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Australian Standard 1418, Part 2–1980

SAA CRANE CODE
Part 2 – SERIAL HOISTS

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Aluminium Development Council
Association of Consulting Engineers, Australia
Australian Institute of Building
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Construction Equipment Importers and Manufacturers of Australia
Crane Hoist and Lifting Appliance Manufacturers Association
Department of Construction
Department of Defence
Department of Industrial Affairs and Employment, South Australia
Department of Industrial Relations and Technology, N.S.W.
Department of Labour and Industry, Tasmania
Department of Labour and Industry, Victoria
Department of Labour and Industry, Western Australia
Department of Labour Relations, Queensland
Department of Mines and Energy, Northern Territory
Department of Productivity
Department of Public Works, N.S.W.
Department of the Capital Territory
Electricity Supply Association of Australia
Institute of Materials Handling
Maritime Services Board, N.S.W.
Melbourne Harbour Trust Commissioners
Metal Trades Industry Association of Australia
Metropolitan Water Sewerage and Drainage Board, N.S.W.
Mobile Crane Hirers Association of Victoria
Railways of Australia Committee
Telecom Australia

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AUSTRALIAN STANDARD

RULES FOR

CRANES
(including Hoists and Winches)

known as the

SAA CRANE CODE

Part 2
SERIAL HOISTS

AS 1418, Part 2—1980

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PREFACE

This standard was prepared by the Association's Committee on Cranes, as a Part of AS 1418, SAA Crane Code. It sets out specific requirements for serial hoists and associated systems and is intended to be used in conjunction with Part 1—General Requirements. However, requirements specified in this standard take precedence over corresponding requirements in Part 1. It should be noted that this standard supersedes the following standards:

AS B104 Chain Blocks (Hand Operated)

AS B231 Scaffolding Machines (Hand Operated)

AS B273 Chain Blocks (Power Operated).

Winches may have two ratings. One rating could be for a hoisting application expressed in mass units for the mass hoisted, and the other rating for a haulage application expressed in force units for the force applied. Part 1, Rule 2.5.15 gives a definition:

'Winch — an appliance, independent of a crane, intended to provide a means of hoisting or haulage'.

There is no separate index to this Part 2, a comprehensive index to the whole standard being provided in Part 1.

This Part of the standard requires reference to the following standards:

AS 1000 The International System of Units (SI) and Its Application

AS 1057 Glossary of Terms Used in Quality Control

AS 1236 Split Cotter Pins (Metric Series)

AS 1418 SAA Crane Code
Part 1—General Requirements

AS 1532 Short Pitch Transmission Precision Roller Chains and Chain Wheels

AS 1656 Steel Wire Ropes (Other Than for Mining Purposes)

AS 1831 Spheroidal or Nodular Graphite Iron Castings

AS 2318 Swivels

AS 2321 Short-link Chain for Lifting Purposes (Non-calibrated)

BS 1726 Guide to the Design and Specification of Coil Springs
Part 1—Helical Compression Springs

BS 2903 Higher Tensile Steel Hooks

BS 3114 Alloy Steel Chain, Grade 80, Polished Short Link Calibrated Load Chain for Pulley Blocks

BS 4942 Short-link Chain for Lifting Purposes

and to SAA MP19, Report on Preferred Numbers and Their Use.

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* To be prepared.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard Rules for CRANES (INCLUDING HOISTS AND WINCHES)

PART 2—SERIAL HOISTS

SECTION 1. SCOPE, APPLICATION, DEFINITIONS AND GENERAL REQUIREMENTS

1.1 SCOPE OF PART. This Part of these Rules (hereinafter referred to as 'this Part' or 'this Part of the Code') sets out requirements for serial hoists (including trolleys for serial hoists), winches and similar appliances used for hoisting or haulage manufactured as a series of essentially identical units as defined in Part 1, General Requirements.

It is complementary to Part 1, but the requirements given in this Part take precedence over corresponding requirements in Part 1.

1.2 APPLICATION. Serial hoists shall comply with Section 1 of this Part and with the following Sections, as applicable:

Section 2 Manually operated chain hoists (chain blocks)
Section 3 Power-operated chain hoists (chain blocks)
Section 4 Power-operated wire rope hoists
Section 5 Scaffolding hoists
Section 6 Manually operated creeper winches
Section 7 Manually operated drum winches
Section 8 Power-operated drum winches
Section 9 Trolleys
Section 10 Cylinder hoists*

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1.3 DEFINITIONS. For the purpose of this standard, the definitions given in AS 2549 apply.

1.4 DESIGN.

1.4.1 Interchangeability of Components. All corresponding components of the same model of serial hoist should be interchangeable.

1.4.2 Manual Operating Effort. The operating effort necessary to handle the safe working load of an appliance shall be not greater than the appropriate value specified in Table 1.4.2.

Crank handles shall have an operating radius not greater than 400 mm.

TABLE 1.4.2

MANUAL OPERATING EFFORT

Type of operating mechanism	Maximum manual operating effort N
Crank handle	250
Endless chain	500
Lever, horizontally operated	300
Lever, vertically operated	400
Push trolley	450

1.4.3 Basis of Design. The design of a serial hoist shall comply with the requirements of Part 1, Section 10—Mechanical Equipment, on the following basis:

(a) Manually operated—strength basis only.
(b) Power-operated—
  (i) strength basis; and
  (ii) life (fatigue and/or wear).

1.4.4 Design for Strength. The design for strength of serial hoists shall comply with the requirements of —

(a) Part 1, Section 5—Crane Loads, except that for manually operated mechanisms the design may be based on static loading, i.e. the duty factors specified in Part 1, Rule 5.2.1 need not be applied; and
(b) Part 1, Section 10—Mechanical Equipment, provided that they are capable of withstanding tests in accordance with Rule 1.9.3 (for manually operated serial hoists) and Rule 1.9.4 (for power-operated serial hoists).

1.4.5 Design for Life. The mechanism of a serial hoist shall be designed for a minimum life of 10 years, determined by the operating time and the load condition applied during that operating time.

For design purposes, K_p and the value for running hours shall be that specified in Table 1.4.6 for the respective classification.

1.4.6 Classification. The classification of the mechanism of a serial hoist shall be as specified in Table 1.4.6.

TABLE 1.4.6

CLASSIFICATION OF MECHANISMS OF SERIAL HOISTS

Classification	Nominal load spectrum factor K_p*	Total duration of use† h
M1	0.50	200
M2	1.0	200
M3	1.0	400
M4	1.0	800
M5	1.0	1 600
M6	1.0	3 200
M7	1.0	6 300
M8	1.0	⩾12 000

* See Part 1, Section 3—Classification of Cranes.
† Based on running hours of 10 years.

NOTE: For mechanisms not used regularly during the year, the daily operating time is determined by dividing the yearly operating time by 250.