

Cubic boron nitride inserts, tipped or solid — Dimensions, types

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National foreword

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Summary of pages

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*Plaquettes en nitrure de bore cubique, brasées ou monobloc —
Dimensions, types*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16462 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with cutting edges made of hard cutting materials*.

Cubic boron nitride inserts, tipped or solid — Dimensions, types

1 Scope

This International Standard applies to inserts with insert shapes in accordance with ISO 883, ISO 3364, ISO 3365 and ISO 6987, tipped with cubic boron nitride (BL, BH, BC) or made of solid cubic boron nitride (BL, BH, BC).

2 Normative references

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

ISO 513, *Classification and application of hard cutting materials for metal removal with defined cutting edges — Designation of the main groups and groups of application*

ISO 883, *Indexable hardmetal (carbide) inserts with rounded corners, without fixing hole — Dimensions*

ISO 1832, *Indexable inserts for cutting tools — Designation*

ISO 3364, *Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions*

ISO 3365, *Indexable hardmetal (carbide) inserts with wiper edges, without fixing hole — Dimensions*

ISO 6987, *Indexable hard material inserts with rounded corners, with partly cylindrical fixing hole — Dimensions*

3 Insert shapes and design

3.1 Insert shapes

Triangular (T), square (S), rhombic 80° (C), 55° (D) and 35° (V), round (R), and trigon (W).

3.2 Normal clearance α_n

Normal clearance 0° (N), 5° (B), 7° (C) and 11° (P).

3.3 Cutting edge corner

Inserts for turning with corner radius r_ϵ 0,2 mm; 0,4 mm; 0,8 mm; 1,2 mm and 1,6 mm.

Inserts for milling with wiper edge.

NOTE The design of non-tipped corners is optional.

3.4 Tolerance class

Tolerance class in accordance with ISO 1832 shall be applied. In Tables 1 to 12 this position is shown with a dot (•).

3.5 Design of cutting edges

Any design shall be indicated in the designation, see ISO 1832.

3.6 Insert type

The styles of tipped or solid cutting edges in accordance with ISO 1832 shall be applied.

4 Designation

4.1 General

The designation of inserts tipped or solid with cubic boron nitride (BL, BH, BC) is based on ISO 1832. The letter symbol for the cutting edge condition and the letter symbol for the insert type shall be indicated in the designation in each case.

Designations contained in 4.2 and 4.3 are examples of the use of designations in accordance with ISO 1832.

4.2 Designation of inserts for turning

4.2.1 Solid insert (S)

Designation of a rhombic insert with included angle $\varepsilon_r = 80^\circ$ (C), normal clearance $\alpha_n = 0^\circ$ (N), with tolerance class M, without chip breakers and without fixing hole (N), with side length $l = 9,67$ mm (09), thickness $s = 3,18$ mm (03), corner radius $r_\varepsilon = 0,8$ mm (08), without chamfered and rounded cutting edges (S), insert type solid (S), cutting material in accordance with ISO 513 (e.g. BL05):

Insert CNMN 090308S — S — BL05 —

NOTE BL05 is optional in accordance with ISO 1832, designation symbol 13.

4.2.2 Insert, tipped — full thickness — one corner (T)

Designation of a rhombic insert with included angle $\varepsilon_r = 55^\circ$ (D), normal clearance $\alpha_n = 0^\circ$ (N), with tolerance class M, without chip breakers and with cylindrical fixing hole (A), with side length $l = 15,5$ mm (15), thickness $s = 4,76$ mm (04), corner radius $r_\varepsilon = 0,8$ mm (08), with chamfered and rounded cutting edges (S), tipped — full thickness — one corner (T), long (L), cutting material in accordance with ISO 513 (e.g. BL05):

Insert DNMA 150408S — TL — BL05 —

NOTE BL05 is optional in accordance with ISO 1832, designation symbol 13.

4.3 Designation of a tipped insert for milling

Designation of a square insert (S) with normal clearance $\alpha_n = 7^\circ$ (C), with tolerance class G, without chip breakers and with fixing hole (W), with side length $l = 12,7$ mm (12), thickness $s = 4,76$ mm (04), cutting edge angle $\kappa_r = 75^\circ$ (E), normal clearance at wiper edge $\alpha = 15^\circ$ (D), right-hand type (R), tipped — one side — one corner (A), long (L), cutting material in accordance with ISO 513 (e.g. BL05):

Insert SCGW 1204EDR — AL — BL05 —

NOTE BL05 is optional in accordance with ISO 1832, designation symbol 13.