
INTERNATIONAL STANDARD



514

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

Turning tools with carbide tips — Internal tools

Outils de tour à plaquettes en carbures métalliques — Outils d'intérieur

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[ISO 514:1975](https://standards.iteh.ai/catalog/standards/sist/1017dc29-7739-41b1-939e-f43ef3b64d61/iso-514-1975)

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Ref. No. ISO 514-1975 (E)

Descriptors : tools, turning (machining), carbide tools, specifications, dimensions.

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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 29 has reviewed ISO Recommendation R 514 and found it technically suitable for transformation. International Standard ISO 514 therefore replaces ISO Recommendation R 514:1966 to which it is technically identical.

ISO Recommendation R 514 was approved by the Member Bodies of the following countries :

Australia	Germany	Spain
Austria	Hungary	Sweden
Belgium	India	Turkey
Brazil	Italy	United Kingdom
Chile	Korea, Rep. of	U.S.A.
Colombia	Netherlands	U.S.S.R.
Czechoslovakia	New Zealand	Yugoslavia
Denmark	Poland	
France	Portugal	

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

Canada
Switzerland

The Member Bodies of the following countries disapproved the transformation of ISO/R 514 into an International Standard :

Poland
Switzerland
U.S.A.

Turning tools with carbide tips – Internal tools

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1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the types and dimensions of turning tools with carbide tips; it deals only with internal tools.

External tools and the definition of right-hand and left-hand tools are the subject of ISO 243; designation and marking are the subject of ISO 504.

The shank sections and the inserts used are selected respectively from those defined in ISO 241 and ISO 242.

2 REFERENCES

ISO 241, *Shanks for turning and planing tools – Types and dimensions of the section.*

ISO 242, *Carbide tips for brazing on turning tools.*

ISO 243, *Turning tools with carbide tips – External tools.*

ISO 504, *Turning tools with carbide tips-Designation and marking.*

3 SPECIFICATIONS

3.1 Types of internal tools

Only two types of internal tools, considered to be those most generally used, are provided for; they are tool No. 8 and tool No. 9, which differ from each other only in the shape of the end of the operative portion.

Both types may be made either with a square shank or with a cylindrical shank, the front portion of the tool being of round section in both cases.

Dimension l shown in the table is the nominal length of the carbide tip, type *A* or *C*, selected from those contained in ISO 242; this dimension is equal to approximately $0,6 d$.

3.2 Shank sections

For the particular case of internal tools, only two types of sections are selected from among the various types provided for in ISO 241 :

- the square section $h = b$;
- the round section d .

3.3 Overall lengths

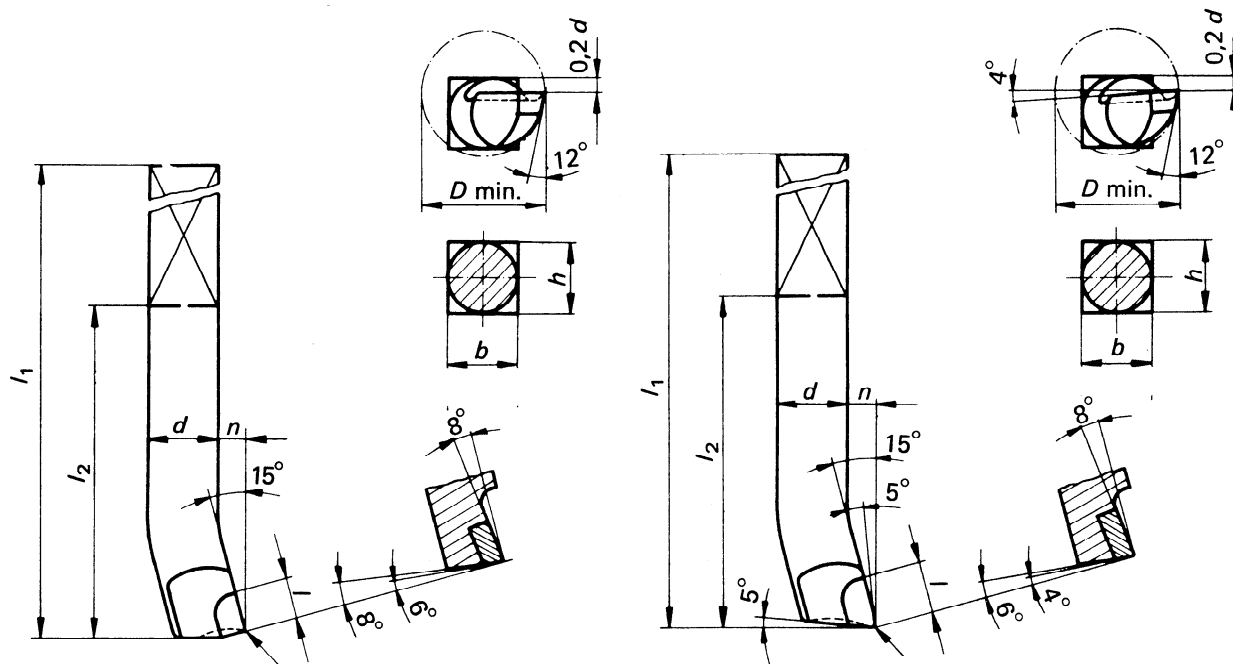
Only one range of overall lengths is specified, the length being a function of the diameter d .

The lengths are scaled approximately in the series of preferred numbers R 40/3 and are a practically linear expression in terms of d , no value departing by more than 15 mm from the value obtained with the formula : $10 d + 50$ mm.

3.4 Shape of the operative portion

To permit the production of holes as small as possible, a bend of 15° is specified for the operative portion, with a dimension n virtually equal to $0,4 d$ and a cutting edge located at a distance equal to $0,2 d$ below the upper plane of the shank of the tool.

4 DIMENSIONS



Tool No. 8 Tool No. 9

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Dimensions in millimetres

<https://standards.iteh.ai/catalog/standards/sis/1017d29-7739-41b1-939c-49ef3b64d61/iso-514-1975>

Tools Nos. 8 and 9 with square section							Tools Nos. 8 and 9 with round section				
$h \times b$	d	l_1^*	l_2	n	l	$D_{min.}$	d	l_1^*	n	l	$D_{min.}$
8 × 8	8	125	40	3	5	14	8	125	3	5	14
10 × 10	10	150	50	4	6	18	10	150	4	6	18
12 × 12	12	180	63	5	8	21	12	180	5	8	21
16 × 16	16	210	80	6	10	27	16	210	6	10	27
20 × 20	20	250	100	8	12	34	20	250	8	12	34
25 × 25	25	300	125	10	16	43	25	300	10	16	43
32 × 32	32	355	160	12	20	52	32	355	12	20	52

* Tolerance on length l_1 : $\begin{matrix} + 5\% \\ 0 \end{matrix}$

NOTES

- 1 The dimension n , the angle of 15° , and in particular the cutting angle of 8° , are given simply for information, but in the absence of instructions to the contrary, they should be followed for tools delivered from stock.
- 2 The choice between tips A and C is left to the manufacturer's discretion. The same applies to the method of attaching the tip to the tool.