoving machinery and it can be impractical to expect conformance to these standards for welding on an earthmoving machine. It is typical for earthmoving machinery manufacturers to leverage practices described in various international welding standards including AS/NZS 1554 (series), but typically precedence is given to the lessons and practices each OEM has identified are most suitable for the specific machine/design or manufacturing process.	N/A
AS 1657-2018	Fixed platforms, walkways, stairways and ladders - Design, construction and installation	Defers to AS 5327:2019 for earthmoving machinery access systems in the scope of AS 1657. Note that AS 5327 is a modified adoption of ISO 2867. More information	AS 5327-2019 ISO 2867:2011 ISO 2860:1992 ISO 3411:2007
AS 1627.0-1997	Metal finishing - Preparation and pre-treatment of surfaces - Part 0: Method selection guide	Gives guidance for the preparation and pretreatment of metal surfaces prior to the application of a protective coating. Please note, OEM's may have their own internal processes that are complementary, or differ from these generic standards.	ISO 8504-1

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COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION		
AS 1627.4-2005	Metal finishing – Preparation and pre-treatment of surfaces – Part 4: Abrasive blast cleaning of steel	Specifies abrasive blast cleaning methods for the preparation of steel surfaces before coating with paints and related products. Please note, OEM's may have their own internal processes that are complementary, or differ from these generic standards.	ISO 8504-2
AS 1636.1-1996	Tractors - Rollover protective structures - Criteria and tests Part 1: Conventional tractors	Specifies the test procedures and minimum performance criteria for evaluating roll-over protective structures fitted to agricultural tractors. Refer to ISO 3471 for an equivalent standard for earthmoving machinery.	ISO 3471
AS 1735.1.1:2022	Lifts, escalators and moving walks – Part 1: General requirements	Sets out uniform requirements and defines terms for lifts, escalators and moving walkways in the AS 1735 series. This standard is not applicable to powered access systems on earthmoving machinery.- see AS 5327.	ISO 8103 series ISO/TS 18870
AS 1768:2021	Lightning protection	AS 1768 is focused on lightning protection for fixed installations and structures. It is not applicable to mobile machinery. However, it does provide some guidance to end users on managing electrical storm risks on mobile plant in mines. End users are encouraged to review this guidance to determine whether it is suitable. Also refer to the CMEIG paper on Electrical Storms and Lightning Recommendations for Earthmoving Machinery.	IEC 62305 series EN 62305 series
AS/NZS 1841.1:2007	Portable fire extinguishers – Part 1: General requirements	Provides general requirements for portable fire extinguishers, including the materials, design, construction, methods of manufacture, performance of the extinguisher and any associated gas container, including requirements for instructions and markings. This standard likely requires some adaptation to be used with earthmoving machinery portable fire extinguishers. For fire suppression systems, see AS 5062.	ISO 7165
AS 1851-2012	Routine service of fire protection systems and equipment	Sets out requirements for inspection, testing, preventive maintenance and survey of pre-engineered and other building fire protection equipment. The standard was not written with earthmoving equipment in mind and so should be used with some consideration.	AS 5062 ISO 19353

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COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION		
AS/NZS 1891 (Series)	Industrial Fall-arrest Systems and Devices	Proper placement and installation of personal protective equipment anchorage points is very nuanced on earthmoving machinery. Whereas AS/NZS 1891 (series) is written around general industrial applications. Requirements in this standard, as well as other comparable global standards and guidelines (e.g. 29 CFR 1926 (M), Directive 2001/45/EC, ISO 14567) may be considered. However, it will typically not be possible to claim conformance to such standards.	29 CFR 1926, Subpart M Directive 2001/45/EC ISO 14567
AS 2012.1-1990	Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors - Stationary test condition Determination of compliance with limits for exterior noise	**Superseded by AS ISO 6393:2019** A direct text adoption of ISO 6393:2008 AS 2012.2 was a direct text adoption of ISO 6393-1985	ISO 6363:2008
AS 2012.2-1990	Acoustics – Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors – Stationary test condition Operator's position	**Superseded by AS ISO 6394:2019** A direct text adoption of ISO 6393:2008 AS 2012.2 was a direct text adoption of ISO 6393-1985.	ISO 6394:2008
AS/NZS 2080-2006	Safety glazing for land vehicles	**Superseded by AS 2080-2019**	N/A *See comments on AS 2080-2019
AS 2080-2019	Safety glazing for land vehicles	This standard is focused on road vehicles (scope discusses land vehicles – not defined). Though many aspects are transferrable to earthmoving machines, it needs to be applied with context. E.g. In its application in the automotive industry, the following alternative standards are also generally acceptable equivalents: UN ECE R43 JIS R 3211-1998 ANSI Z26.1-1996 BS AU178:1980 NZS 5443-1987	UN ECE R43 JIS R 3211-1998 ANSI Z26.1-1996 BS AU178:1980 NZS 5443-1987
AS 2207-2007	Non-destructive testing – Ultrasonic testing of fusion welded joints in carbon and low alloy steel	Specifies the methods and requirements for the manual ultrasonic testing of full or partial penetration fusion welded joints in carbon and low alloy ferritic steels, 6 mm or greater in thickness, using A-scan and employing four sensitivity levels. Please note, OEM's may have their own internal processes that are complementary, or differ from these generic standards.	ISO 17640
AS 2294-1991	Earth-moving machinery - Protective structures	**Superseded by AS 2294 Parts 1-4** More information	N/A *See comments for the various parts of AS 2294

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COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION		
AS 2294.1-1997	Earth-moving machinery - Protective structures - General	**Pending revision/withdrawal** Technically equivalent to ISO 3471:1994 for ROPS and ISO 3449:1992 for FOPS More information	ISO 3471:2008 ISO 3449:2005
AS 2294.1 SUPPLEMENT 1-2003	Earth-moving machinery - Protective structures - General - Operator protective structures fitted to plant used in timber industry (forest operations) (Supplement to AS 2294.1-1997)	**Withdrawn in 2017** Replaced by ISO 8084:2003 More information	ISO 8084:2003
AS 2294.2-1997	Earth-moving machinery - Protective structures Laboratory tests and performance requirements for roll-over protective structures	**Withdrawn in 2008** Identical to ISO 3471:1994 More information	ISO 3471:2008
AS 2294.3-1997	Earth-moving machinery - Protective structures Laboratory tests and performance requirements for falling-object protective structures	**Withdrawn in 2008** Identical to ISO 3449:1992 More information	ISO 3449:2005
AS 2294.4-1997	Earth-moving machinery - Protective structures Specifications for deflection-limiting volume	**Withdrawn in 2008** Identical to ISO 3164:1995 More information	ISO 3164:2013
AS 2444-2001	Portable fire extinguishers and fire blankets - Selection and location	Specifies the criteria for the selection of portable fire extinguishers and the requirements for their application, location and distribution. Sizing of fire extinguishers can be subjective – often a balance between suppressant size and portability. The goal of sucj equipment on earthmoving machines should generally be to get operator off machine, not necessarily putting out fire.	N/A
AS 2470-2005	Steel cylinders for compressed gases - Welded three-piece construction with longitudinal joint - 11 Kg to 150 Kg	Specifies requirements for welded carbon and stainless steel cylinders with one longitudinal and two circumferential joints, of water capacity not less than 11 kg nor more than 150 kg, which have test pressures from 1750 kPa to 7000 kPa, and are intended for the storage and transport of compressed gases in accordance with AS 2030.1.	ISO 4706

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COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	**DESCRIPTION**		
AS 2538-2016	Vehicle Support Stands	This is an automotive vehicle support stand standard for axle stands or jack stands (e.g. car jacks). Other similar standards also exist (e.g. ASME PALD – Safety Standard for Portable Automotive Lifting Devices). There is no equivalent standard for earthmoving machinery support stands. While some aspects of these standards may be helpful/translatable (e.g. the stability and load capacity principles), these standards are not written with earthmoving machinery applications in mind. Moreover, the variety and differing applications of earthmoving machines typically requires purpose-built support stands proven in use/suitable for the intended application. Standards such as AS 3990 and AS 4100 (or their international equivalents) are sometimes used for design.	N/A
AS 2549-2021	Cranes, hoists and winches - Glossary of terms	This provides an alphabetical listing, with illustrations where appropriate, of terms and definitions used in the AS 1418 series of Standards on the design of cranes, hoists and winches	ISO 4306-1:2007

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AS 2550.1-2011	Cranes, hoists and winches - Safe use Part 1: General requirements	Sets out the general requirements for the safe use of cranes, hoists and winches. These standards are typically not applicable to earthmoving machinery – see ISO 20474 series or AS 20474 for earthmoving machinery equivalents.	ISO 8566 series ISO 8686 series ISO 9927 series ISO 10245 series ISO 11662 series ISO 4305 series ISO 4306 series ISO 7752 series ISO 10972 series ISO 12480 series ISO 4304 ISO 4309 ISO 4310 ISO 12482-1 ISO 14518
AS 2550.3-2002	Cranes, hoists and winches - Safe use – Bridge gantry, portal (including container cranes) jib and monorail cranes	Specifies the minimum requirements for the safe use of bridge, gantry, portal (including container cranes), jib and monorail cranes. It also specifies requirements for planning, selection, siting, erection and dismantling, operation, maintenance, inspection and repair of the above types of cranes. These standards are typically not applicable to earthmoving machinery – see ISO 20474 series or AS 20474 for earthmoving machinery equivalents	As above
AS 2550.5:2016	Cranes, hoists and winches - Safe Use - Mobile cranes	Specifies requirements for the safe use of mobile cranes as defined in AS 2549. It is complementary to AS 2550.1, but requirements given herein take precedence over the corresponding requirements in AS 2550.1. These standards are typically not applicable to earthmoving machinery – see ISO 20474 series or AS 20474 for earthmoving machinery equivalents	ISO 4301-2 ISO 4305 ISO 4306-2 ISO 7296-2 ISO 7752-2 ISO 8566-2 ISO 8686-2 ISO 9928-2 ISO 10245-2 ISO 10972-2 ISO 11660-2 ISO 11661 ISO 11662-1 ISO/TR 19961

