

Hardmetal insert tooling —

Part 19: Specification for dimensions of indexable ceramic inserts with rounded corners without fixing hole

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Committees responsible for this British Standard

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- British Hardmetal Association
- Federation of British Engineers' Tool Manufacturers
- Coopted member

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National foreword

This British Standard has been prepared under the direction of the Machine, Engineers and Hand Tools Standards Policy Committee. It is identical with ISO 9361-1:1991 *Indexable inserts for cutting tools — Ceramic inserts with rounded corners — Part 1: Dimensions of inserts without fixing hole* prepared by Technical Committee ISO/TC 29, Small tools, Subcommittee SC/9, Inserts in cutting material, and published by the International Organization for Standardization (ISO).

Cross-references

International Standard	Corresponding British Standard
ISO 1832:1991	BS 4193 <i>Hardmetal insert tooling</i> Part 1:1993 <i>Specification for designation of indexable inserts for cutting tools</i> (Identical)

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This part of ISO 9361 specifies the dimensions of indexable ceramic inserts with rounded corners, without fixing hole, and with 0° and 11° normal clearance. These inserts are primarily intended to be mounted by top clamping on turning and boring tools.

Ceramic cutting materials consist of a variety of oxides, nitrides and carbides. In contrast with hardmetals (including cermets) ceramics do not have a metallic binding matrix. Such ceramic materials are, for example, oxide ceramics (consisting primarily of aluminium oxide Al_2O_3), carboxide ceramics (consisting generally of a mixture of aluminium oxide and other materials such as titanium carbide TiC) and nitride ceramics (consisting generally of a mixture of silicon nitride and other materials, such as yttrium oxide Y_2O_3 and aluminium oxide).

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 9361. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9361 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1832:1991, *Indexable inserts for cutting tools — Designation*.

3 Types of inserts

The types of indexable ceramic inserts specified in this part of ISO 9361 are the following:

- TN: triangular inserts, with 0° normal clearance;
- TP: triangular inserts, with 11° normal clearance;
- SN: square inserts, with 0° normal clearance;
- SP: square inserts, with 11° normal clearance;
- CN: rhombic inserts, with 0° normal clearance and 80° included angle;
- DN: rhombic inserts, with 0° normal clearance and 55° included angle;
- RN: round inserts, with 0° normal clearance.

Inserts dealt with in this part of ISO 9361 are standardized without chip breakers.

In general, the inserts are used with chamfered or rounded cutting edges, see clause 5.

Table B.1 gives the range of sizes for the inserts (see Annex B).

4 Tolerances

The indexable ceramic inserts which are the subject of this part of ISO 9361 are provided in tolerance class G, in accordance with ISO 1832.

The values of the tolerances in accordance with ISO 1832 are given in Table 2 to Table 5 for the insert dimensions.

5 Cutting edge

5.1 Cutting edge condition

The cutting edge condition of the indexable ceramic inserts specified in this part of ISO 9361 is to be selected from those specified in ISO 1832:1991, 5.1.

5.2 Additional information

The dimensions of chamfered cutting edges T, S, K or P may be specified, following the letter symbol on cutting edge condition in the manufacturer's catalogue. Such information on cutting edge dimensions, if specified, shall have the form of a five-digit number, the first three digits being the value of b_γ in units of 0,01 mm and the last two digits being the value of γ_b , in degrees (see also Figure 1).

NOTE 1 In the case of cutting edge condition K and P, the first chamfer $b_{\gamma 1}$, defined in accordance with Figure 2, is at the manufacturer's choice and is not part of the additional information (five-digit number) as described in 5.2.

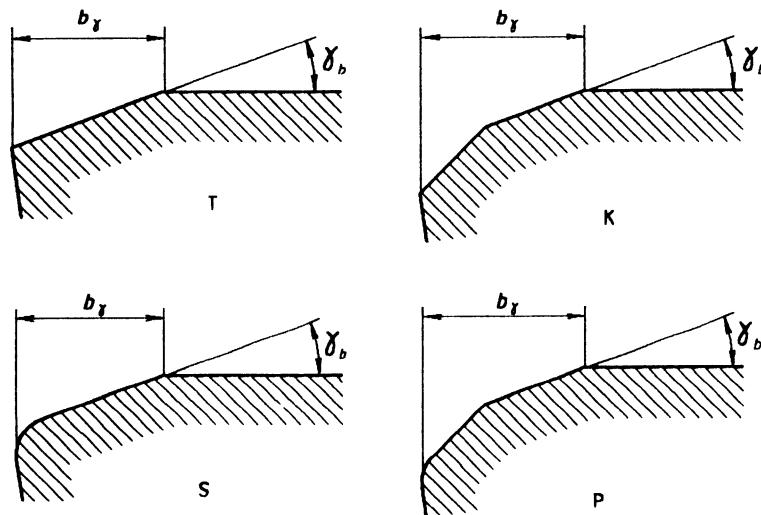


Figure 1

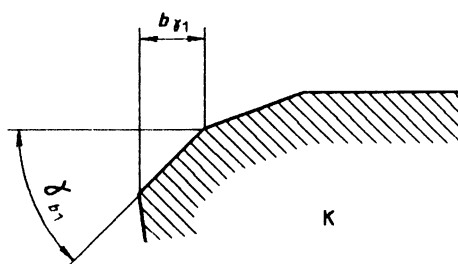


Figure 2

EXAMPLE

Chamfered cutting edge T on an insert
TNGN 160412

$b_\gamma = 0,2 \text{ mm}$

$\gamma_b = 20^\circ$

Designation and additional information:

TNGN 160412T 02020

6 Designation and marking**6.1 Designation**

The designation of the indexable ceramic inserts which form the subject of this part of ISO 9361 shall conform to ISO 1832.

In addition to this designation, one or both of the following may be indicated:

- the number symbol for the additional information on cutting edge dimensions, according to 5.2;
- the commercial designation of the ceramic grade.

6.2 Marking

The following symbol, at least, shall be marked on the insert itself (except when this would be difficult to carry out on smaller inserts):

- symbol of the commercial designation of the ceramic grade.

7 Measurement

Annex A indicates the methods of measuring the dimension m of the indexable inserts covered by this part of ISO 9361.