INTERNATIONAL STANDARD 883

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Indexable (throwaway) carbide inserts without fixation hole — Dimensions

Plaquettes amovibles en carbures métalliques, sans trou de fixation — Dimensions

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Price based on 12 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

This second edition of International Standard ISO 883 was drawn up by Technical Committee ISO/TC 29, *Small tools*. It was submitted directly to the ISO Council, in accordance with clause 6.12.1 of the Directives for the technical work of ISO.

This second edition cancels and replaces the first edition (ISO 883-1975), which had been approved by the Member Bodies of the following countries :

Australia	Hungary	Portugal
Austria	India	South Africa, Rep. of
Belgium	Israel	Spain
Brazil	Italy	Sweden
Chile	Korea, Rep. of	Switzerland
Czechoslovakia	Netherlands	Turkey
Egypt, Arab Rep. of	New Zealand	United Kingdom
France	Norway	
Germany	Poland	

The Member Bodies of the following countries had expressed disapproval of the document on technical grounds :

U.S.A.
U.S.S.R.

Printed in Switzerland

Indexable (throwaway) carbide inserts without fixation hole — Dimensions

0 INTRODUCTION

This International Standard should be considered as the logical continuation of ISO 242, *Carbide tips for brazing on turning tools,* which deals only with inserts intended to be fixed on the shanks of tools by brazing.

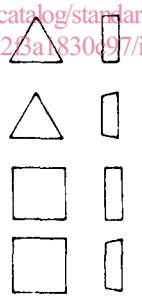
1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the dimensions of indexable (throwaway) carbide inserts, without fixation hole, of triangular and square shape.

It applies only to inserts intended to be mounted mechanically, and not by brazing, on the shanks of tools.

The types of throwaway inserts are as follows :

- 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



Owing to the fact that they have no normal clearance, the TN and SN inserts, intended for tools with negative normal rake, are reversible; the cutting edge of either face may be used indifferently.

The TP and SP inserts, intended for tools with positive normal rake, can, on the other hand, be effective only through the cutting edges of their greater face and they are not reversible.

As regards precision, throwaway inserts should be machined in one of the two classes of tolerances U or G according to ISO 1832.

2 REFERENCES

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

ISO 1832, *Indexable (throwaway) inserts — Designation — Code of symbolization.* [1]

ISO 3286, *Single-point cutting tools — Corner radius.*

ISO 3364, *Indexable (throwaway) carbide inserts with cylindrical fixation holes — Dimensions.* [2]

3 INTERCHANGEABILITY

3.1 Inches-millimetres interchangeability

This International Standard includes two series of tables, one in millimetres, the other in inches; the values given ensure strict interchangeability, whichever system of units is used.

As regards the verification of dimension m, this interchangeability has been obtained by direct conversion into millimetres of the nominal value in inches, calculated from the nominal values, in inches, of the radius r_ϵ, the diameter d or the length l.

3.2 Interchangeability with "ceramic" inserts

Pending the preparation of an International Standard concerning "ceramic" indexable (throwaway) inserts, it is recommended, with a view to interchangeability, that these inserts be given the same nominal dimensions l and the same radii r_ϵ as the carbide inserts of this International Standard.

1) At present at the stage of draft. (Revision of ISO/R 1832-1971.)

2) At present at the stage of draft.

4 DESIGNATION AND MARKING

The designation for the indexable (throwaway) carbide inserts covered by this International Standard conforms to ISO 1832.

4.1 Designation

The designation of an indexable (throwaway) insert consists of at least seven symbols of designation :

- letter symbol for identifying insert shape;
- letter symbol for identifying normal clearance;
- letter symbol for indicating tolerance class;
- letter symbol for indicating chip breakers and/or for fixing;
- number symbol for identifying insert size;
- number symbol for identifying insert thickness;
- number symbol for identifying corner configuration (the size of the corner radius).

In addition to these symbols, indication may be given of

- either the symbol of the group of application, as shown in ISO 513;
- or the commercial designation of carbide grade;
- or both.

4.2 Marking

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

- number symbol for identifying corner configuration (the size of the corner radius);
- symbol of the group of application or commercial designation of the carbide grade (or even both, if possible, on large inserts).