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AS 2550.10-2006	Cranes, hoists and winches - Safe use - Mobile elevating work platforms	Specifies requirements for the safe use of mobile elevating work platforms. These standards are typically not applicable to earthmoving machinery – see ISO 20474 series or AS 20474 for earthmoving machinery equivalents	ISO 16368 ISO 16653 series ISO 18893 ISO 20381 ISO 21455
AS 2550.11:2016	Cranes, hoists and winches - Safe use - Vehicle loading cranes	Specifies requirements for the safe use of vehicle-loading cranes as defined in AS2549. It is complementary to AS2550.1, but requirements given herein take precedence over the corresponding requirements in AS2550.1. These standards are typically not applicable to earthmoving machinery – see ISO 20474 series or AS 20474 for earthmoving machinery equivalents	ISO 15442
AS 2550.19-2007	Cranes, hoists and winches - Safe use - Telescopic handlers	Specifies requirements for the safe use of telescopic handlers. It includes sections on planning, selection, siting, operation, maintenance, inspection and repairs. These standards are typically not applicable to earthmoving machinery – see ISO 20474 series or AS 20474 for earthmoving machinery equivalents	ISO 10896-1 ISO 10896-2
AS/NZS 2596-2003	Seat belt assemblies for motor vehicles (ECE Regulation No. 16, MOD adoption)	This is often referenced in conjunction with references to Australian Design Rules (in particular ADR 3, 4 and/or 5). Note that these are (automotive) vehicle standards and not intended to be applied to earthmoving machinery. Earthmoving machinery will typically not conform to many of these requirements which are for road vehicle registration/approval in Australia. Earthmoving machinery typically operate on Australian roads as a special purpose vehicle or under an appropriate exemption or permit. There are often related standards specifically intended for earthmoving machines. More information	ISO 6683:2005
AS 2664-1983	Earthmoving machinery - Seat belts and seat belt anchorages	**Withdrawn in 2008** Based on ISO 6683:1981 More information	ISO 6683:2005

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AS 2671-2021	Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010, MOD)	AS 2671 is an Australian adoption of ISO 4413 with only minor modifications (i.e. they are equivalent). AS 2671 and ISO 4413 are general standards not specifically related to, nor appropriate compliance standards for earthmoving equipment. ISO 4413 may be used as a reference (rather than as a 'compliance standard') for earthmoving machinery hydraulic systems design.	ISO 4413:2010
AS 2700-2011	Colour standards for general purposes	This standard presents and specifies colours for use in choosing colour schemes in industrial, architectural and decorative areas for use in specifying those colours. It is not particularly relevant to earthmoving machinery. Also see AS 1318.	N/A
AS 2788-2021	Pneumatic fluid power - General rules and safety requirements for systems and their components (ISO 4414:2010, MOD)	AS 2788 is an Australian adoption of ISO 4414 with only minor modifications (i.e. they are equivalent). AS 2788 and ISO 4414 are general standards not specifically related to, nor appropriate compliance standards for earthmoving equipment. ISO 4414 may be used as a reference (rather than as a 'compliance standard') for earthmoving machinery pneumatic systems design	ISO 4414:2010
AS 2809.2:2023	Road tank vehicles for dangerous goods Part 2: Road tank vehicles for flammable liquids	Specifies requirements for the design, construction, inspection and testing of road tank vehicles for the transport of flammable liquids	ISO 19723 series ISO 1496-3
AS 2865-2009	Confined spaces	Sets out the requirements and risk control measures for ensuring the safety of those who must enter or carry out tasks associated with a confined space. Contains Sections dealing with planning and implementing entry to a confined space. Appendices include guidance for training, risk assessment, atmospheric monitoring and sample forms and permits associated with confined space work.	ANSI/ASSP Z117.1
AS 2868-1986	Classification of machinery for earthmoving, construction, surface mining and agricultural purposes	**Withdrawn in 2008**	N/A

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AS 2670.1-2001	Evaluation of human exposure to whole-body vibration General requirements	Identical to ISO 2631-1:1997 (R2017) This standard covers general requirements for evaluation of human exposure to whole body vibration (WBV). ISO 7096:2020 and ISO/TR 25398:2006 are more appropriate references for earthmoving machinery human exposure to WBV.	ISO 7096:2020 ISO/TR 25398
AS 2951.0-1988	Earth-moving machinery - Nomenclature - General introduction and listing	**Withdrawn in 2006**	N/A
AS 2951.1-1988	Earth-moving machinery - Nomenclature - Basic types	**Withdrawn in 2008** Identical to ISO 6165:1987	ISO 6165:2012
AS 2951.2.1-1988	Earth-moving machinery - Nomenclature - Dimensions and symbols - Base machine	**Withdrawn in 2008** Identical to ISO 6746-1:1987	ISO 6746-1:2003
AS 2951.2.2-1988	Earth-moving machinery - Nomenclature - Dimensions and symbols - Equipment	**Withdrawn in 2008** Identical to ISO 6746-2:1987	ISO 6746-2:2003
AS 2951.3-1988	Earth-moving machinery - Nomenclature - Tractors	**Withdrawn in 2008** Identical to ISO 6747:1982	ISO 6747:2013
AS 2951.4-1988	Earth-moving machinery - Nomenclature - Loaders - Terminology and commercial specifications	**Withdrawn in 2008** Identical to ISO 7131:1984	ISO 7131:2009
AS 2951.5-1988	Earth-moving machinery - Nomenclature - Dumpers - Terminology and commercial specifications	**Withdrawn in 2008** Identical to ISO 7132:1984	ISO 7132:2003
AS 2951.6-1988	Earth-moving machinery - Nomenclature - Tractor-scrapers - Terminology and commercial specifications	**Withdrawn in 2008** Identical to ISO 7133:1985	ISO 7133:2013
AS 2951.7-1988	Earth-moving machinery - Nomenclature - Graders - Terminology and commercial specifications	**Withdrawn in 2008** Identical to ISO 7134:1985	ISO 7134:2013
AS 2952.0-1988	Earth-moving machinery - Basic shapes and dimensions - General introduction and listing	**Withdrawn in 2006**	N/A
AS 2952.1-1988	Earth-moving machinery - Basic shapes and dimensions - Dimensions of fuel filler opening	**Withdrawn in 2006** Identical to ISO 3541:1985 ISO 3541 was Withdrawn in 1996	N/A
AS 2952.2-1988	Earth-moving machinery - Basic shapes and dimensions - Drain, fill and level plugs	**Withdrawn in 2006** Identical to ISO 6302:1986	ISO 6302:1993
AS 2952.3-1988	Earth-moving machinery - Basic shapes and dimensions - Lubrication fittings - Nipple type	**Withdrawn in 2006** Identical to ISO 6392:1980. The ISO was revised in 1996 and is now in two parts, ISO 6392-1:1996 & ISO 6392-2:1996	ISO 6392-1:1996 ISO 6392-2:1996
AS 2952.4-1988	Earth-moving machinery - Basic shapes and dimensions - Tractors with dozer, graders, tractor-scrapers - Cutting edges	**Withdrawn in 2006** Identical to ISO 7129:1982	ISO 7129:1997

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AS 2952.5-1988	Earth-moving machinery - Basic shapes and dimensions - Plough bolt heads	**Withdrawn in 2006** Identical to ISO 7852:1983	ISO 7852:1983
AS 2952.6-1988	Earth-moving machinery - Basic shapes and dimensions - Dozer end bits - Hole specification	**Withdrawn in 2006** Identical to ISO 7891:1984 ISO 7891 was Withdrawn in 1996	ISO 7129:1997
AS 2953.0-1988	Earth-moving machinery - Human dimensions - General introduction and listing	**Withdrawn in 2006**	N/A
AS 2953.1-1988	Earth-moving machinery - Human dimensions - Minimum access	**Withdrawn in 2006** Identical to ISO 2860:1983	ISO 2860:1992
AS 2953.2-1988	Earth-moving machinery - Human dimensions - Physical dimensions of operators and minimum operator space envelope	**Withdrawn in 2006** Identical to ISO 3411:1982	ISO 3411:2007
AS 2953.3-1988	Earth-moving machinery - Human dimensions - Seat index point	**Withdrawn in 2006** Identical to ISO 5353:1978	ISO 5353:1995
AS 2954.0-1988	Earth-moving machinery - Rated loads and volumetric ratings - General introduction and listing	**Withdrawn in 2006**	N/A
AS 2954.1-1988	Earth-moving machinery - Rated loads and volumetric ratings - Rated operating load for crawler and wheel loaders	**Withdrawn in 2006** Identical to ISO 5998:1986. ISO 5998 and ISO 8313 were withdrawn and replaced by ISO 14397-1:2002 & ISO 14397-2:2002 More information	ISO 14397-1:2007 ISO 14397- 2:2007
AS 2954.2-1988	Earth-moving machinery - Rated loads and volumetric ratings - Dumper bodies - Volumetric rating	**Withdrawn in 2006** Identical to ISO 6483:1980	ISO 6483:1980
AS 2954.3-1988	Earth-moving machinery - Rated loads and volumetric ratings - Tractor-scraper - Volumetric rating	**Withdrawn in 2006** Identical to ISO 6484:1986	ISO 6484:1986
AS 2954.4-1988	Earth-moving machinery - Rated loads and volumetric ratings - Tractor-scraper - Volumetric rating	**Withdrawn in 2006** Identical to ISO 6485:1980	ISO 6485:1980
AS 2954.5-1988	Earth-moving machinery - Rated loads and volumetric ratings - Loader and front loading excavator buckets - Volumetric ratings	**Withdrawn in 2006** Identical to ISO 7451:1983	ISO 7546:1983
AS 2954.6-1988	Earth-moving machinery - Rated loads and volumetric ratings - Hydraulic excavators - Hoe type buckets - Volumetric ratings	**Withdrawn in 2006** Identical to ISO 7451:1983	ISO7451: 2007
AS 2955.0-1988	Earth-moving machinery - Tests and measurements - General introduction and listing	**Withdrawn in 2006**	N/A
AS 2955.1-1988	Earth-moving machinery - Tests and measurements - Measurement of tool movement time	**Withdrawn in 2006** Identical to ISO 5004:1981. ISO 5004 was Withdrawn in 1992	N/A
AS 2955.2-1988	Earth-moving machinery - Tests and measurements - Method for locating the centre of gravity	**Withdrawn in 2006** Identical to ISO 5005:1977	ISO 5005:1977
AS 2955.3-1988	Earth-moving machinery - Tests and measurements - Determination of ground speed	**Withdrawn in 2006** Identical to ISO 6014:1986	ISO 6014:1986

