

AS 2549:2021



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Australia



Cranes, hoists and winches — Glossary of terms



AS 2549:2021

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- Crane Industry Council of Australia
- Department of Regional NSW
- Elevating Work Platform Association of Australia
- Engineers Australia
- National Heavy Vehicle Regulator
- Office of Industrial Relations, Qld
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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand ME-005 Committee on Cranes, to supersede AS 2549:1996, *Cranes (including hoists and winches) — Glossary of terms*.

This document provides an alphabetical listing, with illustrations where appropriate, of terms and definitions used in the AS 1418 series of Standards on cranes, hoists and winches and the AS 2550 series of Standards on the safe use of cranes, hoists and winches. It differs from the previous edition of AS 2549 in that terms and definitions that were added from the relevant ISO Standards (primarily the ISO 4306 series) have been deleted and the ISO standard is referenced directly. This has been done in order to achieve compatibility and consistency with international standards that are increasingly being adopted as part of the suite of crane standards.

NOTE Some of these definitions may differ from state or territory OH&S regulatory definitions and should not be relied on for those purposes.

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NOTES

Australian Standard®

Cranes, hoists and winches — Glossary of terms

1 Scope

This document defines terms used in the AS 1418 series of Standards on cranes, including hoists and winches and the AS 2550 series of Standards on the safe use of cranes, hoists and winches.

ISO 4306 defines the terms commonly used in tower cranes, mobile cranes, jib cranes, loader cranes (vehicle loading cranes) and bridge and gantry cranes. This document defines terms commonly used in other fields covered by the other parts of AS 1418.

Terms that are already contained in ISO 4306 and share a common definition for AS 1418 series and AS 2550 series are not duplicated in this document. Where common terms exist, ISO 4306 is noted in the AS 2549 definition. The terms in ISO 4306 shall be taken as normative. The note is intended as an aid to the reader where the full definition can be found (ISO 4306). This document defines unique terms used in other fields covered by parts of AS 1418 not replicated in ISO 4306.

This document together with its references establishes a vocabulary of terms used in the field of cranes.

2 Normative references

ISO 4306, *Cranes — Vocabulary* (all parts)

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

A-frame

see *gantry* ([3.181](#))

3.2

aerial ladder

elevating work platform consisting of a single-section or multiple-section extendible ladder

3.3

air hydraulic vehicle hoists

vehicle hoist in which the ram(s) is (are) sustained by a column of compressed air acting continuously against a column of liquid

3.4

aisle

space between storage locations or compartments in which the storage crane or appliance operates

3.5

aisle transfer car

aisle transfer unit

appliance or vehicle which normally runs on a rail or rails used for transferring a storing or retrieving appliance from aisle-to-aisle

3.6

air-oil system

hydraulic hoist system in which the ram is activated by a column filled with air and oil in separate sections

3.7

air-oil tank

tank in an air-oil system, separate from the cylinder assembly, that functions as a reservoir from which oil under pressure is supplied to activate the ram

3.8**all-terrain crane**

mobile crane specifically designed to operate on sealed roads, unimproved natural terrain and disturbed terrain on industrial sites

3.9**anchorage**

system of securing a crane that may otherwise move under forces other than the intended drive system

3.10**anemometer**

instrument for measuring wind speed

3.11**anti-drop plate****keeper**

steel plate mounted to the end carriage just above the head of the rail to prevent the crane derailing in the case of wheel or axle failure

3.12**anti-two-block system**

system applied to cranes which warns of or prevents (or both) two-blocking

3.13**articulated boom system**

multi-section boom arranged so that the direction of the longitudinal axes of the boom sections may be altered relative to each other, i.e. the sections are pivoted at their ends

3.14**articulating boom platform**

elevating work platform with two or more hinged boom sections

Note 1 to entry: Such relative movement may be effected either manually or by power, i.e. by hydraulic linkage, wire-rope system, or like means.

3.15**attachment**

device attached to the hoisting mechanism for load handling

3.16**authorized person**

person who (not being the operator of the crane or hoist) is in charge of the work to be performed and who has, by agreement, been nominated as the authorized person

3.17**automated storage or retrieval system**

appliance which handles, stores and retrieves materials with precision and accuracy to or from pre-determined locations with a defined degree of automation

3.18**automatic brake**

brake which is automatically applied or released when power to the motion is interrupted or energized

3.19**automatic or automatically**

pertains to equipment functions that do not require the full attention of the operator during their functional operation

3.20**automatic load indicator**

automatic device to indicate approach to a pre-determined load limit

3.21**auxiliary hoist rope**

secondary load-hoisting rope from an auxiliary drum, usually for use in hoisting lighter loads than the main hoist rope

3.22**backstays**

<derrick cranes> structural members of a (derrick) crane which extend backwards from the mast (king post) to the outer end of the crane sleepers

3.23**band brake**

brake where the braking effort is generated by the application of a brake band to a cylindrical braking surface

3.24**basket**

device for carrying personnel, with or without materials and equipment, that is a component of an elevating work platform

3.25**bay**

series of vertical storage locations when considered as a set

3.26**blocked**

operational condition of a wheel-mounted or track-mounted carrier when supported on its outriggers

3.27**bogie**

Note 1 to entry: Refer to ISO 4306 series.