5 RECOMMENDED DIMENSIONS FOR THE METRIC SERIES

5.1 Triangular inserts with 0° normal clearance for tools with negative normal rake (symbol TN)

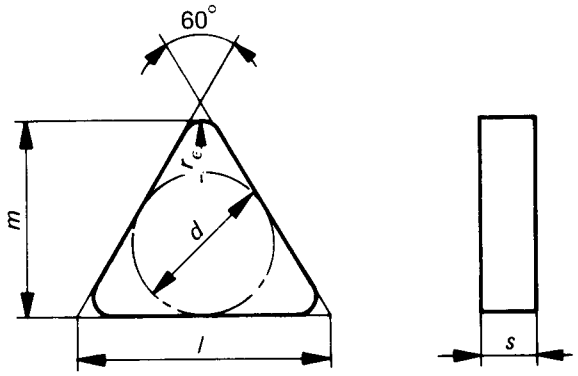


TABLE 1 – **Class U**

Dimensions in millimetres

Designation	l nom.	d tol.	s ± 0,13	m[1]	tol.	r_ϵ ± 0,10
TNUN110304	11,0	6,35	3,18	9,128	± 0,13	0,4
TNUN110308				8,731		0,8
TNUN160408	16,5	9,525	4,76	13,494		0,8
TNUN160412				13,097		1,2
TNUN220412	22,0	12,70	± 0,13	4,76	17,859	± 0,20	1,2
TNUN220416					17,463		1,6

TABLE 2 – **Class G**

Dimensions in millimetres

Designation	l nom.	d ± 0,025	s ± 0,13	m[1] ± 0,025	r_ϵ ± 0,10
TNGN110304	11,0	6,35	3,18	9,128	0,4
TNGN160408	16,5	9,525	4,76	13,494	0,8
TNGN160412				13,097	1,2
TNGN220412	22,0	12,70	4,76	17,859	1,2

1) For the measurement of dimension m see annex A.

5.2 Triangular inserts with 11° normal clearance for tools with positive normal rake (symbol TP)

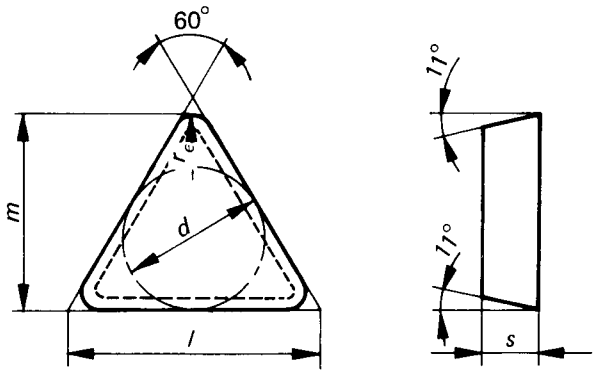


TABLE 3 — **Class U**

Dimensions in millimetres

Designation	l nom.	d tol.	s ± 0,13	m[1]	tol.	r_ϵ ± 0,10
TPUN160308	16,5	9,525	± 0,08	3,18	13,494	± 0,13	0,8
TPUN160312					13,097		1,2
TPUN220412	22,0	12,70	± 0,13	4,76	17,859	± 0,20	1,2
TPUN220416					17,463		1,6

TABLE 4 — **Class G**

Dimensions in millimetres

Designation	l nom.	d ± 0,025	s ± 0,13	m[1] ± 0,025	r_ϵ ± 0,10
TPGN160308	16,5	9,525	3,18	13,494	0,8
TPGN160312				13,097	1,2
TPGN220412	22,0	12,70	4,76	17,859	1,2

1) For the measurement of dimension m see annex A.

5.3 Square inserts with 0° normal clearance for tools with negative normal rake (symbol SN)

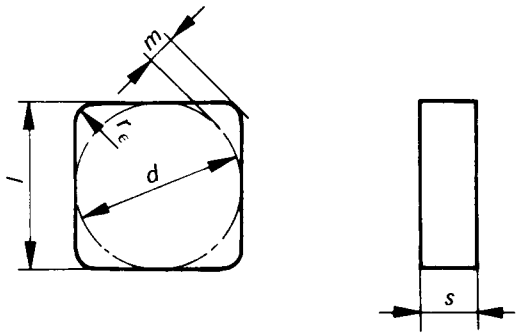


TABLE 5 – **Class U**

Dimensions in millimetres

Designation	$l = d$	tol.	s	m[1]	tol.	r_ϵ
			± 0,13			± 0,10
SNUN090304	9,525	± 0,08	3,18	1,808	± 0,13	0,4
SNUN090308				1,644		0,8
SNUN120408	12,70	± 0,13	4,76	2,301	± 0,20	0,8
SNUN120412				2,137		1,2
SNUN150412	15,875	± 0,18	4,76	2,795	± 0,27	1,2
SNUN150416				2,630		1,6
SNUN190412	19,05		4,76	3,452		1,2
SNUN190416				3,288		1,6

TABLE 6 – **Class G**

Dimensions in millimetres

Designation	$l = d$ ± 0,025	s ± 0,13	m[1] ± 0,025	r_ϵ ± 0,10
SNGN090308	9,525	3,18	1,644	0,8
SNGN120408	12,70	4,76	2,301	0,8
SNGN120412			2,137	1,2

1) For the measurement of dimension m see annex A.

