INTERNATIONAL STANDARD

**ISO 3364**

Fourth edition
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# Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions

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



Reference number
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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## Foreword

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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 3364 was prepared by Technical Committee ISO/TC 29, *Small Tools*, Subcommittee SC 9, *Tools with cutting edges made of hard cutting materials*.

This fourth edition cancels and replaces the third edition (ISO 3364:1997), which has been technically revised.

# Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions

## 1 Scope

This International Standard specifies the dimensions of indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole and with 0° normal clearance. These inserts are primarily intended to be mounted by top and hole clamping or by hole clamping alone on turning and boring tools.

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



## 3 Types of insert

The types of indexable hardmetal (carbide) insert specified in this International Standard are the following:



— TN: triangular inserts, with 0° normal clearance;

— SN: square inserts, with 0° normal clearance;

— CN: rhombic inserts, with 0° normal clearance and 80° included angle;

— DN: rhombic inserts, with 0° normal clearance and 55° included angle;

— WN: hexagonal (trigon) inserts, with 0° normal clearance and 80° included angle;

— VN: rhombic inserts, with 0° normal clearance and 35° included angle.

Inserts covered by this International Standard are standardized with chip breakers on both faces, with chip breakers on one face only and with no ship breakers at all.

Neither the shape nor the dimensions of chip breakers are standardized. Thus, if necessary, special features shall be explained by means of a diagram or additional specifications.

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

## 4 Interchangeability

### 4.1 Tolerances

Indexable hard metal (carbide) inserts specified in this International Standard are provided in tolerance classes in accordance with ISO 1832.

Other tolerances are given, either in Table 1 for hole dimensions, or in Tables 2 to 7 for insert dimensions.

### 4.2 Thickness, $s$, of inserts with chip breakers

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 Figure 1 a) and b) for inserts with chip breakers on one face only and Figure 1 c) for inserts with chip breakers on both faces.

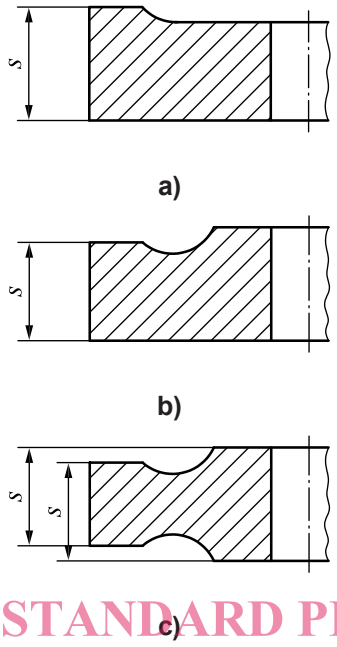





**Figure 1 — Thickness of inserts with chip breakers**



In order to guarantee interchangeability when mounting the insert, the diameter, $d_1$, of the fixing hole is related to the diameter, $d$, of the inscribed circle of the insert according to Table 1.

**Table 1 — Fixing hole**

Dimensions in millimetres

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $d$ | | 6,35 | 9,525 | 12,7 | 15,875 | 19,05 | 25,4 |
| $d_1$ | ± 0,08 | 2,26 | 3,81 | 5,16 | 6,35 | 7,94 | 9,12 |

## 5 Designation and marking

### 5.1 Designation

The designation of the indexable hardmetal (carbide) inserts complying with this International Standard shall conform to ISO 1832.

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

— the symbol of the group of application, in accordance with ISO 513;

— the commercial designation of the hardmetal (carbide) grade.

### 5.2 Marking

The following symbols, at least, shall be marked on the insert itself (except where this is difficult on the smaller inserts):

— symbol of the group of application, or

— commercial designation of the hardmetal (carbide) grade, or

— both, if possible, on large inserts.

## 6 Measurement

Annex B indicates the methods of measuring the dimension, $m$, of the indexable inserts covered by this International Standard.

## 7 Recommended dimensions

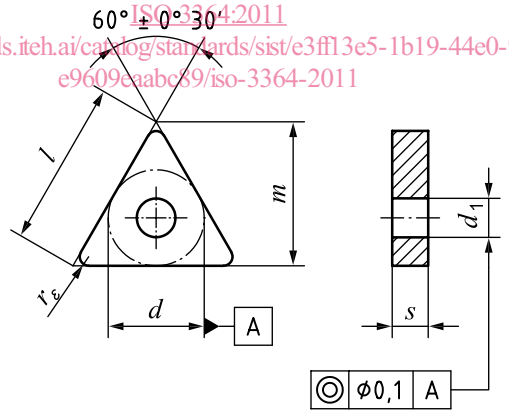
### 7.1 General

The choice of the more common dimensions is restricted to the specifications given in Tables 2 to 7. It is strongly recommended that these standard inserts be used wherever possible (first preference). Where other inserts are specially required, insert dimensions shall be selected from the non-shaded portions of Table B.1 (second preference). Inserts corresponding to dimensions represented by the shaded portions of this table are not recommended.

