



ADVISORY NOTICE

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AUSTRALIAN AND INTERNATIONAL STANDARDS FOR EARTHMOVING MACHINERY

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.
- 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.

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

COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION		
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
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

COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION		
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/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

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DESIGNATION	DESCRIPTION		
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 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
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

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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 2664-1983	Earthmoving machinery - Seat belts and seat belt anchorages	Withdrawn in 2008 Based on ISO 6683:1981 More information	ISO 6683:2005
AS 2868-1986	Classification of machinery for earthmoving, construction, surface mining and agricultural purposes	Withdrawn in 2008	N/A
AS 2670.1	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

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DESIGNATION	DESCRIPTION		
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
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

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DESIGNATION	DESCRIPTION		
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	ISO 7451:2007
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
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

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DESIGNATION	DESCRIPTION		
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
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

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DESIGNATION	DESCRIPTION		
AS 3000-2018	Electrical installations (Wiring Rules)	<p>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.</p> <p>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.</p>	IEC 60204-1:2016 ISO 14990 (series)
AS 3007-2013	Electrical equipment in mines and quarries - Surface installations and associated processing plant	<p>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.</p> <p>Note that in the scope of AS 3007:2013, it states: <i>“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.”</i></p> <p>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.</p>	IEC 60204-1:2016 ISO 14990 (series)
AS 3868-1991	Earth-moving machinery - Design guide for access systems	<p>Withdrawn in 2019 Replaced by AS 5327:2019. AS 5327 is a modified adoption of ISO 2867 More information</p>	AS 5327-2019 ISO 2867:2011
AS 4024.1201-2014	General principles for design - Risk assessment and risk reduction	Identical to ISO 12100:2010	ISO 12100:2010
AS 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.

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DESIGNATION	DESCRIPTION		
AS 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)
AS 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 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 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 4240 (Series)	Remote control systems for mining equipment	A related international standard exists but is not identical to AS 4240 (series).	ISO 15817:2012
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	Withdrawn in 2019 A new project is now in progress to republish AS 4457.1. ISO 4250 (series) covers some aspects of what is covered 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 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.	ISO13031-2016 NSW Position Paper for Quick Hitches (link)
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.	N/A
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

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DESIGNATION	DESCRIPTION		
AS 4991-2004	Lifting Devices	<p>Often referenced in conjunction with AS 1418. Neither of these standards are specific to earthmoving machinery.</p> <p>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.</p> <p>For lifting points fitted to earthmoving machinery, ISO 15818 is the correct standard.</p>	ISO 15818
AS 5062-2016	Fire protection for mobile and transportable equipment	AS5062-2016 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
AS 61508 (series)	Functional safety of electrical/electronic/programmable electronic safety-related systems (Series)	<p>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.</p> <p>More information</p>	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	<p>Modified adoption of IEC 62061:2005 (including corrections and amendments).</p> <p>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.</p> <p>More information</p>	ISO 13849 (series) ISO 19014 (series)

COMMONLY REFERENCED AUSTRALIAN STANDARDS		COMMENTARY	RELEVANT OR EQUIVALENT STANDARDS
DESIGNATION	DESCRIPTION		
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
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