5.4 Square inserts with 11° normal clearance for tools with positive normal rake (symbol SP)

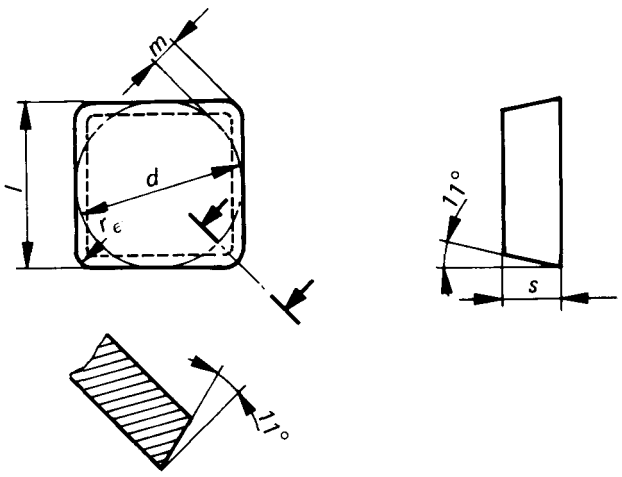


TABLE 7 – **Class U**

Dimensions in millimetres

Designation	$l = d$ tol.		s ± 0,13	m[1] tol.		r_ϵ ± 0,10
SPUN120308	12,70	± 0,13	3,18	2,301	± 0,20	0,8
SPUN120312				2,137		1,2
SPUN190416	19,05	± 0,18	4,76	3,288	± 0,27	1,6

TABLE 8 – **Class G**

Dimensions in millimetres

Designation	$l = d$ ± 0,025	s ± 0,13	m[1] ± 0,025	r_ϵ ± 0,10
SPGN120308	12,70	3,18	2,301	0,8
SPGN120312			2,137	1,2

1) For the measurement of dimension m see annex A.

6 RECOMMENDED DIMENSIONS FOR THE INCH SERIES

6.1 Triangular inserts with 0° normal clearance for tools with negative normal rake (symbol TN)

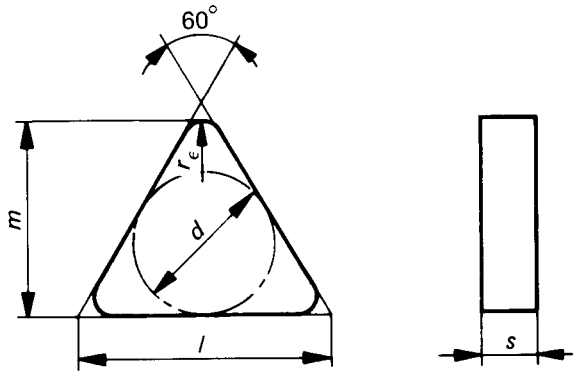


TABLE 9 — **Class U**

Dimensions in inches

Designation	l nom.	d tol.	s ± 0.005	m[1] tol.	m[1]	r_ϵ ± 0.004
TNUN221	0.43	0.250	0.125 0	± 0.005	0.359 4	0.015 6
TNUN222					0.343 8	0.031 3
TNUN332	0.65	0.375	0.187 5		0.531 3	0.031 3
TNUN333					0.515 6	0.046 9
TNUN433	0.87	0.500	± 0.005	0.187 5	0.703 1	± 0.008	0.046 9
TNUN434					0.687 5		0.062 5

TABLE 10 — **Class G**

Dimensions in inches

Designation	l nom.	d ± 0.001	s ± 0.005	m[1] ± 0.001	r_ϵ ± 0.004
TNGN221	0.43	0.250	0.125 0	0.359 4	0.015 6
TNGN332	0.65	0.375	0.187 5	0.531 3	0.031 3
TNGN333				0.515 6	0.046 9
TNGN433	0.87	0.500	0.187 5	0.703 1	0.046 9

1) For the measurement of dimension m see annex A.