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AS 2955.4-1988	Earth-moving machinery - Tests and measurements - Hydraulic excavators - Measurement of tool forces	**Withdrawn in 2006** Identical to ISO 6015-1:1986. ISO 6015 has since been consolidated into a one-part standard	ISO 6015:2006
AS 2955.5-1988	Earth-moving machinery - Tests and measurements - Measurement of the masses of whole machines, their equipment and components	**Withdrawn in 2006** Identical to ISO 6016:1982	ISO 6016:2008
AS 2955.6-1988	Earth-moving machinery - Tests and measurements - Operator seat - Transmitted vibration	**Withdrawn in 2006** Identical to ISO 7096:1982	ISO 7096:2020
AS 2955.7-1988	Earth-moving machinery - Tests and measurements - Measurement of the dimensions of whole machines with their equipment	**Withdrawn in 2006** Identical to ISO 7128:1983. ISO 7128 was Withdrawn in 1989. See ISO 6746-1:2003.	ISO 6746-1:2003
AS 2955.8-1988	Earth-moving machinery - Tests and measurements - Measurement of turning dimensions of wheeled machines	**Withdrawn in 2006** Identical to ISO 7457:1983	ISO 7457:1997
AS 2955.9-1988	Earth-moving machinery - Tests and measurements - Measurement of drawbar pull	**Withdrawn in 2006** Identical to ISO 7464:1983	ISO 7464:1983
AS 2955.10-1988	Earth-moving machinery - Tests and measurements - Loaders - Measurement of tool forces and tipping loads	**Withdrawn in 2006** Identical to ISO 8313:1986. ISO 8313 and ISO 5998 were withdrawn and replaced by ISO 14397-1:2002 & ISO 14397-2:2002 More information	ISO 14397-1:2007 ISO 14397- 2:2007
AS 2956.0-1988	Earth-moving machinery - Instrumentation and operator's controls - General introduction and listing	**Withdrawn in 2006**	N/A
AS 2956.1-1988	Earth-moving machinery - Instrumentation and operator's controls - Excavators - Operator's controls	**Withdrawn in 2006** Identical to ISO 4557:1982. ISO 4557 was Withdrawn in 1995 and replaced by ISO 10968	ISO 10968:2004
AS 2956.2-1988	Earth-moving machinery - Instrumentation and operator's controls - Operating instrumentation	**Withdrawn in 2006** Identical to ISO 6011:1987	ISO 6011:2003
AS 2956.3-1988	Earth-moving machinery - Instrumentation and operator's controls - Service instrumentation	**Withdrawn in 2006** Identical to ISO 6012:1982	ISO 6012:1997
AS 2956.4-1988	Earth-moving machinery - Instrumentation and operator's controls - Symbols	**Withdrawn in 2006** Identical to ISO 6405:1982. ISO 6405 now has two parts	ISO 6405-1:2017 ISO 6405-2:2017
AS 2956.5-1988	Earth-moving machinery - Instrumentation and operator's controls - Zones of comfort and reach for controls	**Withdrawn in 2006** Identical to ISO 6682:1986	ISO 6682:1986
AS 2956.6-1988	Earth-moving machinery - Instrumentation and operator's controls - Crawler tractors and crawler loaders - Operator's controls	**Withdrawn in 2006** Identical to ISO 7095:1982. ISO 7095 was withdrawn in 1996. ISO 10968 is an appropriate reference.	ISO 10968:2004
AS 2957.0-1988	Earth-moving machinery - Operation and maintenance - General introduction and listing	**Withdrawn in 2006**	N/A
AS 2957.1-1988	Earth-moving machinery - Operation and maintenance - Common maintenance and adjustment tools	**Withdrawn in 2006** Identical to ISO 4510-1:1987	ISO 4510-1:1987

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AS 2957.2-1988	Earth-moving machinery - Operation and maintenance - Common repair tools - Mechanical pullers and pushers	**Withdrawn in 2006** Identical to ISO 4510-2:1986	ISO 4510-2: 1996
AS 2957.3-1988	Earth-moving machinery - Operation and maintenance - Preservation and storage	**Withdrawn in 2006** Identical to ISO 6749:1984	ISO 6749:1984
AS 2757.4-1988	Earth-moving machinery - Operation and maintenance - Format and content of manuals	**Withdrawn in 2006** Identical to ISO 6750:1984. ISO 6750 now has two parts	ISO 6750-1:2019 ISO/TR 6750-2:2020
AS 2957.5-1988	Earth-moving machinery - Operation and maintenance - Guide to procedure for operator training	**Withdrawn in 2006** Identical to ISO 7130:1981	ISO 7130:1981
AS 2957.6-1988	Earth-moving machinery - Operation and maintenance - Training of mechanics	**Withdrawn in 2006** Identical to ISO 8152:1984	ISO 8152:1984
AS 2958.0-2000	Earth-moving machinery - Safety - General introduction and listing	**Withdrawn in 2008**	N/A
AS 2958.1-1995	Earth-moving machinery - Safety - Wheeled machines - Brakes	**Pending revision** Expected to be an identical adoption of ISO 3450:2011 but with additional guidance for in-service brake testing (presently not covered by ISO 3450:2011)	ISO 3450:2011
AS 2958.2-1988	Earth-moving machinery - Safety - Guards and shields - Definitions and specifications	**Withdrawn in 2008** Identical to ISO 3457:1986	ISO 3457:2003
AS 2958.3-1992	Earth-moving machinery - Safety - Roller compactors - Brake systems	**Pending revision/withdrawal** Roller compactor braking requirements are covered in ISO 3450:2011	ISO 3450:2011 *See comments on AS 2958.1
AS 3000-2018	Electrical installations (Wiring Rules)	This standard covers technical rules for mains-connected electrical installations in Australia. This standard was not written with earthmoving machines in mind (particularly those which typically operate at extra-low voltage DC) and so should not be viewed as a conformance requirement. IEC 60204.1 may be a more appropriate reference standard for electrical equipment of machines, but also needs to be read with similar care (general machinery electrical safety standard – some aspects do not apply to mobile earthmoving machines). ISO 14990 (series) also covers electrical safety of electric-drive machines.	IEC 60204-1:2016 ISO 14990 (series)

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AS 3007-2013	Electrical equipment in mines and quarries - Surface installations and associated processing plant	This standard covers technical rules for electrical installations in surface mines and quarries. This standard was not written with earthmoving machines in mind and so needs to be treated as a reference rather than a strict conformance requirement. Note that in the scope of AS 3007:2013, it states: *"This standard does not apply to the following areas:* *(i) Earth moving machinery covered by ISO 6165 and not fed by trailing or reeling cables."* IEC 60204.1 may be a more appropriate reference standard for electrical equipment of machines, but this also needs to be read with similar care. ISO 14990 (series) also covers electrical safety of electric-drive machines.	IEC 60204-1:2016 ISO 14990 (series)
AS/NZS 3788-2006	Pressure equipment - In-service inspection	Specifies minimum requirements for the inspection, repair and alteration of in-service boilers, pressure vessels, piping, safety equipment and associated controls, and gives guidance on the execution of such activities.	N/A
AS 3791-1991	Hydraulic hose	**Withdrawn in 2019** This standard is based on the SAE J517:1987 and is considerably out of date from the current versions of SAE standards for hydraulic hoses. Numerous international hose-related standards exist. Some of these are identified in the adjacent column.	BS 3832 BS 4586 DIN EN 856 DIN 20022 DIN 20023 ISO 1436 ISO 3862 ISO 4079 ISO 6803 ISO 6805 ISO 18752 JIS B 8360 SAE 100 (R1-R19) SAE J343 SAE J517

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AS 3868-1991	Earth-moving machinery – Design guide for access systems	**Withdrawn in 2019** Replaced by AS 5327:2019. AS 5327 is a modified adoption of ISO 2867 More information	AS 5327-2019 ISO 2867:2011
AS 3892-2001	Pressure equipment - Installation	Specifies requirements and guidance on the installation of pressure equipment (boilers, pressure vessels and pressure piping), control, and safety equipment in accordance with AS/NZS 1200 and Standards referenced therein, together with other relevant Standards. It recognizes the growing use of management systems to ensure the initial and continued safe, reliable performance of pressure plants.	ASME BPVC VIII (USA) Pressure Equipment Directive (PED) 2014/68/EU (formerly 97/23/EC (Europe) High Pressure Gas Safety Act (Japan)
AS 3920:2015	Pressure Equipment - Conformity Assessment	Specifies the minimum requirements for the assessment for conformity of boilers, pressure vessels and pressure piping, including pressure-retaining accessories, to a nominated, recognized pressure equipment Standard or Code.	ASME BPVC VIII (USA) Pressure Equipment Directive (PED) 2014/68/EU (formerly 97/23/EC (Europe) High Pressure Gas Safety Act (Japan)
AS 3990-1993	Mechanical equipment – Steelwork	This standard is intended to apply to steelwork associated with mechanical equipment such as boilers and pressure vessels, lifts, cranes, mining equipment, gas and liquid petroleum piping systems and bulk handling equipment. This standard shall not be interpreted to prevent the use of materials or of methods of design or construction not specifically referred in its content.	AISI/SAE/ASTM standards JIS standards DIN standards EN standards
AS/NZ 4024 (series)	Safety of Machinery (Series)	This is a (large) series of standards that include unique Australian standards parts and parts which are modified or direct-text adoptions of international standards. The series relates to safety of machinery in general. In many cases, an earthmoving machinery specific approach/standard exists. Where this is the case, these earthmoving machinery specific standards are likely to be a more appropriate reference due to the general nature of the AS 4024 (series).	N/A
AS/NZ 4024.1201-2014	Safety of Machinery – General principles for design – Risk assessment and risk reduction	Identical to ISO 12100:2010	ISO 12100:2010