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/>

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

Table 2 – ISO standards commonly applied to Earthmoving Machinery⁴

DESIGNATION	DESCRIPTION
ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
ISO 2860	Earth-moving machinery - Minimum access dimensions
ISO 2867	Earth-moving machinery - Access systems
ISO 3164	Earth-moving machinery - Laboratory evaluations of protective structures - Specifications for deflection-limiting volume
ISO 3411	Earth-moving machinery - Physical dimensions of operators and minimum operator space envelope
ISO 3449	Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements
ISO 3450	Earth-moving machinery - Wheeled or high-speed rubber-tracked machines - Performance requirements and test procedures for brake systems
ISO 3457	Earth-moving machinery - Guards - Definitions and requirements
ISO 3471	Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements
ISO 3795	Road vehicles, and tractors and machinery for agriculture and forestry - Determination of burning behaviour of interior materials
ISO 4250-1	Earth-mover tyres and rims - Part 1: Tyre designation and dimensions
ISO 4250-2	Earth-mover tyres and rims - Part 2: Loads and inflation pressures
ISO 4250-3	Earth-mover tyres and rims - Part 3: Rims
ISO 4510-1	Earth-moving machinery - Service tools - Part 1: Common maintenance and adjustment tools
ISO 4510-2	Earth-moving machinery - Service tools - Part 2: Mechanical pullers and pushers
ISO 5005	Earth-moving machinery - Method for locating the centre of gravity
ISO 5006	Earth-moving machinery - Operator's field of view- Test method and performance criteria
ISO 5010	Earth-moving machinery - Wheeled machines - Steering requirements
ISO 5353	Earth-moving machinery, and tractors and machinery for agriculture and forestry - Seat index point
ISO 6011	Earth-moving machinery - Visual display of machine operation
ISO 6012	Earth-moving machinery - Service instrumentation
ISO 6014	Earth-moving machinery - Determination of ground speed
ISO 6015	Earth-moving machinery - Hydraulic excavators and backhoe loaders - Methods of determining tool forces
ISO 6016	Earth-moving machinery - Methods of measuring the masses of whole machines, their equipment and components
ISO 6165	Earth-moving machinery - Basic types - Identification and terms and definitions

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.

DESIGNATION	DESCRIPTION
ISO 6165	Earth-moving machinery - Basic types - Identification and terms and definitions
ISO 6302	Earth-moving machinery - Drain, fill and level plugs
ISO 6392-1	Earth-moving machinery - Lubrication fittings - Part 1: Nipple type
ISO 6392-2	Earth-moving machinery - Lubrication fittings - Part 2: Grease-gun nozzles
ISO 6393	Earth-moving machinery - Determination of sound power level - Stationary test conditions
ISO 6394	Earth-moving machinery - Determination of emission sound pressure level at operator's position - Stationary test conditions
ISO 6395	Earth-moving machinery - Determination of sound power level - Dynamic test conditions
ISO 6396	Earth-moving machinery - Determination of emission sound pressure level at operator's position - Dynamic test conditions
ISO 6405-1	Earth-moving machinery - Symbols for operator controls and other displays- Part 1: Common symbols
ISO 6405-2	Earth-moving machinery - Symbols for operator controls and other displays- Part 2: Symbols for specific machines, equipment and accessories
ISO 6483	Earth-moving machinery - Dumper bodies - Volumetric rating
ISO 6484	Earth-moving machinery - Elevating scrapers - Volumetric ratings
ISO 6485	Earth-moving machinery - Tractor-scraper - Volumetric rating
ISO 6682	Earth-moving machinery - Zones of comfort and reach for controls
ISO 6683	Earth-moving machinery - Seat belts and seat belt anchorages - Performance requirements and tests
ISO 6746-1	Earth-moving machinery - Definitions of dimensions and codes - Part 1: Base machine
ISO 6746-2	Earth-moving machinery - Definitions of dimensions and codes - Part 2: Equipment and attachments
ISO 6746-2	Earth-moving machinery - Definitions of dimensions and codes - Part 2: Equipment and attachments
ISO 6747	Earth-moving machinery - Dozers- Terminology and commercial specifications
ISO 6749	Earth-moving machinery - Preservation and storage
ISO 6750	Earth-moving machinery - Operator's manual - Content and format
ISO 6750	Earth-moving machinery - Operator's manual - Part 1: Contents and format
ISO 6750	Earth-moving machinery - Operator's manual - Part 2: List of references
ISO 7096	Earth-moving machinery - Laboratory evaluation of operator seat vibration
ISO 7129	Earth-moving machinery - Cutting edges used on tractor-dozers, graders and scrapers - Principal shapes and basic dimensions
ISO 7130	Earth-moving machinery - Operator training - Content and methods
ISO 7131	Earth-moving machinery - Loaders - Terminology and commercial specifications
ISO 7131	Earth-moving machinery - Loaders- Terminology and commercial specifications
ISO 7132	Earth-moving machinery - Dumpers - Terminology and commercial specifications