3.28**bolster**

<hoisting cross-member> cross-member that connects the rails or runways to the ram of a vehicle hoist

3.29**boom**

Note 1 to entry: Refer to ISO 4306 series.

3.30**boom angle**

angle between the longitudinal centre-line of the boom butt section and the horizontal plane

3.31**boom angle indicator**

device which visually indicates the boom angle

3.32**boom back stops**

<telescoping> structural members which bear on the boom when it is raised to maximum elevation to help prevent the boom kicking backwards

3.33**boom butt**

end of the boom nearest the crane containing the fulcrum

3.34**boom crane**

crane having a boom

3.35**boom head**

end of the boom remote from the crane containing the head sheaves

3.36**boom length**

distance between the centre of the boom pivot bolt or pin and the centre of the boom head sheave pin

3.37**boom length indicator**

device which visually indicates the boom length

3.38**boom rest**

structure fitted to the crane to support the boom when it is being transported and when it is stowed

3.39**boom-restraining ropes**

ropes fitted between the underside of the boom and a fixed part of the crane or between a fly jib and boom to counter whip-back of the boom or fly jib, e.g. where a load is suddenly released

3.40**boom stop**

adjustable limiting device to restrict the luffing of the boom

3.41**boom system**

<telescoping> multielement system by means of which the length of the boom may be altered during operation of the crane

3.42**bracing****lattice**

secondary structural elements of a boom or jib which join together (or brace) the main chord members

3.43**brake**

Note 1 to entry: Refer to ISO 4306 series.

3.44**bridge crane****overhead travelling crane**

Note 1 to entry: Refer to ISO 4306 series.

3.45**bridge or gantry crane wheelbase**

distance between the centre of the end carriage wheels or, where the crane is supported by bogies, the bogie-pivots

3.46**bridge launching beam**

cantilevered beam with a number of hoisting units which are capable of transporting a bridge beam to its final location

3.47**bridle**

assembly containing one or more sheaves, used in the boom luffing system

3.48**bucket**

load-carrying unit for containing loose materials, e.g. as part of a concrete skip hoist

3.49
buffer
bumper

Note 1 to entry: Refer to ISO 4306 series.

3.50
builder's hoist

hoist where the car or platform travels up or down within or on one face of a tower structure

Note 1 to entry: Some builder's hoists may carry personnel.

Note 2 to entry: See also *materials hoist* ([3.268](#)); *personnel and materials hoist* ([3.318](#)).

3.51
builder's hoist cat head

sheave assemblies at the top of the tower section of a builder's hoist

3.52
building maintenance unit

suspended platform and associated equipment on a building used to provide access to the faces of the building for maintenance

3.53
bumper
see *buffer* ([3.49](#))

3.54
cabin

enclosure located on a crane from which the crane may be safely operated

3.55
cabin-operated crane

Note 1 to entry: Refer to ISO 4306 series.

3.56
cantilever boom

boom supported at positions other than the boom head, e.g. by means of a pivot and luffing ram

3.57
cantilever gantry cranes

gantry crane or semi-gantry crane with its bridge extended laterally beyond one or both of the long-travel runways

3.58
cantilever hoist

hoist where the car, bucket or platform is cantilevered from, and travels up and down externally to a face of, the support structure of the hoist

3.59
cantilever jib crane

Note 1 to entry: Refer to ISO 4306 series.

3.60
capacity

number of pieces, volume or mass of material that may be handled by the system in a unit of time when operating at a given speed

3.61
car

device or load-carrying unit comprising a platform and enclosure for carrying personnel and materials

3.62**car stacker**

vehicle hoisting device used to enable the parking of one or more vehicles supported above or below the other within the one floor space

3.63**carriage**

part of a storing and retrieving appliance by which a load, in the load carrying attachment, is moved in the vertical direction

3.64**carriage-mounted cabin**

operator's cabin which is attached to the carriage of a crane and moves vertically with the carriage

3.65**carrier**

section of mobile a crane which enables its mobility

3.66**catenary**

suspended trailing cable system which supplies power to the crane, the crab or the pendant control

3.67**cat head**

see *monorail cat head* ([3.280](#)); *builders' hoist cat head* ([3.51](#))

3.68**centre of rotation****slewing centre**

vertical axis about which the superstructure of a crane rotates or slews

3.69**centrifugal brake**

shoe brake where engagement of the shoes with the braking surface is achieved by centrifugal force

3.70**chain block**

appliance for manual hoisting of a load suspended from a link chain

3.71**chain hoist**

powered appliance for hoisting of a load suspended from a link chain

3.72**chassis**

frame which incorporates the road wheel suspension system and forms part of the carrier

3.73**chocks**

wedge-shaped devices used to prevent a crane wheel from rolling

3.74**classification**

Note 1 to entry: Refer to ISO 4306 series.

