AS 2025—1991

Australian Standard®

Metallic materials—Rockwell superficial hardness test—N and T scales

This Australian Standard was prepared by Committee MT/6, Mechanical Testing of Metals. It was approved on behalf of the Council of Standards Australia on 25 July 1991 and published on 7 October 1991.

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Aluminium Development Council
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Department of Defence
Division of Applied Physics, CSIRO
Metal Trades Industry Association of Australia
National Association of Testing Authorities, Australia
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PREFACE

This Standard was prepared under the direction of the Standards Australia Committee on Mechanical Testing of Metals to supersede AS 2025, *Method for Rockwell superficial hardness test*, Part 1— 1977, *Testing of metals, N and T scales* and to include calibration requirements for the testing machine.

The hardness scales in the Standard are limited to the N and T scales, since these are used extensively in Australia.

This edition was prepared at the request of the National Association of Testing Authorities, Australia, to alleviate problems associated with calibration in relation to availability and cost of certified diamond indenters, and cost, adequacy and range of hardness blocks available for user checks.

During 1989 the International Organization for Standardization published the following three Standards:

ISO 1024 *Metallic materials—Hardness test—Rockwell superficial test (scales 15N, 30N, 45N, 15T, 30T and 45T)*

ISO 1079 *Metallic materials—Hardness test—Verification of Rockwell superficial hardness testing machines (scales 15N, 30N, 45N, 15T, 30T and 45T)*

ISO 1355 *Metallic materials—Hardness test—Calibration of standardized blocks to be used for Rockwell superficial hardness testing machines (scales 15N, 30N, 45N, 15T, 30T and 45T)*

This Australian Standard is technically equivalent to these ISO Standards but covers all the subjects in the one volume.

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STANDARDS AUSTRALIA

Australian Standard

Metallic materials—Rockwell superficial hardness test—N and T scales

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out methods for measuring the hardness of metals and metal products using the N and T scales of Rockwell superficial hardness. It includes requirements for the installation and calibration of the testing machine and recommendations for its maintenance by the user.

This Standard does not preclude the use of portable hardness testing machines which meet the appropriate requirements of Section 2. This Standard does not meet the requirements of Rockwell scales A to K, as these are dealt with in AS 1815, nor does it cover the testing of materials other than metals.

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

AS
1199 Sampling procedures and tables for inspection by attributes

1815 Metallic materials—Rockwell hardness test

1817 Metallic materials—Vickers hardness test

2193 Methods for calibration and grading of force-measuring systems of testing machines

ISO
4964 Steel—Hardness conversions

1.3 DEFINITIONS For the purpose of this Standard, the definitions below apply:

1.3.1 Arithmetic mean deviation (R_a)— the arithmetic average of the deviation of a profile above and below the reference curve or line. This parameter has the dimension of length and is used for surface roughness measurement.

1.3.2 Calibration—all the operations for determining the values of the errors of a Rockwell superficial hardness testing machine (and, if necessary, to determine other metrological properties).

1.3.3 Calibrating authority—any approved person or organization qualified and equipped to perform the tests set out in Section 3 or 4 or both.

NOTE: The National Association of Testing Authorities, Australia, registers laboratories for the performance of these calibrations.

1.3.4 Hardness test blocks—metal blocks, for the purpose of maintaining surveillance of the performance of hardness testing machines between periodic calibrations.

1.3.5 Indenter, reference—a diamond cone indenter which is maintained by a national standardizing authority and whose performance has been compared with reference indenters maintained by other national standardizing authorities.

1.3.6 Indenter, standard—a diamond cone indenter which is maintained by a calibrating authority for assessing the performance of hardness testing machines in the field, in the event of non-complying results being obtained when using the indenters assigned to the machine.

1.3.7 Standard hardness blocks—metal blocks which have a calibration traceable to a national standard scale of hardness which is recognized by the Australian standardizing authority, for the purpose of verifying the performance of hardness testing machines.

1.3.8 Standardizing authority—an authority which maintains the standard of Rockwell superficial hardness.

NOTE: In Australia the standardizing authority is the National Measurement Laboratory, Division of Applied Physics, CSIRO.

1.3.9 Test piece—a piece prepared for testing, made from a test specimen by some mechanical operation (see Note to Clause 1.3.10).

1.3.10 Test specimen—a portion of material or a single item taken from the test sample for applying a particular test.

NOTE: Rockwell superficial hardness tests can be made on test pieces or test specimens, the latter often being in the form of finished products or components.

1.3.11 Normative—an appendix which is essential to the understanding or implementation of the Standard.

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