BS ISO 9361-1:2014

BSI Standards Publication

Indexable inserts for cutting tools — Ceramic inserts with rounded corners

Part 1: Dimensions of inserts without fixing hole

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National foreword

This British Standard is the UK implementation of ISO 9361-1:2014. It supersedes BS 4193-19:1993 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/18, Tools tips and inserts for cutting applications.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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INTERNATIONAL STANDARD

ISO 9361-1

Second edition
2014-08-01

Indexable inserts for cutting tools — Ceramic inserts with rounded corners —

Part 1: Dimensions of inserts without fixing hole

Plaquettes amovibles pour outils coupants — Plaquettes en céramique avec arrondi de pointe —

Partie 1: Dimensions des plaquettes sans trou de fixation

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with defined cutting edges, cutting items*.

This second edition cancels and replaces the first edition (ISO 9361-1:1991), which has been technically revised.

ISO 9361 consists of the following parts, under the general title *Indexable inserts for cutting tools — Ceramic inserts with rounded corners*:

— *Part 1: Dimensions of inserts without fixing hole*

— *Part 2: Dimensions of inserts with cylindrical fixing hole*

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INTERNATIONAL STANDARD ISO 9361-1:2014(E)

Indexable inserts for cutting tools — Ceramic inserts with rounded corners —

Part 1: Dimensions of inserts without fixing hole

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 references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1832, *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).

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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.

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 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.

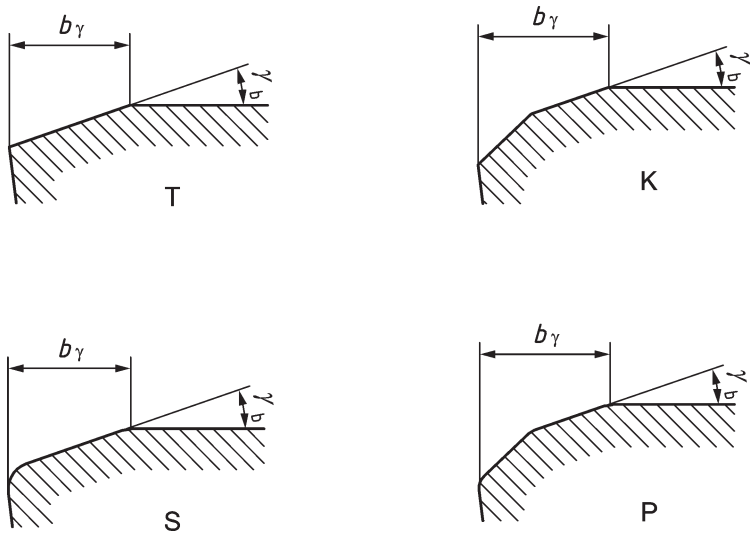

Figure 1

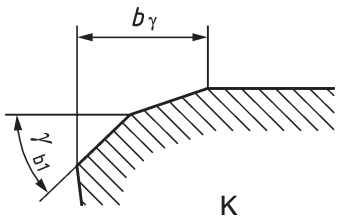

Figure 2

EXAMPLE Chamfered cutting edge T on an insert TNGN 160412

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