3.75**clearance**

distance from any part of a moving appliance to a stationary structure or another moving part or appliance, including adequate allowance for part tolerances and intended wear

3.76**climbing assembly**

assembly of a tower crane to vary the height of the tower assembly of the crane

3.77**climbing crane**

Note 1 to entry: Refer to ISO 4306 series.

3.78**collector system**

system of conductors and collectors for the supply of electrical power to the crane

3.79**collector system long travel**

system of conductors for the supply of electrical power current to the moving crane either by direct connection or through sliding contacts

3.80**combination controller**

controller designed to control the electric power supply to a motor or other electrical machine by a combination of whole-current control and master control

3.81**command station**

area containing control console into which sequenced commands are put

Note 1 to entry: This may be card reader, sequenced switching, computer, interface or similar equipment.

3.82**compartment**

see *storage location* ([3.426](#))

3.83**competent person**

person who has acquired through training, qualification, experience or a combination of these, the knowledge and skill enabling that person to correctly perform the required task

3.84**concrete placing boom**

power devices consisting of one or more telescoping or hinged sections which carry the concrete delivery pipeline

3.85**concrete placing unit**

<truck-mounted with boom> plant used to place concrete by way of pumping concrete through a pipeline attached to or forming part of a boom and capable of travelling over a supporting surface without the need for fixed runways and relying on gravity for stability

3.86**condition of tipping**

condition reached when the overturning moment about the tipping axis exceeds the stabilizing moment

3.87**cone brake**

brake where the braking effort is generated when two conical surfaces come into contact

3.88**control**

function of controlling energy supply to a system or component

3.89**control height dimension**

distance between the suspension level and the lowest part of the pendant control or hand chain

3.90**control station selection**

transfer of control function to another control station

3.91**counter-jib**

jib on a saddle crane which carries the counterweight

3.92**counter-jib ties**

ties which support the outer end of the counter-jib on a tower crane

3.93**counter torque brake**

system to obtain controlled reversal or stopping of a motion by means of electrically reversing the motor torque while the motor is running

Note 1 to entry: See also *plugging* ([3.327](#)).

3.94**counterweight**

Note 1 to entry: Refer to ISO 4306 series.

3.95**crab**

assembly comprising a trolley supporting one or more hoisting units arranged to travel across (above, within or below) a bridge crane or horizontal jib

Note 1 to entry: Refer to ISO 4306 series.

3.96**crab wheelbase**

distance between the centres of the wheels or, for three-wheel crabs, the wheels on the same rail

3.97**cradle**

lifting frame designed to contain and support a specific load

3.98**crane**

Note 1 to entry: Refer to ISO 4306 series.

Note 2 to entry: See [Figure 1.A](#).

3.99**crane chaser**

see *dogger* ([3.126](#))

3.100**crane hirer**

company or organization which, or a person who, hires or leases a crane or the services of a crane from a hiring contractor

3.101**crane mast**

see *mobile crane mast* ([3.275](#)); *universal stacker crane* ([3.478](#))

3.102**crane runway girder**

longitudinal beam or girder required to support a rail-mounted crane

3.103**crane scales**

see *load indicator* ([3.252](#))

3.104**crane standing**

ground surface, temporary support structure, grillage, track, packing or the like on or from which the crane is supported during operation

3.105**crane user**

company, organization or person having use of a crane

3.106**crawler-mounted crane**

mobile crane mounted on a crawler track base

3.107**crawler tracks**

self-laying tracks for travelling

3.108**creep**

<microspeed> see *speed of operation* ([3.415](#))

3.109**creeper scaffolding hoist**

scaffolding hoist which is capable of hoisting by the displacement of a wire rope through the hoist by means of a gripping-jaw mechanism designed not to kink, distort or damage the wire rope

3.110**creeper winch**

winch intended to provide hoisting or haulage by the displacement of a wire rope through the winch by means of a gripping-jaw mechanism

3.111**critical weld**

weld, the failure of which would cause the failure of a load-bearing part

3.112**cycle fault**

failure to maintain the orderly movement of loads which causes the interruption of a preset cycle

3.113**cylinder assembly**

hydraulic or pneumatic mechanism consisting of the cylinder casing, ram, guide bearing(s), and packing or seals

3.114**cylinder casing**

casing in which the hydraulic or pneumatic ram operates

3.115**cylinder hoist**

hoist comprising a hydraulic or pneumatic cylinder assembly, one end of which is attached to a supporting structure and the other to a carriage

3.116**d.c. dynamic brake****d.c. injection brake**

system to obtain controlled braking of a motion by disconnecting the stator from the electric power supply and exciting the windings with direct current through variable control resistors

3.117**dead load**

mass of the fixed and movable crane or hoist components, the carrying means such as ropes, and the mechanical and electrical equipment which act permanently on the crane or hoist while in service

3.118**deep lane storing and retrieving device**

device capable of being used in conjunction with a storing and retrieving appliance, and when controlled by remote means is capable of being self-propelled and having the load table raised and lowered

3.119**derrick crane**

Note 1 to entry: Refer to ISO 4306 series.