DESIGNATION	DESCRIPTION
ISO 7132	Earth-moving machinery - Dumpers- Terminology and commercial specifications
ISO 7133	Earth-moving machinery - Scrapers - Terminology and commercial specifications
ISO 7134	Earth-moving machinery - Graders - Terminology and commercial specifications
ISO 7135	Earth-moving machinery - Hydraulic excavators - Terminology and commercial specifications
ISO 7135	Earth-moving machinery - Hydraulic excavators- Terminology and commercial specifications
ISO 7136	Earth-moving machinery - Pipelayers - Terminology and commercial specifications
ISO 7451	Earth-moving machinery - Volumetric ratings for hoe-type and grab-type buckets of hydraulic excavators and backhoe loaders
ISO 7457	Earth-moving machinery - Determination of turning dimensions of wheeled machines
ISO 7464	Earth-moving machinery - Method of test for the measurement of drawbar pull
ISO 7546	Earth-moving machinery - Loader and front loading excavator buckets - Volumetric ratings
ISO 7852	Earth-moving machinery - Plough bolt heads - Shapes and dimensions (excluding thread dimensions)
ISO 8082-1	Self-propelled machinery for forestry - Laboratory tests and performance requirements for roll-over protective structures - Part 1: General machines
ISO 8082-2	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 8083	Machinery for forestry - Falling-object protective structures (FOPS) - Laboratory tests and performance requirements
ISO 8084	Machinery for forestry - Operator protective structures - Laboratory tests and performance requirements
ISO 8152	Earth-moving machinery - Operation and maintenance - Training of mechanics
ISO 8643	Earth-moving machinery - Hydraulic excavator and backhoe loader lowering control device- Requirements and tests
ISO 8811	Earth-moving machinery - Rollers and compactors - Terminology and commercial specifications
ISO 8811	Earth-moving machinery - Rollers and compactors - Terminology and commercial specifications
ISO 8812	Earth-moving machinery - Backhoe loaders- Terminology and commercial specifications
ISO 8813	Earth-moving machinery - Lift capacity of pipelayers and wheeled tractors or loaders equipped with side boom
ISO 8925	Earth-moving machinery - Diagnostic ports
ISO 8925	Earth-moving machinery - Diagnostic ports
ISO 8927	Earth-moving machinery - Machine availability - Vocabulary
ISO 9244	Earth-moving machinery - Machine safety labels - General principles
ISO 9245	Earth-moving machinery - Machine productivity - Vocabulary, symbols and units
ISO 9246	Earth-moving machinery - Crawler and wheel tractor dozer blades - Volumetric ratings
ISO 9247	Earth-moving machinery - Electrical wires and cables - Principles of identification and marking
ISO 9247	Earth-moving machinery - Electrical wires and cables - Principles of identification and marking