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ASNZ 4024.1204-2019	Safety of Machinery – Electrical equipment of machines – General requirements.	Modified adoption of IEC 60204-1:2016 IEC 60204.1 needs to be read with care (general machinery electrical safety standard – some aspects do not apply to mobile earthmoving machines). Earthmoving machinery specific approach exists in terms of dealing with electrical safety of electric-drive machines such as ISO 14990 (series)	IEC 60204-1:2016 ISO 14990 series
AS/NZS 4024.1302-2019	Safety of machinery – Risk assessment – Reduction of risks to health from hazardous substances emitted by machinery – Principles and specifications for machinery manufacturers	Identical to ISO 14123-1:2015 ISO 12100 is a more appropriate machinery risk assessment standard.	ISO 14123-1:2015 ISO 12100:2010
AS/NZS 4024.1303-2014	Safety of machinery – Risk assessment – Practical guidance and examples of methods	Identical to ISO/TR 14121-2:2012 ISO 12100 is a more appropriate machinery risk assessment standard.	ISO/TR 14121-2:2012 ISO 12100:2010
AS/NZS 4024.1401-2014	Safety of machinery – Ergonomic principles – Design principles – Terminology and general principles	Identical to EN 614-1:2006+A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with operator zones of comfort and reach of controls.	EN 614-1:2006+A1 ISO 6682:1986/Amd.1:1989 AS ISO 6682:2020
AS/NZS 4024.1501-2006 (R2014)/Amdt 1-2015	Safety of machinery – Design of safety related parts of control systems – General principles for design	This is a general machinery standard. It specifies a process of developing a safety-related control system and defines integrity requirements. An earthmoving machinery specific approach exists in terms of dealing with the safety of control systems through standards such as ISO 12100, ISO 19014, ISO 13849 and other aspect-specific safety standards (e.g. braking – ISO 3450, ISO 10265, steering – ISO 5010 etc.)	ISO 12100:2010 ISO 19104 (series) ISO 13849 (series) ISO 3450:2011 ISO 10265:2008 ISO 5010:2019 Etc.)
AS/NZ 4024.1502-2006	Safety of machinery – Design of safety related parts of control systems – Validation	This is a general machinery standard. An earthmoving machinery specific approach exists in terms of dealing with the safety of control systems through standards such as ISO 12100, ISO 19014, ISO 13849 and other aspect-specific safety standards (e.g. braking – ISO 3450, ISO 10265, steering – ISO 5010 etc.)	ISO 12100:2010 ISO 19104 (series) ISO 13849 (series) ISO 3450:2011 ISO 10265:2008 ISO 5010:2019 Etc.
AS/NZ 4024.1503-2014	Safety of machinery – Safety-related parts of control systems – General principles for design	Identical to ISO 13849-1:2006	ISO 13849 (series) ISO 19014 (series)

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AS/NZ 4024.1601-2014	Safety of machinery – Design of controls, interlocks and guarding – Guards – General requirements for the design and construction of fixed and movable guards	This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with guards.	ISO 3457:2003 ISO 2860:1992
AS/NZ 4024.1602-2014	Safety of machinery – Interlocking devices associated with guards – Principles for design and selection	Identical to ISO 14119:2013 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with guarding, functional safety of control system and key-locked starting system.	ISO 14119:2013 ISO 19014 series ISO 10264:1990 AS ISO 10264:2020 ISO 3457:2003
AS/NZ 4024.1603-2019 Amd 1:2020	Safety of machinery – Design of controls, interlocks and guards – Prevention of unexpected start-up	Modified adoption of ISO 14118:2017 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with guarding, functional safety of control system and key-locked starting system.	ISO 14118:2017 ISO 19014 series ISO 10264:1990 AS ISO 10264:2020 ISO 3457:2003
AS/NZ 4024.1604-2019	Safety of machinery – Design of controls, interlocks and guarding – Emergency stop – Principles for design (ISO 13850:2017 (ED.3.0), MOD)	Adoption of ISO 13850:2017 with minor modifications.	ISO 13850:2017
AS/NZ 4024.1701-2019	Safety of machinery – Human body measurements – Basic human body measurements for technological design	Identical to ISO 7250-1:2017 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with physical dimensions of operators and minimum operator space envelope.	ISO 7250-1:2017 ISO 3411:2007
AS/NZ 4024.1702-2014	Safety of machinery – Human body measurements – Principles for determining the dimensions required for openings for whole body access into machinery	Identical to EN 547-1:1996 +A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with physical dimensions of operators, minimum operator space envelope and access system.	ISO 3411:2007 AS 5327-2019 ISO2857:2011
AS/NZ 4024.1703-2014	Safety of machinery – Human body measurements – Principles for determining the dimensions required for access openings	Identical to EN 547-2:1996 +A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with physical dimensions of operators, minimum operator space envelope and access system.	ISO 3411:2007 AS 5327-2019 ISO2857:2011

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AS/NZ 4024.1704-2014	Safety of machinery – Human body measurements – Anthropometric data	Identical to EN 547-2:1996 +A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with physical dimensions of operators, minimum operator space envelope and access system.	ISO 3411:2007 AS 5327-2019 ISO2857:2011
AS/NZ 4024.1801-2014	Safety of machinery – Safety distances to prevent danger zones being reached by upper and lower limbs	Identical to ISO 13857:2008 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with minimum gaps to prevent crushing.	ISO 13857:2008 ISO 3457:2003 ISO 2860:1992
AS 4024.1803-2019	Safety of machinery, Part 1803: Safety distances and safety gaps — Minimum gaps to prevent crushing of parts of the human body	This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with minimum gaps to prevent crushing.	ISO 3457:2003 ISO 2860:1992
AS/NZ 4024.1901-2014	Safety of machinery – Displays, controls, actuators and signals – Ergonomic requirements for the design of displays and control actuators -General principles for human interactions with displays and control actuators	Identical to EN 894-1:1997 +A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with operator zones of comfort and reach of controls.	ISO 6682:1986/Amd.1:1989 AS ISO 6682:2020
AS/NZ 4024.1902-2014	Safety of machinery – Displays, controls, actuators and signals – Ergonomic requirements for the design of displays and control actuators – Displays	Identical to EN 894-2:1997 +A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with operator zones of comfort and reach of controls.	ISO 6682:1986/Amd.1:1989 AS ISO 6682:2020
AS/NZ 4024.1903-2014	Safety of machinery – Displays, controls, actuators and signals – Ergonomic requirements for the design of displays and control actuators—Control actuators	Identical to EN 894-3:2000 +A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with operator zones of comfort and reach of controls.	ISO 6682:1986/Amd.1:1989 AS ISO 6682:2020
AS/NZ 4024.1904-2014	Safety of machinery – Displays, controls, actuators and signals – Indication, marking and actuation – Requirements for visual, auditory and tactile signals	Identical to IEC 61310-1, Ed. 2.0 (2007) This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with markings, indication and actuation for controls, actuators and signals.	ISO 6405-1:2017 ISO 6405-2:2017 ISO 3864 (series) ISO 9244:2006 ISO 10968:2020 AS ISO 9244:2020 AS ISO 10968:2021

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AS/NZ 4024.1905-2014	Safety of machinery – Displays, controls, actuators and signals – Indication, marking and actuation – Requirements for marking	Identical to IEC 61310-2, Ed. 2.0 (2007) This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with markings, indication and actuation for controls, actuators and signals.	ISO 6405-1:2017 ISO 6405-2:2017 ISO 3864 (series) ISO 9244:2006 ISO 10968:2020 AS ISO 9244:2020 AS ISO 10968:2021
AS/NZ 4024.1906-2014	Safety of machinery – Displays, controls, actuators and signals – Indication, marking and actuation – Requirements for the location and operation of actuator	Identical to IEC 61310-3, Ed. 2.0 (2007) This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with markings, indication and actuation for controls, actuators and signals.	ISO 6405-1:2017 ISO 6405-2:2017 ISO 3864 (series) ISO 9244:2006 ISO 10968:2020 AS ISO 9244:2020 AS ISO 10968:2021
AS/NZ 4024.1907-2014	Safety of machinery – Displays, controls, actuators and signals – System of auditory and visual danger and information signals	Identical to EN 981:1996 +A1 This is a general machinery standard. Earthmoving machinery specific approach exists in terms of dealing with markings, indication and actuation for controls, actuators and signals.	ISO 6405-1:2017 ISO 6405-2:2017 ISO 3864 (series) ISO 9244:2006 ISO 10968:2020 AS ISO 9244:2020 AS ISO 10968:2021
AS 4024.2501-2017	Safety of machinery – Hygiene requirements for the design of machinery	Identical to ISO 14159:2002 Ed. 1	ISO 14159:2002 Ed. 1
AS 4024.2601-2008 (R2018)	Safety of machinery – Design of controls, interlocks and guarding – Two-hand control devices – Functional aspects and design principles	Modified adoption of ISO 13851:2002	ISO 13851:2002
AS 4024.2801-2017	Safety of machinery – Positioning of safeguards with respect to the approach speeds of parts of the human body	Identical to ISO 13855:2010	ISO 13855:2010
AS 4024.2802-2017	Safety of machinery – Application of protective equipment to detect the presence of persons	Identical to IEC TS 62046:2008	IEC TS 62046:2008
AS 4024.3101-2008	Safety of machinery – Materials cutting – Milling machines (including boring machines) – Safety requirements	Modified adoption of EN 13128:2001	EN 13128:2001
AS 4024.3201-2018	Safety of machinery – Plastics and rubber machines – Blow moulding machines – Safety requirements	Identical to EN 422:2009	EN 422:2009
AS 4024.3301-2017	Safety of machinery – Robots and robotic devices – Safety requirements for industrial robots – Robots	Identical to ISO 10218-1:2011	ISO 10218-1:2011
AS 4024.3302-2017	Safety of machinery – Robots and robotic devices – Safety requirements for industrial robots – Robot systems and integration	Identical to ISO 10218-2:2011	ISO 10218-2:2011
AS 4024.3303-2017	Safety of machinery – Robots and robotic devices – Collaborative robots	Identical to ISO/TS 15066:2016	ISO/TS 15066:2016

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AS 4024.3401-2018	Safety of machinery – Safety of packaging machines – Terminology and classification of packaging machines and associated equipment	Identical to EN 415-1:2014	EN 415-1:2014
AS 4024.3403-2018	Safety of machinery – Safety of packaging machines – Form, fill and seal machines	Identical to EN 415-3:1999 +A1	EN 415-3:1999 +A1
AS 4024.3404-2018	Safety of machinery – Safety of packaging machines – Palletisers and depalletisers	Identical to EN 415-4:1997	EN 415-4:1997
AS 4024.3405-2018	Safety of machinery – Safety of packaging machines – Wrapping machines	Identical to EN 415-5:2006 +A1	EN 415-5:2006 +A1
AS 4024.3406-2018	Safety of packaging machines – Pallet wrapping machines	Identical to EN 415-6:2013	EN 415-6:2013
AS 4024.3407-2018	Safety of machinery – Safety of packaging machines – Group and secondary packaging machines	Identical to EN 415-7:2006 +A1	EN 415-7:2006 +A1
AS 4024.3408-2018	Safety of machinery – Safety of packaging machines – Strapping machines	Identical to EN 415-8:2008	EN 415-8:2008
AS 4024.3410-2018	Safety of machinery – Safety of packaging machines – General Requirements	Identical to EN 415-10:2014	EN 415-10:2014
AS 4037-1999	Pressure Equipment - Examination and testing	Specifies requirements for non-destructive examination (NDE) methods for the examination of boilers, pressure vessels, piping and their components.	ASME BPVC VIII (USA) Pressure Equipment Directive (PED) 2014/68/EU (formerly 97/23/EC (Europe) High Pressure Gas Safety Act (Japan)
AS 4041-2006	Pressure Piping	This standard makes use of current ASME standards and has been done where practicable to align with international practices to provide flexibility in design.	ASTM B31.3 BS 806 EN 13480 High Pressure Gas Safety Act (Japan)
AS 4100-2020	Steel Structures	This standard sets out minimum requirements for the design, fabrication, erection, and modification of steelwork in structures in accordance with the limit states design method. This standard shall not be interpreted to prevent the use of materials or of methods of design or construction not specifically referred in its content.	SAE series ASTM series EN series JIS series DIN series
AS 4240 (Series)	Remote control systems for mining equipment	A related international standard exists but is not identical to AS 4240 (series).	ISO 15817:2012