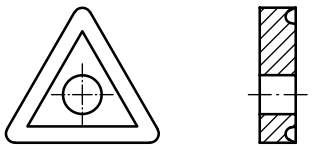


### 7.2 Triangular inserts

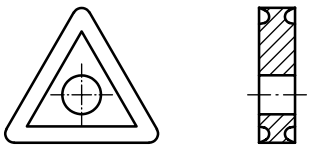





a) TN.A without chip breakers



b) TN.M with chip breakers on one face only



c) TN.G with chip breakers on both faces

**Figure 2 — Triangular inserts**

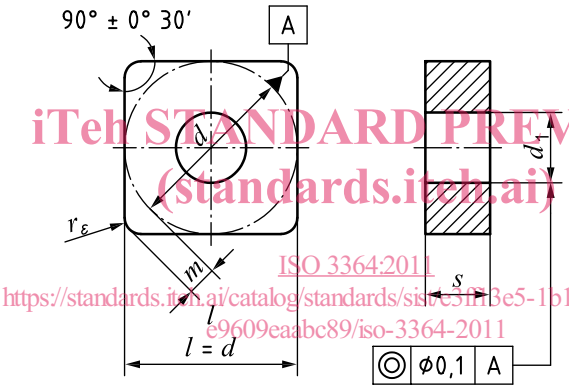
**Table 2 — Dimensions of triangular inserts**

Dimensions in millimetres

| Insert | | | $l$ ≈ | $d^a$ | $s^a$ | $m^a$ | $r_\varepsilon$ ± 0,1 | $d_1$ ± 0,08 |
|---|---|---|---|---|---|---|---|---|
| **TN.A160404** | — | **TN.G160404** | 16,5 | 9,525 | 4,76 | 13,891 | 0,4 | 3,81 |
| **TN.A160408** | **TN.M160408** | **TN.G160408** | | | | 13,494 | 0,8 | |
| **TN.A160412** | **TN.M160412** | **TN.G160412** | | | | 13,097 | 1,2 | |
| **TN.A220408** | **TN.M220408** | **TN.G220408** | 22 | 12,7 | 4,76 | 18,256 | 0,8 | 5,16 |
| **TN.A220412** | **TN.M220412** | **TN.G220412** | | | | 17,859 | 1,2 | |
| **TN.A220416** | **TN.M220416** | **TN.G220416** | | | | 17,463 | 1,6 | |
| — | **TN.M270612** | — | 27,5 | 15,875 | 6,35 | 22,622 | 1,2 | 6,35 |
| — | **TN.M270616** | — | | | | 22,225 | 1,6 | |

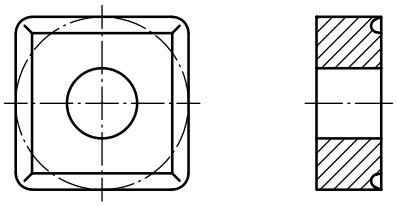
[a] Tolerances in accordance with ISO 1832.