DESIGNATION	DESCRIPTION
ISO 9248	Earth-moving machinery - Units for dimensions, performance and capacities, and their measurement accuracies
ISO 9249	Earth-moving machinery - Engine test code - Net power
ISO/TS 9250-1	Earth-moving machinery - Multilingual listing of equivalent terms - Part 1: General
ISO/TS 9250-2	Earth-moving machinery - Multilingual listing of equivalent terms - Part 2: Performance and dimensions
ISO 9533	Earth-moving machinery - Machine-mounted audible travel alarms and forward horns - Test methods and performance criteria
ISO 10261	Earth-moving machinery - Product identification numbering system
ISO 10261	Earth-moving machinery - Product identification numbering system
ISO 10262	Earth-moving machinery - Hydraulic excavators - Laboratory tests and performance requirements for operator protective guards
ISO 10263-1	Earth-moving machinery - Operator enclosure environment - Part 1: Terms and definitions
ISO 10263-2	Earth-moving machinery - Operator enclosure environment - Part 2: Air filter element test method
ISO 10263-3	Earth-moving machinery - Operator enclosure environment - Part 3: Pressurization test method
ISO 10263-4	Earth-moving machinery - Operator enclosure environment - Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance
ISO 10263-5	Earth-moving machinery - Operator enclosure environment - Part 5: Windscreen defrosting system test method
ISO 10263-6	Earth-moving machinery - Operator enclosure environment - Part 6: Determination of effect of solar heating
ISO 10264	Earth-moving machinery - Key-locked starting systems
ISO 10265	Earth-moving machinery - Crawler machines - Performance requirements and test procedures for braking systems
ISO 10266	Earth-moving machinery - Determination of slope limits for machine fluid systems operation - Static test method
ISO 10268	Earth-moving machinery - Retarders for dumpers and tractor-scrapers - Performance tests
ISO 10532	Earth-moving machinery - Machine-mounted retrieval device - Performance requirements
ISO 10533	Earth-moving machinery - Lift-arm support devices
ISO 10533	Earth-moving machinery - Lift-arm support devices
ISO 10567	Earth-moving machinery - Hydraulic excavators - Lift capacity
ISO 10570	Earth-moving machinery - Articulated frame lock - Performance requirements
ISO 10968	Earth-moving machinery - Operator's controls
ISO 10987	Earth-moving machinery - Sustainability- Terminology, sustainability factors and reporting
ISO 10987-2	Earth-moving machinery - Sustainability- Part 2: Remanufacturing
ISO 10987-3	Earth-moving machinery - Sustainability- Part 3: Used machines
ISO 11112	Earth-moving machinery - Operator's seat - Dimensions and requirements including
ISO 11862	Earth-moving machinery - Auxiliary starting aid electrical connector

DESIGNATION	DESCRIPTION
ISO 12117	Earth-moving machinery - Tip-over protection structure (TOPS) for compact excavators - Laboratory tests and performance requirements
ISO 12117-2	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 12508	Earth-moving machinery - Operator station and maintenance areas - Bluntness of edges
ISO 12509	Earth-moving machinery - Lighting, signalling and marking lights, and reflex-reflector devices
ISO 12509	Earth-moving machinery - Lighting, signalling and marking lights, and reflex-reflector devices
ISO 12510	Earth-moving machinery - Operation and maintenance - Maintainability guidelines
ISO 12511	Earth-moving machinery - Hour meters
ISO 12511	Earth-moving machinery - Hour meters
ISO 13031	Earth-moving machinery - Quick couplers- Safety
ISO 13333	Earth-moving machinery - Dumper body support and operator's cab tilt support devices
ISO 13459	Earth-moving machinery - Trainer seat - Deflection limiting volume, space envelope and performance requirements
ISO 13539	Earth-moving machinery - Trenchers - Definitions and commercial specifications
ISO 13766-1	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 13766-2	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 13850	Safety of Machinery - Emergency Stop Function - Principles For Design
ISO 14397-1	Earth-moving machinery - Loaders and backhoe loaders - Part 1: Calculation of rated operating capacity and test method for verifying calculated tipping load
ISO 14397-2	Earth-moving machinery - Loaders and backhoe loaders - Part 2: Test method for measuring breakout forces and lift capacity to maximum lift height
ISO 14401-1	Earth-moving machinery - Field of vision of surveillance and rear-view mirrors - Part 1: Test methods
ISO 14401-2	Earth-moving machinery - Field of vision of surveillance and rear-view mirrors - Part 2: Performance criteria
ISO 14990-1	Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 1: General requirements
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 14990-3	Earth-moving machinery - Electrical safety of machines utilizing electric drives and related components and systems- Part 3: Particular requirements for self-powered machines
ISO 15143-1	Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 1: System architecture
ISO 15143-2	Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 2: Data dictionary
ISO/TS 15143-3	Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 3: Telematics data
ISO/TS 15143-4	Earth-moving machinery and mobile road construction machinery - Worksite data exchange - Part 4: Worksite topographical data
ISO 15219	Earth-moving machinery - Cable excavators - Terminology and commercial specifications

