

TC 29

INTERNATIONAL STANDARD

ISO
6987-2

First edition
1990-09-15

Indexable inserts for cutting tools — Hardmetal (carbide) inserts with rounded corners, with partly cylindrical fixing hole —

Part 2 :

Dimensions of inserts with 11° normal clearance

*Plaquettes amovibles pour outils coupants — Plaquettes en métaux-durs (carbures
métalliques) avec arrondi de pointe et trou de fixation partiellement cylindrique —*

Partie 2 : Dimensions des plaquettes à dépouille normale 11°



Reference number

ISO 6987-2:1990 (E)



Documents

Document Sharing Hub

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 6987-2 was prepared by Technical Committee ISO/TC 29, *Small tools*.

ISO 6987 consists of the following parts, under the general title *Indexable inserts for cutting tools — Hardmetal (carbide) inserts with rounded corners, with partly cylindrical fixing hole*:

- *Part 1: Dimensions of inserts with 7° normal clearance*
- *Part 2: Dimensions of inserts with 11° normal clearance*
- *Part 3: V-shape inserts* [Technical Report]

Annexes A, B and C form an integral part of this part of ISO 6987. Annex D is for information only.

© ISO 1990

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization

Case postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Indexable inserts for cutting tools — Hardmetal (carbide) inserts with rounded corners, with partly cylindrical fixing hole —

Part 2 : Dimensions of inserts with 11° normal clearance

1 Scope

This part of ISO 6987 specifies the dimensions of indexable hardmetal (carbide) inserts with rounded corners, with a partly cylindrical fixing hole and with 11° normal clearance. These inserts are primarily intended to be mounted on tools by a countersunk head screw or any other fixing element, such as a pin lock.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6987. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6987 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 513 : 1975, *Application of carbides for machining by chip removal — Designation of the main groups of chip removal and groups of application*.

ISO 1832 : 1985, *Indexable inserts for cutting tools — Designation*.

3 Types of inserts

The types of indexable hardmetal (carbide) inserts specified in this part of ISO 6987 are the following :

- TP : triangular inserts, with 11° normal clearance;
- SP : square inserts, with 11° normal clearance;

— CP : rhombic inserts, with 11° normal clearance and 80° included angle;

— RP : round inserts, with 11° normal clearance.

Inserts dealt with in this part of ISO 6987 are standardized without chip breakers (designated by the letter W) and with chip breakers on the face (designated by the letter T).

At present, neither the shape nor the dimensions of chip breakers are standardized. Thus, if necessary, special features have to be explained with a diagram or additional specifications.

Table C.1 gives the range of sizes for these inserts.

4 Interchangeability

4.1 Tolerances

The indexable hardmetal (carbide) inserts which are the subject of this part of ISO 6987 are provided in tolerance class M, in accordance with ISO 1832.

The values of the tolerances in accordance with ISO 1832 are given in annex A.

Other tolerances are included in table 1 for hole dimensions, and in tables 3 to 5 for the corner radii r_e .

4.2 Thickness s of inserts with chip breaker

The thickness s of inserts with chip breakers is defined as the distance between the cutting edge at the corner and the opposing supporting surface of the insert; see figures 1 a) and 1 b).

4.3 Fixing hole

In order to guarantee interchangeability when mounting the insert by a countersunk head screw having a head taper angle between 40° and 60°, the form of the hole is partly cylindrical and its dimensions are related to the diameter of the inscribed circle of the insert. Figure 1a) and table 1 give the elements of definition of the fixing hole.

The point P is defined by diameter d_2 given in table 1 and the distance t , measured from the cutting edge, at the corner, and given by the condition

$0,05\ d_1 < t < 0,3\ d_1$

The diameter d_1 of the cylindrical part of the hole is given in table 1.

The part of the profile between d_1 and P is left to the manufacturer's option but shall satisfy the following requirements:

- the use of screws with head taper angle β between 40° and 60° shall be possible;
- the angle of the tangent theoretical taper at point P has the value $\varphi > 65^\circ$;
- the distance between the contact line with a screw having 40° head taper angle and the contact line with a screw having 60° head taper angle shall be as small as possible.

The part of the profile above point P is left to the manufacturer's option.

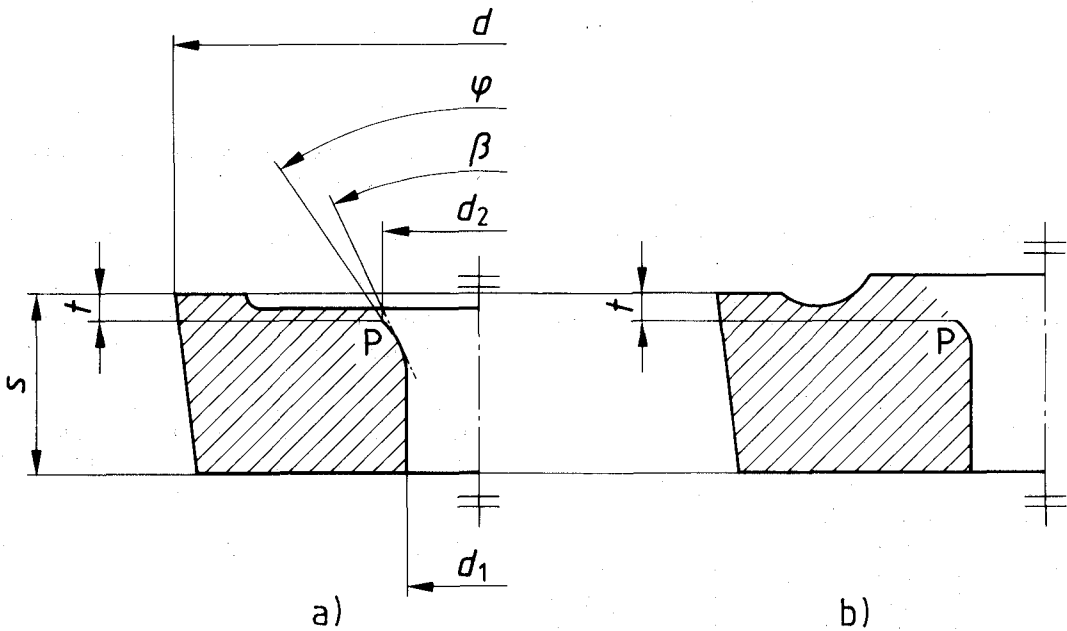


Figure 1

Table 1 — Diameters of the fixing hole

Dimensions in millimetres

d	for insert shape	T, S, C, R	4,76	5,56	6,35	7,94	9,525	12,7
		R	—	—	6	8	10/12	—
d_1 Js13			2,15	2,5	2,8	3,4	4,4	5,5
d_2 Js13			2,7	3,3	3,75	4,5	6	7,5