INTERNATIONAL STANDARD ISO 3738

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Hardmetals — Rockwell hardness test (scale A)

Métaux durs — Essai de dureté Rockwell (échelle A)

First edition — 1976-07-01

UDC 621.762.1 : 661.665.2 : 620.178.152.42 **Ref. No. ISO 3738-1976 (E)**

Descriptors : powder metallurgy, hardmetals, mechanical tests, hardness tests, Rockwell hardness.

Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3738 was drawn up by Technical Committee ISO/TC 119, *Powder metallurgical materials and products,* and was circulated to the Member Bodies in April 1975.

It has been approved by the Member Bodies of the following countries :

Austria	Ireland	Sweden
Brazil	Italy	Turkey
Bulgaria	Korea, Rep. of	United Kingdom
Canada	Mexico	U.S.S.R.
Czechoslovakia	Portugal	Yugoslavia
Egypt, Arab Rep. of	Romania	
France	South Africa, Rep. of	
Germany	Spain	

The Member Body of the following country expressed disapproval of the document on technical grounds :

U.S.A.

Printed in Switzerland

Hardmetals — Rockwell hardness test (scale A)

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method of Rockwell hardness test (scale A) for hardmetals.

NOTE — Attention is drawn to an agreement between the Secretariats of ISO Technical Committees for metals (ISO/TC 17, 26, 79, 119 and 155) to establish an integration of the existing ISO publications for Rockwell hardness testing into one single International Standard which should apply to all metallic materials. Depending on the results of this co-ordination work, the present International Standard may be revised or withdrawn within a few years.

2 REFERENCE

ISO/R 80, *Rockwell hardness test (B and C scales) for steel.*

3 PRINCIPLE

The test consists in forcing a conical diamond indenter into a test piece in two operations and measuring the permanent increase e of the depth of indentation by means of a depth gauge under defined conditions.

The unit of measurement for e is 0,002 mm; from the measurement of e, a number known as the Rockwell A hardness is deduced.

4 SYMBOLS AND DESIGNATIONS

See table 1 and the figure.

TABLE 1

Symbol	Designation
α	Angle at the tip of the diamond cone (120°)
R	Radius of curvature at the tip of the cone (0,2 mm)
F_0	Preliminary load = 98 ± 2 N (10 ± 0,2 kgf)
F_1	Additional load = 491 N (50 kgf)
F	Total load = $F_0 + F_1$ = 98 + 491 = 589 ± 4 N (60 ± 0,45 kgf)
h_0	Depth of indentation under preliminary load before application of additional load
h_1	Increase in depth of indentation under additional load
e	Permanent increase of depth of indentation under preliminary load after removal of additional load, expressed in units of 0,002 mm
HRA	Rockwell hardness A = 100 − e