3.120**derrick crane boom stringer
stringer**

horizontal structural member of a derrick crane which connects the crane sleepers at or near to the outer or stay ends, so forming with the crane sleepers and pivot structure a rigid triangle

3.121**derrick crane mast**

vertical rotating structural member of a derrick crane to which is attached the machinery and boom butt mounting

3.122**derrick crane sleeper**

structural horizontal base connection between the backstay and the crane mast

3.123**design load**

maximum intended load, being the total of all loads including but not limited to the mass of the personnel, materials, equipment, platform and erection forces, including dynamic allowances

3.124**design mass**

Note 1 to entry: Refer to ISO 4306 series.

3.125**disc brake**

brake where the braking effort is generated by the application of —

- (a) one or more brake pads to a rotating disc; or
- (b) one or more annular braking surfaces to one disc (single-disc brake) or more than one disc (multidisc brake)

Note 1 to entry: Refer to ISO 4306 series.

3.126**dogger****crane chaser****slinger**

competent person who applies slinging techniques including the selection and inspection of lifting gear and the directing of a crane/ hoist operator in the movement of a load

3.127**dolly**

wheeled device attached to the boom to carry a portion of the boom mass while the unloaded crane is in transit

3.128**double girder crane**

overhead travelling crane with double bridge beams

Note 1 to entry: See also *top-running bridge crane* ([3.449](#)).

3.129**drainer's hoist**

power-driven hoist used for drainage or shaft work

3.130**drawn-up dimension****headroom**

distance between the suspension level and the level of the saddle of the load hook when the load is in the fully raised position

3.131**driven track wheel**

track wheel coupled to the crane drive

3.132**driving unit**

power unit which applies the energy for hoisting a bucket, platform or jib attachment load

3.133**driving mechanism**

mechanism through which power is transmitted from a hoist to raise or lower a bucket, car, platform or jib attachment load

3.134**drop hammer****monkey**

device used with a leader which is raised by power and either dropped under gravity or powered down onto the pile

3.135**drum scaffolding hoist**

scaffolding hoist which incorporates a drum around which the supporting wire rope is wound and stored

3.136**drum winch**

winch which provides pulling force and motion by means of a wire or fibre rope stored on a drum

3.137**dual command****dual cycle**

ability of the storing or retrieving appliance, in one programming operation, to store one unit load and then select a stored unit load for return to the pick-up and dispatch station

3.138**dynamic design load**

design load derived by applying dynamic factors to the static load

3.139**dynamic load**

load imposed on the structure or mechanism by the virtue of the movement of the load

3.140**dynamic test**

Note 1 to entry: Refer to ISO 4306 series.

3.141**eddy-current brake**

system to obtain controlled braking of a motion where the braking effort is obtained by the reaction between the exciting magnetic field (d.c.) and the eddy currents induced by the relative motion between the adjacent stationary and moving parts

3.142**electrical brake**

system by which braking effort is applied by electric power to apply or release the brakes relying on friction

3.143**electric motor control**

device whose function is to control the applied voltage or current, or both, supplied to a motor to produce a required motor speed or power torque and, where appropriate, to effect phase reversal to reverse direction of motion or applied torque

3.144**elevating mechanism**

mechanical, hydraulic or similar type of mechanism used for raising a load

3.145**elevating work platform**

telescoping device, scissor device or articulating device or any combination thereof used to position personnel, equipment and materials at work locations, and to provide a working area for persons elevated by and working from the platform

3.146**emergency brake**

brake to arrest movement of a crane or hoist motion under emergency conditions

3.147**emergency service conditions**

conditions which apply to a crane or hoist while still in operation when extraordinary circumstances are encountered

3.148**end carriage**

part of the crane structure supports the ends of the crane beam and transfers the loads to the crane's runway wheels

3.149**end stop**

Note 1 to entry: Refer to ISO 4306 series.

Note 2 to entry: See also *stops* ([3.425](#)).

3.150**extended dimension**

distance between the suspension level and the level of the saddle of the load hook when the load hook is in the fully lowered position

3.151**fail safe**

feature of an appliance, component or system which, in the event of failure, minimises the associated risk by failing to a relatively safe state