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AS 4242-1994	Earth-moving machinery and ancillary equipment for use in mines – Electrical wiring systems at extra-low voltage	**Superseded by AS 4871.6:2007** There is presently no dedicated electrical safety standard for earthmoving machinery. Design of low voltage electrical systems is typically a combination of internal expertise/design guides, and references (as appropriate) to broader machinery standards such as IEC 60204 (series). For electric drive machines, see ISO 14990 (series)	IEC 60204 (series) ISO 14990 (series)
AS 4343-2014	Pressure equipment – Hazard levels	This standard defines/classifies pressure vessel hazard levels.	N/A
AS 4457.1-2007	Earth-moving machinery – Off-the-road wheels, rims and tyres – Maintenance and repair – Wheel assemblies and rim assemblies	**Reinstated in 2021/Pending revision** A new project is now in progress to republish AS 4457.1. ISO 4250 (series) covers some aspects of what is covered in AS 4457.1	ISO 4250 (series)
AS 4457.2-2008	Earth-moving machinery – Off-the-road wheels, rims and tyres – Maintenance and repair – Tyres	**Pending revision/withdrawal** A new project is now in progress to republish AS 4457.2. ISO 4250 (series) covers some aspects of what is covered AS 4457.2	ISO 4250 (series)
AS 4458-1997	Pressure equipment - Manufacture	Sets out requirements for the manufacture of pressure equipment	ASME BPVC VIII (USA) Pressure Equipment Directive (PED) 2014/68/EU (formerly 97/23/EC (Europe) High Pressure Gas Safety Act (Japan)
AS 4742-2003	Earth-moving machinery – Machine-mounted forward and reverse audible warning alarm – Sound test method	**Withdrawn in 2008** Identical to ISO 9533:1989	ISO 9533:2010
AS 4772-2208	Earth-moving machinery – Quick hitches for excavators and backhoe loaders	**Pending revision/withdrawal** AS 4772-2008 is equivalent with ISO 13031-2016 but not identical.	ISO 13031:2016 NSW Position Paper for Quick Hitches (link)

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AS 4871.6-2013	Electrical equipment for mines and quarries, Part 6: Diesel powered machinery and ancillary equipment	It may not be possible to claim conformance to this standard as some aspects may not be applicable to earthmoving machines in applications other than coal mines. This standard is presently under revision for amalgamation with AS 3007. Design of low voltage electrical systems is typically a combination of internal expertise/design guides, and references (as appropriate) to broader machinery standards such as IEC 60204 (series). For electric drive machines, see ISO 14990 (series)	IEC 60204 (series) ISO 14990 (series)
AS 4988-2002	Earth-moving machinery – Hydraulic excavators – Laboratory tests and performance requirements for operator protective guards	**Withdrawn in 2008** Identical to ISO 10262:1998 More information	ISO 10262:1998
AS 4987-2002	Earth-moving machinery – Tip-over protection structure (TOPS) for compact excavators – Laboratory tests and performance requirements	**Withdrawn in 2019** Identical to ISO 12117:1997 More information	ISO 12117:1997
AS 4991-2004	Lifting Devices	Often referenced in conjunction with AS 1418. Neither of these standards are specific to earthmoving machinery. For work tools or lifting devices used in conjunction with earthmoving machinery, these are typically not intended to be used as general purpose lifting tools – only as directed by each OEM. AS 4991 or equivalent international standards may be used as reference. However, the specific nature/intended use of specific work tools may mean that it is not possible/appropriate in some cases to claim conformance to AS 4991. For lifting points fitted to earthmoving machinery, ISO 15818 is the correct standard.	ISO 15818
AS 5062-2016	Fire protection for mobile and transportable equipment	AS 5062-2016 is currently used for the design of fire protection for mobile and transportable equipment. There is work ongoing to develop an ISO earthmoving machinery specific standard.	N/A
AS 5327-2019	Earth-moving machinery – Access systems	Modified adoption of ISO 2867:2011	ISO 2867:2011
AS ISO 31000	Risk management – Principles and guidelines	This is a general risk assessment standard. ISO 12100 is a more appropriate machinery risk assessment standard.	ISO 12100:2010

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AS 60529-2004	Degrees of protection provided by enclosures (IP Code) (Reconfirmed 2018)	This standard applies to the classification of degrees of protection provided by enclosures for electrical equipment with a rated voltage not exceeding 72.5 kV. Please note that ingress protection code implementations can vary – specifics can depend on design philosophy, and so it may not be appropriate to always assume a certain component or enclosure or system should be IPXX.	IEC 60529:1989 +Amd1:1999
AS 61508 (series)	Functional safety of electrical/electronic/programmable electronic safety-related systems (Series)	Identical/Modified adoptions of the IEC 61508 series. ISO 19014 series is a functional safety standard that is designed and applicable to earthmoving machinery as opposed to AS/NZ 4024.1503, AS61508.1, AS62061 and AS4024.1502. More information	ISO 13849 (series) ISO 19014 (series)
AS/NZS 62061-2019	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems	Modified adoption of IEC 62061:2005 (including corrections and amendments). ISO 19014 series is a functional safety standard that is designed and applicable to earthmoving machinery as opposed to AS/NZ 4024.1503, AS61508.1, AS62061 and AS4024.1502. More information	ISO 13849 (series) ISO 19014 (series)
NTC Load Restraint Guide 2018	National Transport Commission (NTC) Load Restraint Guide 2018[1]	Covers general guidance for load restraint during road transportation. Note that earthmoving machinery lifting and tie down requirements are identified in ISO 15818.	ISO 15818:2017
ADR	Australian Design Rules[2]	These are (automotive) vehicle standards and not intended to be applied to earthmoving machinery. Earthmoving machinery will typically not conform to many of these requirements which are for road vehicle registration/approval in Australia. Earthmoving machinery typically operate on Australian roads as a special purpose vehicle or under an appropriate exemption or permit.	N/A

[1] The NTC Load Restraint Guide is publicly available at the following link - https://www.ntc.gov.au/codes-and-guidelines/load-restraint-guide
[2] Australian Design Rules are publicly available at the following link - https://www.infrastructure.gov.au/vehicles/design/

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ADR 3 ADR 4 ADR 5	Vehicle Standard (Australian Design Rule 3 — Seats and Seat Anchorages) Vehicle Standard (Australian Design Rule 4 — Seatbelts) Vehicle Standard (Australian Design Rule 5 — Anchorages for Seatbelts)	These are often referenced for earthmoving machinery seats and seatbelts, often in conjunction with references to AS/NZS 2596-2003. Note that these are (automotive) vehicle standards and not intended to be applied to earthmoving machinery. ISO 6683 is the related earthmoving machinery standard. More information	ISO 6683:2005
ADR 62	Vehicle Standard (Australian Design Rule 62 – Mechanical Connections Between Vehicles)	ADR62 is often referenced as a towing standard for earthmoving machinery. Unless specified, earthmoving machinery is typically not intended for towing. Machines may be provided with a machine mounted retrieval point which conforms to ISO 10532, however this is typically not intended for general purpose towing applications.	ISO 10532
NHVR Vehicle Standards Guides	National Heavy Vehicle Regulator Vehicle Standards Guides[3]	These are (automotive) heavy vehicle standards and not intended to be applied to earthmoving machinery. Earthmoving machinery will typically not conform to many of these requirements which are for heavy road vehicle registration/approval in Australia. Earthmoving machinery typically operate on Australian roads as a special purpose vehicle or under an appropriate exemption or permit.	N/A
NSW MDG 15	Mining Design Guideline 15 – Mobile and transportable plant for use on mines and petroleum sites	This guideline is not intended to be a mandatory compliance document but to highlight areas subject to past incidents and risks and identify possible risks controls for consideration. Risk assessment methods need to be used to assess the particular risks in the operating environment and determine the appropriate risk controls. A number of ISO/AS standards have been referenced in this guideline for consideration. All the standards listed in 'Table 2 – ISO standards commonly applied to Earthmoving Machinery', where applicable, can be used to meet most of the requirements in MDG15. The intent of these standards is to eliminate if not reduce the risks through prescriptive requirements/criteria as safety control measures which is aligned with MDG15.	Table 2 – ISO standards commonly applied to Earthmoving Machinery (where applicable)

[3] NHVR Standards Guides are publicly available at the following link - https://www.nhvr.gov.au/safety-accreditation-compliance/vehicle-standards-and-modifications/vehicle-standards-guides

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NSW MDG 41	Mining Design Guideline 41 – Fluid Power safety Systems at Mines	This guideline is not intended to be a mandatory compliance document but to highlight risks and potential risk controls for consideration. Risk assessment methods need to be used to assess the particular risks in the operating environment and applicable risk controls. OEM's have developed hydraulic and pneumatic practices unique to their machine and application. These practices will often refer to ISO 4414, ISO 4413 which are aligned with NSW MDG41.	ISO 4414:2010 ISO 4413:2010
QGN02-2019	Queensland Guidance Note 02 – Isolation of plant	Provides guidance on how to prevent the uncontrolled release of hazardous energy by ensuring effective isolation systems are developed and implemented that protect workers from the hazardous energy sources so the risk is at an acceptable level and for taking [fixed] plant out of service. For mobile plant, see AS 5368 -Electrical equipment in mines and quarries (publishing soon) and specific guidance from the equipment manufacturer.	N/A
QGN26	Queensland Guidance Note 26 - Electric propulsion systems used in self-powered earth moving machinery	Provide practical guidance for safe electrical design and maintenance of electrical propulsion systems used in self-powered earth moving machinery. It covers electrical hazards, and associated safety requirements, with the use of systems in self-powered diesel-electric earth moving machine. AS14990 and ISO 14990 (series) cover electrical safety of electric-drive machines.	ISO 14990 series AS 14990 series
QGN33	Queensland Guidance Note 33 - Autonomous mobile machinery & vehicle introduction & their use in coal mining	Provide guidance on design, planning, change management, implementation and safe operation systems for mobile autonomous and semi-autonomous systems used in surface and underground coal mines. AS17757 and ISO17757 specify safety criteria both for the machines and their associated systems and infrastructure, including hardware and software, and provides guidance on safe use in their defined functional environments during the machine and system life cycle.	ISO 17757:2019 AS 17757:2020

