AS 2868—1986

Australian Standard®

CLASSIFICATION OF MACHINERY FOR EARTHMOVING, CONSTRUCTION, SURFACE MINING AND AGRICULTURAL PURPOSES

This Australian Standard was prepared by Committee CE/3, Earthmoving Equipment. It was approved on behalf of the Council of the Standards Association of Australia on 8 April 1986 and published on 2 June 1986.

The following interests are represented on Committee CE/3:

Australian Federation of Construction Contractors
Australian Mining Industry Council
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Construction Equipment Importers and Manufacturers of Australia
Department of Conservation, Forests and Lands, Vic.
Department of Defence
Department of Employment and Industrial Affairs, Vic.
Department of Forestry, Qld
Department of Housing and Construction
Department of Industrial Relations, N.S.W.
Department of Minerals and Energy, Vic.
Department of Mines, Qld
Earthmoving and Road Contractors Association of Australia Limited
Forestry Commission of New South Wales
Local Government Engineers Association
Metal Trades Industry Association of Australia
Metropolitan Water Sewerage and Drainage Board, N.S.W.
National Association of Australian State Road Authorities
Rural Water Commission, Vic.
Safety Institute of Australia
State Electricity Commission, Vic.
Telecom Australia
Tractor and Machinery Association of Australia

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PREFACE

This standard was prepared by the Association's Committee on Earthmoving Equipment. It classifies machines used in the earthmoving, construction, surface mining and agricultural industries.

Drafts for comment were issued in 1981 dealing with graders, compressors, scrapers and chain trenchers, but did not proceed at that time to publication. The committee subsequently reassessed the scope of the standard and in a revised draft for comment issued in 1985, extended it to other types of common construction machinery, including excavators, loaders, rollers and backhoe-loaders. It also now deals with crawler tractors and wheeled tractors, requirements for which were contained in AS 1451—1976, Metric Classification for Tractors. The appropriate Sections of this standard therefore supersede AS 1451—1976.

AS 1451 used mass as a criterion for classifying crawler tractors and power as a criterion for classifying wheeled tractors, with the option of using both power and mass. That standard was used as a basis for operator wage rates and by some authorities for plant hire rates. For other plant types, many in-house systems existed with no general nation-wide acceptance.

The Committee considered the difficulty of classifying machines for which both power and mass are important to their productivity. One option would have been to have independent tables for these criteria and let the users decide which to adopt. However, in the interests of simplicity and uniformity, it was considered preferable to have a single classification number in all cases. For this reason the tables herein combine both power and mass, so that a machine has to satisfy both these requirements for its classification number. The relationship was based on the Committee's perception of recognized good design.

Special provision has been made in the standard for tractors used for agricultural purposes, where wheeled tractors have customarily been classified by power only, as was the case in AS 1451—1976. This method has been retained, as it is appropriate, for instance, where a power take-off is being operated.

Generally, where possible, classes have been made small enough to separate machines with significantly different productive outputs. The ratios between class limits do not normally exceed 1.25:1 or 1.30:1, and come down to about 1.1:1 where the number of machine types justifies it.

Lower limits have been placed on some of the classification systems as the application of the standard will generally be inappropriate for machines below a certain size in the earthmoving, construction and surface mining industries.

The classification systems generally accommodate the largest known machines even where these are not at present available in Australia. Numbering systems may be extended in future to allow for any further size increases.

It should be noted that not all aspects of construction machinery can be covered by a standard such as this. The classifying systems have been kept as simple as possible. Additional designations, prefixes or suffixes may be required for specialized machines or applications.

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SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard establishes a classification system for machines used in the earthmoving, construction, surface mining and agricultural industries, as follows:

Machine	Scope and Exclusions	Section
Air compressors	Portable, with free air delivery (FAD) ≥ 25 L/s	2
Chain trenchers	Self-propelled, with net engine power ≥ 5 kW	3
Excavators (and shovel-loaders)	Self-propelled, not including large mining excavators	4
Graders	All types	5
Loaders:		
Backhoe ~	Rubber tyred and tracked	6
Front-end ~	Wheeled and tracked	7
Shovel ~ (and excavators)	Self-propelled, not including backhoe attachments	4
Rollers	Static, vibrating, pneumatic and others	8
Scrapers	Standard and coal	9
Tractors:		
Crawler ~	All types	10
Wheeled ~	All types, for construction and for agriculture	11

NOTES:

1. The classification by machine type and size provides a basis for purposes such as the following:
   (a) Setting operator wage rates.
   (b) Collection of data for statistics.
   (c) Establishing plant hire rates.
2. This standard does not classify machines by noise levels, except for air compressors. Local Regulatory bodies may have specific requirements. For information on the assessment of noise levels, see AS 2221.
3. Additional designations may be used where there are special or particular aspects of classification not covered by this standard.

1.2 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

AS 2221 Methods for Measurements of Air-borne Sound Emitted by Compressor Units Including Primemovers and by Pneumatic Tools and Machines
Part 1 — Engineering Method for Measurement of Airborne Sound Emitted by Compressor/Primemover Units Intended for Outdoor Use

AS A79 Glossary of Names for Earthmoving and Constructional Plant.

BS 1571 Testing of Positive Displacement Compressors and Exhausters
Part 2 — Simplified Acceptance Tests for Air Compressors and Exhausters

ISO 1217 Displacement Compressors — Acceptance Tests

ISO 1585 Road Vehicles — Engines Test Code — Net Power

ISO 2151 Measurement of Airborne Noise Emitted by Compressor/Primemover Units Intended for Outdoor Use

ISO 6484 Earthmoving Machinery — Elevating Scrapers — Volumetric Rating

SAE J732C Society of Automotive Engineers: Specification and Definitions: Front-end Loader

SAE J741b Capacity Ratings — Scraper, Dumper Body and Trailer Body

SAE J957 Elevating Scrapers — Capacity Rating

SAE J1057a Identification Terminology of Earthmoving Machines

SAE J1234 Specification Definitions — Off-road Work Machines