DESIGNATION	DESCRIPTION
ISO 15817	Earth-moving machinery - Safety requirements for remote operator control systems
ISO 15818	Earth-moving machinery - Lifting and tying-down attachment points- Performance requirements
ISO 15998	Earth-moving machinery - Machine-control systems (MCS) using electronic components - Performance criteria and tests for functional safety
ISO/TS 15998-2	Earth-moving machinery - Machine control systems (MCS) using electronic components - Part 2: Use and application of ISO 15998
ISO 16001	Earth-moving machinery - Object detection systems and visibility aids- Performance requirements and tests
ISO 16417	Earth-moving machinery - Hydraulic Breakers - Part 1: Terminology and commercial specifications
ISO 16714	Earth-moving machinery - Recyclability and recoverability - Terminology and calculation method
ISO 16754	Earth-moving machinery - Determination of average ground contact pressure for crawler machines
ISO 17063	Earth-moving machinery - Braking systems of pedestrian-controlled machines - Performance requirements and test procedures
ISO 17253	Earth-moving machinery and rough-terrain variable-reach trucks- Design requirements for machines intended to be driven on road
ISO 17757	Earth-moving machinery and mining- Autonomous and semi-autonomous machine system safety
ISO 19014-1	Earth-moving machinery - Functional safety- Part 1: Methodology to determine safety-related parts of the control system and performance requirements
ISO 19014-2	Earth-moving machinery - Functional safety - Part 2: Design and evaluation of hardware and architecture requirements for safety-related parts of the control system
ISO 19014-3	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 19014-4	Earth-moving machinery - Functional safety - Part 4: Design and evaluation of software and data transmission for safety-related parts of the control system
ISO/TS 19014-5	Earth-moving machinery - Functional safety - Part 5: Tables of performance levels
ISO/TR 19948	Earth-moving machinery - Conformity assessment and certification process
ISO 20474-1	Earth-moving machinery - Safety- Part 1: General requirements
ISO 20474-2	Earth-moving machinery - Safety- Part 2: Requirements for dozers
ISO 20474-3	Earth-moving machinery - Safety- Part 3: Requirements for loaders
ISO 20474-4	Earth-moving machinery - Safety- Part 4: Requirements for backhoe loaders
ISO 20474-5	Earth-moving machinery - Safety- Part 5: Requirements for hydraulic excavators
ISO 20474-6	Earth-moving machinery - Safety- Part 6: Requirements for dumpers
ISO 20474-7	Earth-moving machinery - Safety- Part 7: Requirements for scrapers
ISO 20474-8	Earth-moving machinery - Safety- Part 8: Requirements for graders
ISO 20474-9	Earth-moving machinery - Safety- Part 9: Requirements for pipelayers
ISO 20474-10	Earth-moving machinery - Safety- Part 10: Requirements for trenchers
ISO 20474-11	Earth-moving machinery - Safety- Part 11: Requirements for landfill compactors
ISO 20474-12	Earth-moving machinery - Safety- Part 12: Requirements for cable excavators

DESIGNATION	DESCRIPTION
ISO 20474-13	Earth-moving machinery - Safety- Part 13: Requirements for rollers
ISO/TS 20474-15	Earth-moving machinery - Safety - Part 14: Information on national and regional provisions
ISO 20474-15	Earth-moving machinery - Safety- Part 15: Requirements for compact tool carriers
ISO 21467	Earth-moving machinery - Horizontal directional drills - Terminology and specifications
ISO 21507	Earth-moving machinery - Performance requirements for non-metallic fuel tanks
ISO 21815-1	Earth-moving machinery - Collision warning and avoidance - Part 1: Part 1: General requirements
ISO/TS 21815-2	Earth-moving machinery - Collision warning and avoidance - Part 2: Part 2: On-board J1939 communication interface
ISO 21815-3	Earth-moving machinery - Collision warning and avoidance - Part 3: General risk area and risk level
ISO 22448	Earth-moving machinery - Anti-theft systems - Classification and performance
ISO 23727	Earth-moving machinery - Wheeled loader coupler for attachments
ISO 23870	Earth-moving machinery - Onboard High speed communication interface
ISO 24410	Earth-moving machinery - Coupling of attachments to skid steer loaders
ISO/TR 25398	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