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QLD RS20-2019	Queensland Recognised Standard 20 - Dust control in surface mines	See CMEIG advisory notice on Operator Enclosure Environments for Earthmoving Machinery at the following link	ISO 10263 series
QLD RS23-2021	Queensland Recognised Standard 23 - Fluid Power Safety in Coal Mines	This is a Queensland adaptation of the pre-existing NSW MDG41 for fluid power safety systems. OEM's have developed hydraulic and pneumatic practices unique to their machine and application. These practices will often refer to ISO 4414 which is aligned with QLD RS 23. See CMEIG advisory guidance - link	ISO 4414:2010 ISO 4413:2010

Table 2 – ISO standards commonly applied to Earthmoving Machinery[4]

DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Safety of machinery - General principles for design - Risk assessment and risk reduction	ISO 12100:2010	AS 4024.1201	Identical
Earth-moving machinery - Minimum access dimensions	ISO 2860:1992	AS ISO 2860:2020	Identical
Earth-moving machinery - Access systems	ISO 2867:2011	AS5327:2019	Modified – Appendix ZZ of AS5327 refers to all modifications required for Australian conditions.
Earth-moving machinery - Laboratory evaluations of protective structures - Specifications for deflection-limiting volume	ISO 3164:2013	AS ISO 3164:2020	Identical
Earth-moving machinery - Physical dimensions of operators and minimum operator space envelope	ISO 3411:2007	AS ISO 3411:2020	Identical
Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements	ISO 3449:2005	AS ISO 3449:2020	Identical

[4] Always consult your original equipment manufacturer or supplier to understand what standards may apply or have been considered. This list is not intended as a comprehensive list of standards for conformance – many of these standards may have been referred to, but conformance is not claimed. Some of the standards listed herein are in development or under revision. Standards are also updated from time to time – as such, no dates are shown.

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery - Wheeled or high-speed rubber-tracked machines - Performance requirements and test procedures for brake systems	ISO 3450:2011	AS 3450:2021	Modified - Appendix ZZ of AS3450 lists the normative variations to ISO3450:2011 particularly on requirements for 'in-service brake testing'.
Earth-moving machinery - Guards - Definitions and requirements	ISO 3457:2003	AS 3457	Modified – Appendix ZZ of AS 3457 refers to all modifications required for Australian conditions.
Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements	ISO 3471:2008	AS ISO 3471:2020	Identical
Road vehicles, and tractors and machinery for agriculture and forestry - Determination of burning behaviour of interior materials	ISO 3795:1989		This standard is widely used on various vehicles and machinery. It is widely used in Australia. However, there is no Australian adoption planned at present.
Earth-mover tyres and rims - Part 1: Tyre designation and dimensions	ISO 4250-1:2017		See AS 4457 series
Earth-mover tyres and rims - Part 2: Loads and inflation pressures	ISO 4250-2:2017		See AS 4457 series
Earth-mover tyres and rims - Part 3: Rims	ISO 4250-3:2020		See AS 4457 series
Earth-moving machinery - Service tools - Part 1: Common maintenance and adjustment tools	ISO 4510-1:1987	AS ISO 4510-1:2021	Identical
Earth-moving machinery - Service tools - Part 2: Mechanical pullers and pushers	ISO 4510-2:1996	AS ISO 4510-2:2021	Identical
Earth-moving machinery - Method for locating the centre of gravity	ISO 5005:1977	AS ISO 5005:2021	Identical
Earth-moving machinery - Operator's field of view- Test method and performance criteria	ISO 5006:2017	AS ISO 5006:2020	Identical
Earth-moving machinery - Wheeled machines - Steering requirements	ISO 5010:2019	AS 5364:2021	Modified - The reference to ISO2867:2011 is replaced with AS 5327
Earth-moving machinery, and tractors and machinery for agriculture and forestry - Seat index point	ISO 5353:1995	AS ISO 5353:2020	Identical
Earth-moving machinery - Visual display of machine operation	ISO 6011:2003	AS ISO 6011:2023	Identical
Earth-moving machinery - Service instrumentation	ISO 6012:1997	AS ISO 6012:2021	Identical
Earth-moving machinery - Determination of ground speed	ISO 6014:1986	AS ISO 6014:2021	Identical
Earth-moving machinery - Hydraulic excavators and backhoe loaders - Methods of determining tool forces	ISO 6015:2006	AS ISO 6015:2021	Identical
Earth-moving machinery - Methods of measuring the masses of whole machines, their equipment and components	ISO 6016:2008	AS ISO 6016:2020	Identical

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery - Basic types - Identification and terms and definitions	ISO 6165:2012	AS ISO 6165:2023	Identical
Earth-moving machinery - Drain, fill and level plugs	ISO 6302:1993	AS ISO 6302:2021	Identical
Earth-moving machinery - Lubrication fittings - Part 1: Nipple type	ISO 6392-1:1996	AS ISO 6392-1:2021	Identical
Earth-moving machinery - Lubrication fittings - Part 2: Grease-gun nozzles	ISO 6392-2:1996	AS ISO 6392-2:2021	Identical
Earth-moving machinery - Determination of sound power level - Stationary test conditions	ISO 6393:2008	AS ISO 6393:2019	Identical
Earth-moving machinery - Determination of emission sound pressure level at operator's position - Stationary test conditions	ISO 6394:2008	AS/NZS ISO 6394:2019	Identical
Earth-moving machinery - Determination of sound power level - Dynamic test conditions	ISO 6395:2008	AS ISO 6395:2020	Identical
Earth-moving machinery - Determination of emission sound pressure level at operator's position - Dynamic test conditions	ISO 6396:2008/Cor.1:2009	AS ISO 6396:2020	Identical
Earth-moving machinery - Symbols for operator controls and other displays- Part 1: Common symbols	ISO 6405-1:2017	AS ISO 6405.1:2023	Identical
Earth-moving machinery - Symbols for operator controls and other displays- Part 2: Symbols for specific machines, equipment and accessories	ISO 6405-2:2017	AS ISO 6405.2:2023	Identical
Earth-moving machinery - Dumper bodies - Volumetric rating	ISO 6483:1980/Cor 1:1994	AS ISO 6483:2021	Identical
Earth-moving machinery - Elevating scrapers - Volumetric ratings	ISO 6484:1986	AS ISO 6484:2021	Identical
Earth-moving machinery - Tractor-scraper - Volumetric rating	ISO 6485:1980	AS ISO 6485:2021	Identical
Earth-moving machinery - Zones of comfort and reach for controls	ISO 6682:1986/Amd.1:1989	AS ISO 6682:2020	Identical
Earth-moving machinery - Seat belts and seat belt anchorages - Performance requirements and tests	ISO 6683:2005	AS ISO 6683:2023	Identical
Earth-moving machinery - Definitions of dimensions and codes - Part 1: Base machine	ISO 6746-1:2003	AS ISO 6746.1:2021	Identical
Earth-moving machinery - Definitions of dimensions and codes - Part 2: Equipment and attachments	ISO 6746-2:2003	AS ISO 6746.2:2021	Identical
Earth-moving machinery - Dozers- Terminology and commercial specifications	ISO 6747:2013	AS ISO 6747:2021	Identical
Earth-moving machinery - Preservation and storage	ISO 6749:1984	AS ISO 6749:2021	Identical
Earth-moving machinery - Operator's manual - Part 1: Contents and format	ISO 6750-1:2019	AS ISO 6750.1:2020	Identical
Earth-moving machinery - Operator's manual - Part 2: List of references	ISO/TR 6750-2:2022	SA TR ISO 6750.2:2023	Identical
Earth-moving machinery - Laboratory evaluation of operator seat vibration	ISO 7096:2020	AS ISO 7096:2021	Identical
Earth-moving machinery - Cutting edges used on tractor-dozers, graders and scrapers - Principal shapes and basic dimensions	ISO 7129:1997	AS ISO 7129:2021	Identical

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery - Operator training - Content and methods	ISO 7130:2013	AS ISO 7130:2021	Identical
Earth-moving machinery - Loaders - Terminology and commercial specifications	ISO 7131:2009	AS ISO 7131:2021	Identical
Earth-moving machinery - Dumpers - Terminology and commercial specifications	ISO 7132:2003	AS ISO 7132:2021	Identical
Earth-moving machinery - Scrapers - Terminology and commercial specifications	ISO 7133:2013	AS ISO 7133:2021	Identical
Earth-moving machinery - Graders - Terminology and commercial specifications	ISO 7134:2013	AS ISO 7134:2021	Identical
Earth-moving machinery - Hydraulic excavators - Terminology and commercial specifications	ISO 7135:2009	AS ISO 7135:2021	Identical
Earth-moving machinery - Pipelayers - Terminology and commercial specifications	ISO 7136:2006	AS ISO 7136:2021	Identical
Earth-moving machinery - Volumetric ratings for hoe-type and grab-type buckets of hydraulic excavators and backhoe loaders	ISO 7451:2007	AS ISO 7451:2021	Identical
Earth-moving machinery - Determination of turning dimensions of wheeled machines	ISO 7457:1997	AS ISO 7457:2021	Identical
Earth-moving machinery - Method of test for the measurement of drawbar pull	ISO 7464:1983	AS ISO 7464:2021	Identical
Earth-moving machinery - Loader and front loading excavator buckets - Volumetric ratings	ISO 7546:1983	AS ISO 7546:2021	Identical
Earth-moving machinery - Plough bolt heads - Shapes and dimensions (excluding thread dimensions)	ISO 7852:1983	AS ISO 7852:2021	Identical
Self-propelled machinery for forestry - Laboratory tests and performance requirements for roll-over protective structures - Part 1: General machines	ISO 8082-1:2009		See CMEIG advisory notice on Operator Protective Structures on Earthmoving Machinery at the following link
Self-propelled machinery for forestry - Laboratory tests and performance requirements for roll-over protective structures - Part 2: Machines having a rotating platform with a cab and boom on the platform	ISO 8082-2:2011		
Machinery for forestry - Falling-object protective structures (FOPS) - Laboratory tests and performance requirements	ISO 8083:2006		
Machinery for forestry - Operator protective structures - Laboratory tests and performance requirements	ISO 8084:2003		
Earth-moving machinery - Operation and maintenance - Training of mechanics	ISO 8152:1984	AS ISO 8152:2023	Identical
Earth-moving machinery - Hydraulic excavator and backhoe loader lowering control device- Requirements and tests	ISO 8643:2017	AS ISO 8643:2020	Identical
Earth-moving machinery - Rollers and compactors - Terminology and commercial specifications	ISO 8811:2000	AS ISO 8811:2021	Identical
Earth-moving machinery - Backhoe loaders- Terminology and commercial specifications	ISO 8812:2016	AS ISO 8812:2021	Identical
Earth-moving machinery - Lift capacity of pipelayers and wheeled tractors or loaders equipped with side boom	ISO 8813:1992	AS ISO 8813:2021	Identical

