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# International Standard 3/38/1

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

## Hardmetals — Rockwell hardness test (scale A) — Part 1 : Test method

*Métaux-durs — Essai de dureté Rockwell (échelle A) — Partie 1 : Méthode d'essai*

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## Foreword

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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 3738/1 was developed by Technical Committee ISO/TC 119, *Powder metallurgy*, and was circulated to the member bodies in February 1982.

It has been approved by the member bodies of the following countries :

Brazil	Ireland	Spain
Bulgaria	Italy	Sweden
China	Korea, Rep. of	Switzerland
Czechoslovakia	Mexico	USA
Egypt, Arab Rep. of	Poland	USSR
France	Romania	
Germany, F. R.	South Africa, Rep. of	

The member body of the following country expressed disapproval of the document on technical grounds :

United Kingdom

This International Standard cancels and replaces International Standard ISO 3738-1976 of which it constitutes a technical revision.

# Hardmetals – Rockwell hardness test (scale A) – Part 1 : Test method

## 1 Scope and field of application

This part of ISO 3738 specifies the Rockwell hardness test (scale A) for hardmetals.

## 2 References

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

ISO/R 716, *Verification of Rockwell B and C scale hardness testing machines.*

## 3 Principle

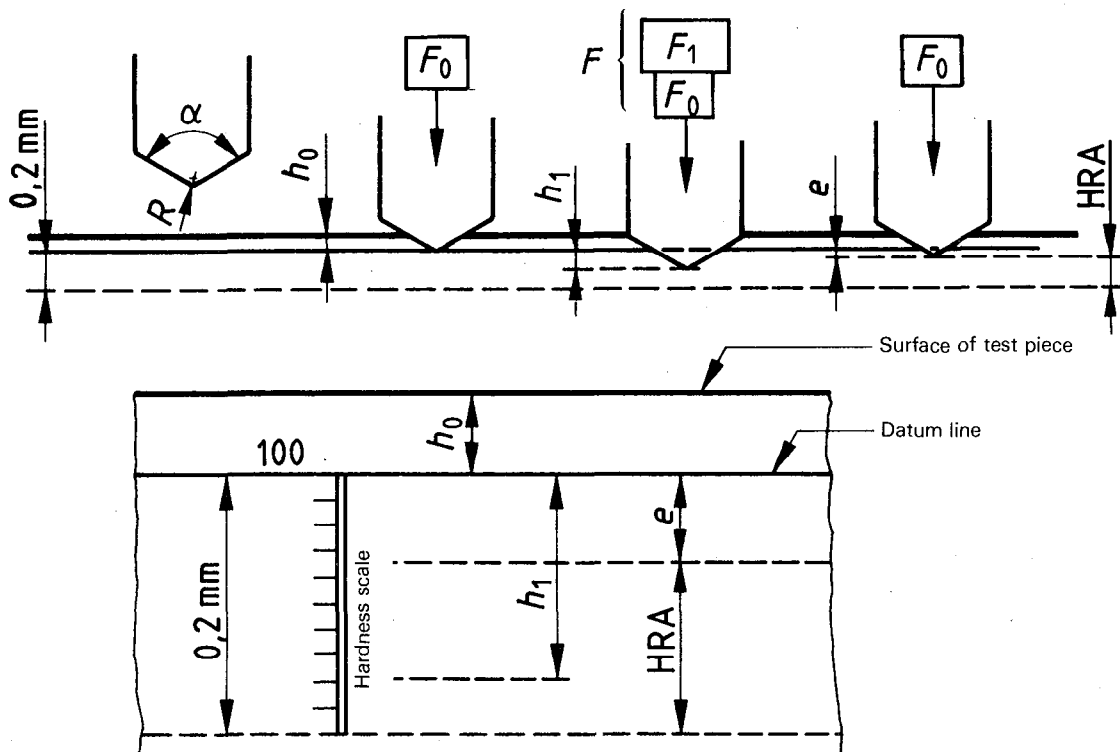
Forcing a conical diamond indenter into a test piece in two operations and measurement of the permanent increase,  $e$ , of the depth of indentation by means of a depth gauge under defined conditions.

## 4 Symbols, designations and values of parameters

See table 1 and the figure.

Table 1

Symbol	Designation
$\alpha$	Angle of the diamond cone ( $120 \pm 0,5^\circ$ )
$R$	Radius of curvature at the tip of the cone ( $0,2 \pm 0,002$ mm)
$F_0$	Preliminary test force ( $98,07 \pm 1,96$ N)
$F_1$	Additional test force ( $490,3$ N)
$F$	Total test force ( $98,07 + 490,3 = 588,4 \pm 3,92$ N)
$h_0$	Depth of indentation under preliminary test force before application of the additional force
$h_1$	Increase in depth of indentation under additional force
$e$	Permanent increase in depth of indentation under preliminary force after removal of additional force, expressed in units of 0,002 mm
HRA	Rockwell hardness A = $100 - e$



Figure