## 7.3 Square inserts

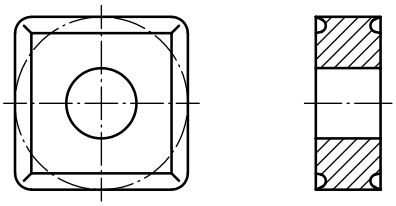





a) **SN.A without chip breakers**



b) **SN.M with chip breakers on one face only**



c) **SN.G with chip breakers on both faces**

**Figure 3 — Square inserts**

**Table 3 — Dimensions of square inserts**

Dimensions in millimetres

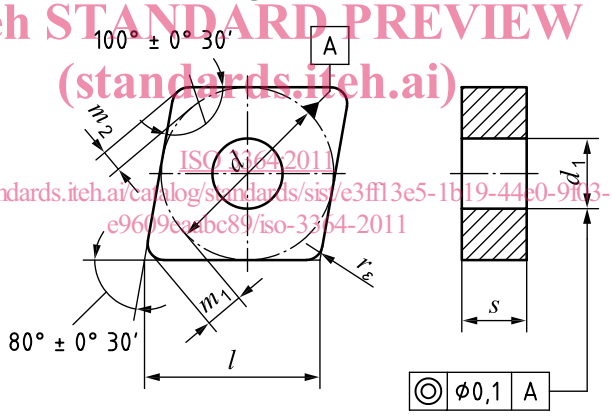
| Insert | | | $d^{ab}$ | $s^a$ | $m^a$ | $r_\varepsilon$ ± 0,1 | $d_1$ ± 0,08 |
|---|---|---|---|---|---|---|---|
| — | **SN.M090304** | **SN.G090304** | 9,525 | 3,18 | 1,808 | 0,4 | 3,81 |
| — | **SN.M090308** | **SN.G090308** | | | 1,644 | 0,8 | |
| — | — | **SN.G120404** | 12,7 | 4,76 | 2,466 | 0,4 | 5,16 |
| **SN.A120408** | **SN.M120408** | **SN.G120408** | | | 2,301 | 0,8 | |
| **SN.A120412** | **SN.M120412** | **SN.G120412** | | | 2,137 | 1,2 | |
| — | **SN.M150608** | **SN.G150608** | 15,875 | 6,35 | 2,959 | 0,8 | 6,35 |
| — | **SN.M150612** | **SN.G150612** | | | 2,795 | 1,2 | |
| **SN.A190612** | **SN.M190612** | **SN.G190612** | 19,05 | 6,35 | 3,452 | 1,2 | 7,94 |
| **SN.A190616** | **SN.M190616** | **SN.G190616** | | | 3,288 | 1,6 | |
| **SN.A250724** | **SN.M250724** | **SN.G250724** | 25,4 | 7,94 | 4,274 | 2,4 | 9,12 |

[a] Tolerances in accordance with ISO 1832.

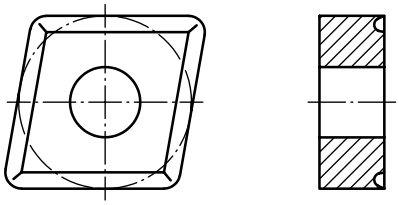
[b] $d = l$.

## 7.4 Rhombic inserts with 80° included angle

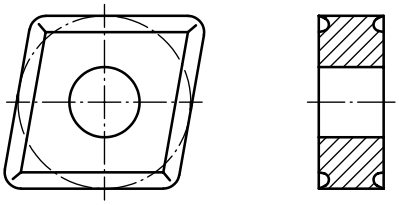





**a) CN.A without chip breakers**



**b) CN.N with chip breakers on one face only**



**c) CN.G with chip breakers on both faces**

**Figure 4 — Rhombic inserts with 80° includes angle**

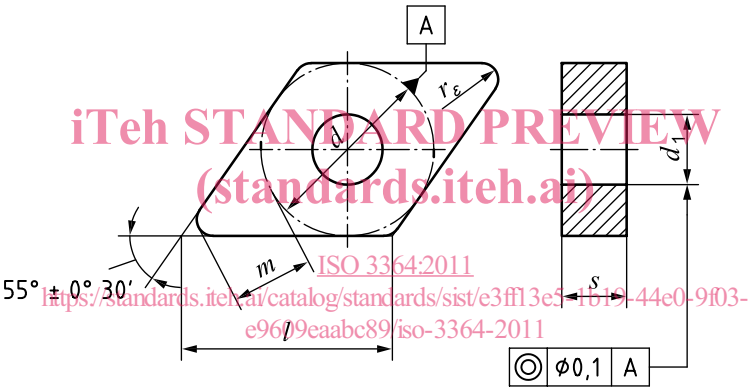
**Table 4 — Dimensions of rhombic inserts with 80° included angle**