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery - Diagnostic ports	ISO 8925:1989	AS ISO 8925:2021	Identical
Earth-moving machinery - Machine availability - Vocabulary	ISO 8927:1991	AS ISO 8927:2021	Identical
Earth-moving machinery - Machine safety labels - General principles	ISO 9244:2008/Amd.1:2016	AS ISO 9244:2020	Identical
Earth-moving machinery - Machine productivity - Vocabulary, symbols and units	ISO 9245:1991	AS ISO 9245:2021	Identical
Earth-moving machinery - Crawler and wheel tractor dozer blades - Volumetric ratings	ISO 9246:1988	AS ISO 9246:2021	Identical
Earth-moving machinery - Electrical wires and cables - Principles of identification and marking	ISO 9247:1990	AS ISO 9247:2021	Identical
Earth-moving machinery - Units for dimensions, performance and capacities, and their measurement accuracies	ISO 9248:1992	AS ISO 9248:2021	Identical
Earth-moving machinery - Engine test code - Net power	ISO 9249:2007	AS ISO 9249:2021	Identical
Earth-moving machinery - Multilingual listing of equivalent terms - Part 1: General	ISO/TS 9250-1:2012	SA TS ISO 9250.1:2021	Identical
Earth-moving machinery - Multilingual listing of equivalent terms - Part 2: Performance and dimensions	ISO/TS 9250-2:2012	SA TS ISO 9250.2:2021	identical
Earth-moving machinery - Machine-mounted audible travel alarms and forward horns - Test methods and performance criteria	ISO 9533:2010	AS ISO 9533:2020	Identical
Earth-moving machinery - Product identification numbering system	ISO 10261:2002	AS ISO 10261:2021	Identical
Earth-moving machinery - Hydraulic excavators - Laboratory tests and performance requirements for operator protective guards	ISO 10262:1998	AS ISO 10262:2020	Identical
Earth-moving machinery - Operator enclosure environment - Part 1: Terms and definitions	ISO 10263-1:2009	AS ISO 10263-1:2021	Identical
Earth-moving machinery - Operator enclosure environment - Part 2: Air filter element test method	ISO 10263-2:2009	AS ISO 10263-2:2021	Identical
Earth-moving machinery - Operator enclosure environment - Part 3: Pressurization test method	ISO 10263-3:2009	AS ISO 10263-3:2021	Identical
Earth-moving machinery - Operator enclosure environment - Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance	ISO 10263-4:2009	AS ISO 10263-4:2021	Identical
Earth-moving machinery - Operator enclosure environment - Part 5: Windscreen defrosting system test method	ISO 10263-5:2009	AS ISO 10263-5:2021	Identical
Earth-moving machinery - Operator enclosure environment - Part 6: Determination of effect of solar heating	ISO 10263-6:2009	AS ISO 10263-6:2021	Identical
Earth-moving machinery - Key-locked starting systems	ISO 10264:1990	AS ISO 10264:2021	Identical
Earth-moving machinery - Crawler machines - Performance requirements and test procedures for braking systems	ISO 10265:2008	AS ISO 10265:2020	Identical

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery - Determination of slope limits for machine fluid systems operation - Static test method	ISO 10266:1992	AS ISO 10266:2021	Identical
Earth-moving machinery - Retarders for dumpers and tractor-scrapers - Performance tests	ISO 10268:1993	AS ISO 10268:2021	Identical
Earth-moving machinery - Machine-mounted retrieval device - Performance requirements	ISO 10532:1995/Amd 1:2004/Cor 1:2006	AS ISO 10532:2021	Identical
Earth-moving machinery - Lift-arm support devices	ISO 10533:1993/Amd.1:2005	AS ISO 10533:2021	Identical
Earth-moving machinery - Hydraulic excavators - Lift capacity	ISO 10567:2007	AS 10567:2024	Modified – Key changes related to clarification that lifting points cannot be iffted on buckets of excavators.
Earth-moving machinery - Articulated frame lock - Performance requirements	ISO 10570:2004	AS ISO 10570:2021	Identical
Earth-moving machinery - Operator's controls	ISO 10968:2020	AS ISO 10968:2021	Identical
Earth-moving machinery – Sustainability - Terminology, sustainability factors and reporting	ISO 10987:2012	AS ISO 10987:2012	Identical
Earth-moving machinery – Sustainability - Part 2: Remanufacturing	ISO 10987-2:2017	AS ISO 10987.2:2021	Identical
Earth-moving machinery – Sustainability - Part 3: Used machines	ISO 10987-3:2017	AS ISO 10987.3:2021	Identical
Earth-moving machinery - Operator's seat - Dimensions and requirements including	ISO 11112:1995 including Amd.1:2001	AS ISO 11112:2021	Identical
Earth-moving machinery - Auxiliary starting aid electrical connector	ISO 11862:1993	AS ISO 11862:2021	Identical
Earth-moving machinery - Tip-over protection structure (TOPS) for compact excavators - Laboratory tests and performance requirements	ISO 12117:1997 including Cor.1:2000	AS ISO 12117:2020	Identical
Earth-moving machinery - Laboratory tests and performance requirements for protective structures of excavators - Part 2: Roll-over protective structures (ROPS) for excavators of over 6 t	ISO 12117-2:2008 up to and including Amd.1:2016	AS ISO 12117.2:2020	Identical
Earth-moving machinery - Operator station and maintenance areas - Bluntness of edges	ISO 12508:1994	AS ISO 12508:2021	Modified adoption – added reference to AS5327 Access systems
Earth-moving machinery - Lighting, signalling and marking lights, and reflex-reflector devices	ISO 12509:2004	AS ISO 12509:2023	Identical
Earth-moving machinery - Operation and maintenance - Maintainability guidelines	ISO 12510:2004	AS ISO 12510:2021	Identical
Earth-moving machinery - Hour meters	ISO 12511:1997	AS ISO 12511:2023	Identical

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery - Quick couplers - Safety	ISO 13031:2016	AS 13031	Modified – aligns ISO 13031 content with that from Safework NSW Quick Hitch position paper, as well as preceding guidance on lifting with earthmoving machines that is provided by SafeWork Australia.
Earth-moving machinery - Dumper body support and operator's cab tilt support devices	ISO 13333:1994	AS ISO 13333:2021	Identical
Earth-moving machinery - Trainer seat - Deflection limiting volume, space envelope and performance requirements	ISO 13459:2012	AS ISO 13459:2021	Modified adoption – The reference to ISO2867:2011 is replaced by AS5327:2022.
Earth-moving machinery - Trenchers - Definitions and commercial specifications	ISO 13539:1998	AS ISO 13539:2021	Identical
Earth-moving and building construction machinery - Electromagnetic compatibility (EMC) of machines with internal electrical power supply - Part 1: General EMC requirements under typical electromagnetic environmental conditions	ISO 13766-1:2018	AS ISO 13766.1:2020	Identical
Earth-moving and building construction machinery - Electromagnetic compatibility (EMC) of machines with internal electrical power supply - Part 2: Additional EMC requirements for functional safety	ISO 13766-2:2018	AS ISO 13766.2:2020	Identical
Safety of Machinery - Emergency Stop Function - Principles For Design	ISO 13850:2015	AS 4024.1604	Modified - The references to ISO4413:1998, ISO4414:1998 and IEC6024-1:2005 are replaced with AS2671:2002, AS2788:2002 and AS/NZS4024.1204:2019 respectively.
Earth-moving machinery - Loaders and backhoe loaders - Part 1: Calculation of rated operating capacity and test method for verifying calculated tipping load	ISO 14397-1:2007	AS ISO 14397-1:2021	Identical
Earth-moving machinery - Loaders and backhoe loaders - Part 2: Test method for measuring breakout forces and lift capacity to maximum lift height	ISO 14397-2:2007	AS ISO 14397-2:2021	Identical
Earth-moving machinery - Field of vision of surveillance and rear-view mirrors - Part 1: Test methods	ISO 14401-1:2009	AS ISO 14401.1:2021	Identical
Earth-moving machinery - Field of vision of surveillance and rear-view mirrors - Part 2: Performance criteria	ISO 14401-2:2009	AS ISO 14401.2:2021	Identical
Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 1: General requirements	ISO 14990-1:2016	AS 14990-1:2022	Modified adoption
Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 2: Particular requirements for externally-powered machines	ISO 14990-2:2016	AS ISO 14990-2:2021	Identical

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 3: Particular requirements for self-powered machines	ISO 14990-3:2016	AS ISO 14990-3:2021	Identical
Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 1: System architecture	ISO 15143-1:2010	AS ISO 15143.1:2020	Identical
Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 2: Data dictionary	ISO 15143-2:2010	AS ISO 15143.2:2020	Identical
Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 3: Telematics data	ISO/TS 15143-3:2016		AS/TS 15143-3 is currently in development
Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 4: Worksite topographical data	ISO/WD 15143-4		ISO/WD 15143-4 is currently in development
Earth-moving machinery - Cable excavators - Terminology and commercial specifications	ISO 15219:2004	AS ISO 15219:2021	Identical
Earth-moving machinery - Safety requirements for remote operator control systems	ISO 15817:2012	AS 15817:2023	Modified adoption
Earth-moving machinery - Lifting and tying-down attachment points- Performance requirements	ISO 15818:2017	AS 15818:2020	Modified – The reference ISO2867:2011 is replaced with AS5327 Access System
Earth-moving machinery - Machine-control systems (MCS) using electronic components - Performance criteria and tests for functional safety	ISO 15998:2008		Revised by ISO 19014 series
Earth-moving machinery - Machine control systems (MCS) using electronic components - Part 2: Use and application of ISO 15998	ISO/TS 15998-2		Revised by ISO 19014 series
Earth-moving machinery - Object detection systems and visibility aids - Performance requirements and tests	ISO 16001:2017	AS ISO 16001:2020	Identical
Earth-moving machinery - Hydraulic Breakers - Terminology and commercial specifications	ISO 16417:2020	AS ISO 16417:2021	Identical
Earth-moving machinery - Recyclability and recoverability - Terminology and calculation method	ISO 16714:2008	AS ISO 16714:2021	Identical
Earth-moving machinery - Determination of average ground contact pressure for crawler machines	ISO 16754:2008	AS ISO 16754:2021	Identical
Earth-moving machinery - Braking systems of pedestrian-controlled machines - Performance requirements and test procedures	ISO 17063:2003	AS ISO 17063:2021	Identical
Earth-moving machinery and rough-terrain variable-reach trucks- Design requirements for machines intended to be driven on road	ISO 17253:2014	AS 17253:2021	Modified – The reference ISO 10896-1:2012, Rough-terrain trucks — Safety requirements and verification — Part 1: Variable-reach trucks" is replaced with AS 10896.1:2019, Rough-terrain trucks — Safety requirements and verification, Part 1: Variable-reach trucks (ISO 10896-1:2012, MOD)

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery and mining- Autonomous and semi-autonomous machine system safety	ISO 17757:2019	AS 17757:2020	Modified – The reference ISO2867:2011 is replaced with AS5327 Access System
Earth-moving machinery - Functional safety - Part 1: Methodology to determine safety-related parts of the control system and performance requirements	ISO 19014-1:2018	AS ISO 19014.1:2020	Identical
Earth-moving machinery - Functional safety - Part 2: Design and evaluation of hardware and architecture requirements for safety-related parts of the control system	ISO 19014-2	AS ISO 19014.2:2023	Identical
Earth-moving machinery - Functional safety - Part 3: Environmental performance and test requirements of electronic and electrical components used in safety-related parts of the control system	ISO 19014-3:2018	AS ISO 19014.3:2020	Identical
Earth-moving machinery - Functional safety - Part 4: Design and evaluation of software and data transmission for safety-related parts of the control system	ISO 19014-4:2020	AS ISO 19014-4:2021	Identical
Earth-moving machinery - Functional safety - Part 5: Tables of performance levels	ISO/TS 19014-5	SA TS ISO 19014.5:2023	Identical
Earth-moving machinery - Mining - Mobile Machines Working Underground – Machine safety	ISO 19296:2018		AS ISO 19296 is currently in process
Earth-moving machinery - Conformity assessment and certification process	ISO/TR 19948:2016		
Earth-moving machinery – Safety - Part 1: General requirements	ISO 20474-1:2017	AS 20474.1	Modified to address Australian conditions and requirements
Earth-moving machinery – Safety - Part 2: Requirements for dozers	ISO 20474-2:2017	AS 20474.2	Identical
Earth-moving machinery – Safety - Part 3: Requirements for loaders	ISO 20474-3:2017	AS 20474.3	Identical
Earth-moving machinery – Safety - Part 4: Requirements for backhoe loaders	ISO 20474-4:2017	AS 20474.4	Identical
Earth-moving machinery – Safety - Part 5: Requirements for hydraulic excavators	ISO 20474-5:2017	AS 20474.5	Identical
Earth-moving machinery – Safety - Part 6: Requirements for dumpers	ISO 20474-6:2017	AS 20474.6	Identical
Earth-moving machinery – Safety - Part 7: Requirements for scrapers	ISO 20474-7:2017	AS 20474.7	Identical
Earth-moving machinery – Safety - Part 8: Requirements for graders	ISO 20474-8:2017	AS 20474.8	Identical
Earth-moving machinery – Safety - Part 9: Requirements for pipelayers	ISO 20474-9:2017	AS 20474.9	Identical
Earth-moving machinery – Safety - Part 10: Requirements for trenchers	ISO 20474-10:2017	AS 20474.10	Identical
Earth-moving machinery – Safety - Part 11: Requirements for landfill compactors	ISO 20474-11:2017	AS 20474.11	Identical
Earth-moving machinery – Safety - Part 12: Requirements for cable excavators	ISO 20474-12:2017	AS 20474.12	Identical
Earth-moving machinery – Safety - Part 13: Requirements for rollers	ISO 20474-13:2017	AS 20474.13	Identical
Earth-moving machinery - Safety - Part 14: Information on national and regional provisions	ISO/TS 20474-14:2008	N/A	Withdrawn

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DESCRIPTION	DESIGNATION	AUSTRALIAN ADOPTION/ DESIGNATION	ASSOCIATED COMMENTARY (e.g. Identical/modified/details of modifications)
Earth-moving machinery – Safety - Part 15: Requirements for compact tool carriers	ISO 20474-15:2019	AS 20474.15	Identical
Earth-moving machinery - Horizontal directional drills - Terminology and specifications	ISO 21467:2004		
Earth-moving machinery - Performance requirements for non-metallic fuel tanks	ISO 21507:2010	AS ISO 21507:2021	Identical
Earth-moving machinery - Collision warning and avoidance - Part 1: Part 1: General requirements	ISO/DIS 21815-1:2022	AS 21815.1:2023	Modified adoption
Earth-moving machinery - Collision warning and avoidance - Part 2: Part 2: On-board J1939 communication interface	ISO/TS 21815-2:2021	SA TS ISO 21815.2:2023	Identical
Earth-moving machinery - Collision warning and avoidance - Part 3: General risk area and risk level	ISO 21815-3		ISO 21815-3 is currently in development
Earth-moving machinery - Anti-theft systems - Classification and performance	ISO 22448:2010	AS ISO 22448:2021	Identical
Earth-moving machinery - Wheeled loader coupler for attachments	ISO 23727:2009	AS ISO 23727:2021	Identical
Earth-moving machinery - Onboard High speed communication interface	ISO 23870		ISO 23870 is currently in development
Mining — Air quality control systems for operator enclosures — Performance requirements and test methods	ISO 23875:2021		AS ISO 23875 is currently in development
Earth-moving machinery - Coupling of attachments to skid steer loaders	ISO 24410:2020	AS ISO 24410:2021	Identical
Earth-moving machinery - Guidelines for assessment of exposure to whole-body vibration of ride-on machines - Use of harmonized data measured by international institutes, organizations and manufacturers	ISO/TR 25398:2006	SA TR ISO 25398:2023	Identical

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Table 3 – Relevant electrical safety standards and guidance applied to Electrified Earthmoving Machinery (ie. diesel electric hybrid and fully battery electric machines).
Note: Some of the standards below may be already listed in Table 1 and Table 2 as they apply to both conventional diesel engine powered machines and emergent technologies.
NOTE: Always consult your original equipment manufacturer or supplier to understand what standards may apply or have been considered. This list is not intended as a comprehensive list of standards for conformance – many of these standards may have been referred to, but conformance is not claimed. Some of the standards listed herein are in development or under revision. Standards are also updated from time to time.

COMMONLY REFERENCED AUSTRALIAN STANDARDS OR GUIDANCE		OTHER RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION	
AS 2067	Substations and high voltage installations exceeding 1 kV a.c	
AS/NZS 3000	Electrical installations (Wiring Rules)	
AS 5368	Electrical Equipment in Mines and Quarries	
AS/NZS 4836	Safe working on or near low-voltage and extra-low voltage electrical installations and equipment	
ASNZ 4024.1204	Safety of Machinery – Electrical equipment of machines – General requirements.	IEC 60204-1:2016 ISO 14990 series
AS 61508 (series)	Functional safety of electrical/electronic/programmable electronic safety-related systems (Series)	ISO 13849 (series) ISO 19014 (series)
AS/NZS 6206	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems	ISO 13849 (series) ISO 19014 (series)
AS 14990-1	Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 1: General requirements	ISO 14990-1:2016
AS ISO 14990-2	Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 2: Particular requirements for externally-powered machines	ISO 14990-2:2016
AS ISO 14990-3	Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 3: Particular requirements for self-powered machines	ISO 14990-3:2016
AS 20474 (series)	Earth-moving machinery - Safety	ISO 20474 (series)
ISO/NWIP 14990-4	Earth-moving machinery — Electrical safety of machines utilizing electric drives and related components and systems — Part 4: Arc Flash	
AS ISO 19014 (series)	Earth-moving machinery – Functional Safety	ISO 19014 (series)
AS 17757	Earth – moving machinery – Autonomous machine safety	ISO 17757

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COMMONLY REFERENCED AUSTRALIAN STANDARDS OR GUIDANCE		OTHER RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	**DESCRIPTION**	
IEC 61851 series	Electric vehicle conductive charging system	
IEEE 1584-2018	Guide for Performing Arc-Flash Hazard Calculations	
EESS – Electrical Equipment Safety Scheme	The Electrical Equipment Safety System (EESS) is a regulatory framework aimed at increasing consumer safety in household electrical equipment throughout participating jurisdictions in Australia and New Zealand.	
Battery Storage System Guidance	Industry Associations: Battery Safety Guide – Battery Safety Guide QLD: Battery energy storage systems | Electrical Safety Office Battery energy storage systems (BESS) | WorkSafe.qld.gov.au WA: Battery Energy Storage Systems (BESS) | Department of Energy, Mines, Industry Regulation and Safety Battery Energy Storage Systems, A guide for Electrical Contractors	
Electrical Arc Flash Hazard Management Guidelines	Australian Energy Council (AEC): eafhm_guideline_30_25-03-2019_web.pdf VIC: Energy Safe Victoria – Guideline_ArcFlashHazardManagement_July2022.pdf QLD: Electrical arc flash | WorkSafe.qld.gov.au Managing electrical risks in the workplace Code of Practice 2021 WA: DMIRS Safety management of electrical arc flash hazards – information sheet NSW: Dangers of working on or near energised (live) electrical equipment safety alert | SafeWork NSW	
ISO/DTR 5757	Earth-moving machinery - Vocabulary and information for machines utilizing electric rechargeable energy storage systems (RESS)	
ISO 15118 series	Road vehicles -- Vehicle to grid communication interface.	
NFPA 70E (NFPA – National Fire Protection Association)	Standard for Electrical Safety in the Workplace	

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COMMONLY REFERENCED AUSTRALIAN STANDARDS OR GUIDANCE		OTHER RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	**DESCRIPTION**	
ACMA Radiofrequency Emission or Radiation (ACMA – Australian Communications and Media Authority)	Technical standards | ACMA The General Equipment Rules | ACMA	