Dimensions in millimetres

| Insert | | | $l$ ≈ | $d^a$ | $s^a$ | $m_1{}^a$ | $m_2{}^a$ | $r_\varepsilon$ ± 0,1 | $d_1$ ± 0,08 |
|---|---|---|---|---|---|---|---|---|---|
| — | — | **CN.G120404** | 12,9 | 12,7 | 4,76 | 3,308 | 1,818 | 0,4 | 5,16 |
| **CN.A120408** | **CN.M120408** | **CN.G120408** | | | | 3,088 | 1,697 | 0,8 | |
| **CN.A120412** | **CN.M120412** | **CN.G120412** | | | | 2,867 | 1,576 | 1,2 | |
| — | **CN.M160608** | **CN.G160608** | 16,1 | 15,875 | 6,35 | 3,97 | 2,182 | 0,8 | 6,35 |
| — | **CN.M160612** | **CN.G160612** | | | | 3,479 | 2,061 | 1,2 | |
| — | — | **CN.G190608** | 19,3 | 19,05 | 6,35 | 4,852 | 2,667 | 0,8 | 7,94 |
| **CN.A190612** | **CN.M190612** | **CN.G190612** | | | | 4,632 | 2,545 | 1,2 | |
| **CN.A190616** | **CN.M190616** | **CN.G190616** | | | | 4,411 | 2,424 | 1,6 | |

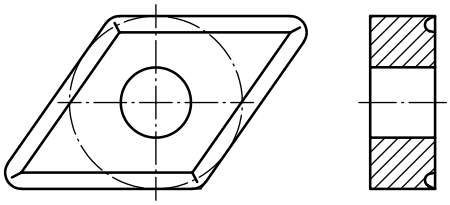
[a] Tolerances in accordance with ISO 1832.

## 7.5 Rhombic inserts with 55° included angle

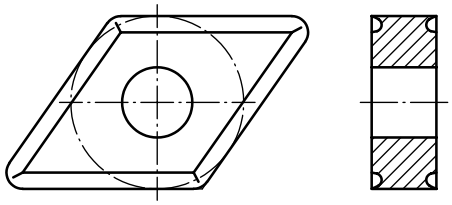





**a) DN.A inserts without chip breakers**



**b) DN.M with chip breakers on one face only**



**c) DN.G with chip breakers on both faces**

**Figure 5 — Rhombic inserts with 55° included angle**

**Table 5 — Dimensions of rhombic inserts with 55° included angle**

Dimensions in millimetres

| Insert | | | $l$ ≈ | $d^a$ | $s^a$ | $m^a$ | $r_\varepsilon$ ± 0,1 | $d_1$ ± 0,08 |
|---|---|---|---|---|---|---|---|---|
| DN.A150604 | — | DN.G150604 | 15,5 | 12,7 | 6,35 | 6,939 | 0,4 | 5,16 |
| DN.A150608 | DN.M150608 | DN.G150608 | | | | 6,477 | 0,8 | |
| DN.A150612 | DN.M150612 | DN.G150612 | | | | 6,014 | 1,2 | |
| DN.A150616 | DN.M150616 | DN.G150616 | | | | 5,552 | 1,6 | |

[a] Tolerances in accordance with ISO 1832.

## 7.6 Hexagonal (trigon) inserts with 80° included angle

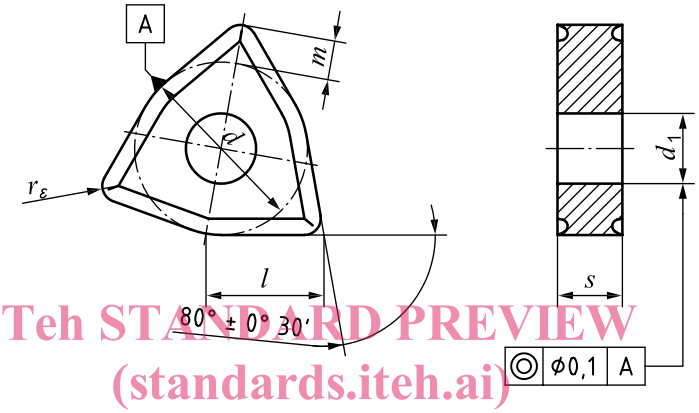





**Figure 6 — WN.G with chip breakers on both faces**



**Table 6 — Dimensions of hexagonal or trigon inserts with 80° included angle**

Dimensions in millimetres

| Insert | $l$ ≈ | $d^a$ | $s^a$ | $m^a$ | $r_\varepsilon$ ± 0,1 | $d_1$ ± 0,08 |
|---|---|---|---|---|---|---|
| WN.G060404 | 6,5 | 9,525 | 4,76 | 2,426 | 0,4 | 3,81 |
| WN.G060408 | | | | 2,205 | 0,8 | |
| WN.G080404 | 8,7 | 12,7 | 4,76 | 3,308 | 0,4 | 5,16 |
| WN.G080404 | | | | 3,087 | 0,8 | |
| WN.G080412 | | | | 2,867 | 1,2 | |

[a] Tolerances in accordance with ISO 1832.