भारतीय मानक
Indian Standard

IS 16637 (Part 11) : 2018
ISO 5610-11 : 2014
(Superseding IS 14866 : 2000)

अनुभाजनीय निवेश्यों के लिये आयताकार टांग वाले उपकरण धारक

भाग 11 प्रकार आर

Tool Holders with Rectangular Shank for Indexable Inserts

Part 11 Style R

ICS 25.100.01

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May 2018 **Price Group 4**

Cutting Tools Sectional Committee, PGD 32

NATIONAL FOREWORD

This Indian Standard (Part 11) which is identical with ISO 5610-11 : 2014 'Tool holders with rectangular shank for indexable inserts — Part 11: Style R' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Cutting Tools Sectional Committee and approval of the Production and General Engineering Division Council.

This standard was earlier published as IS 14866 : 2000 'Single point tool holders for turning and copying for indexable inserts — Dimensions' identical with ISO 5610 : 1998. As ISO has revised its standard in 2014 in fifteen parts. Now the committee has decided to adopt this standard in fifteen parts by superseding IS 14866 : 2000. After the publication of this standard IS 14866 : 2000 shall be treated as withdrawn.

This standard is published in 15 parts. Other parts of this standard are:

Part 1 General survey, correlation and determination of dimensions
Part 2 Style A
Part 3 Style B
Part 4 Style D
Part 5 Style F
Part 6 Style G
Part 7 Style J
Part 8 Style K
Part 9 Style L
Part 10 Style N
Part 12 Style S
Part 13 Style T
Part 14 Style H
Part 15 Style V

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

This standard also makes a reference to the BIS Certification Marking of the product, details of which are given in National Annex A.

(*Continued on third cover*)

Indian Standard

TOOL HOLDERS WITH RECTANGULAR SHANK FOR INDEXABLE INSERTS

PART 11 STYLE R

1 Scope

This part of ISO 5610 specifies tool holders with rectangular shank, style R, i.e. with offset shank and cutting edge angle κ_r = 75° for side cutting.

These tool holders are primarily intended for indexable inserts made of hard metal or other cutting materials to be mounted by clamping and to be used for turning operations.

NOTE The symbols for the dimensions shown in the tables of this part of ISO 5610 and the corresponding preferred symbols of properties defined in ISO/TS 13399-2 and ISO/TS 13399-3 are given in ISO 5610-1:2014, Table A.1.

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 5608:2012, *Turning and copying tool holders and cartridges for indexable inserts — Designation*

ISO 5610-1:2014, *Tool holders with rectangular shank for indexable inserts — Part 1: General survey, correlation and determination of dimensions*

3 Dimensions

3.1 General

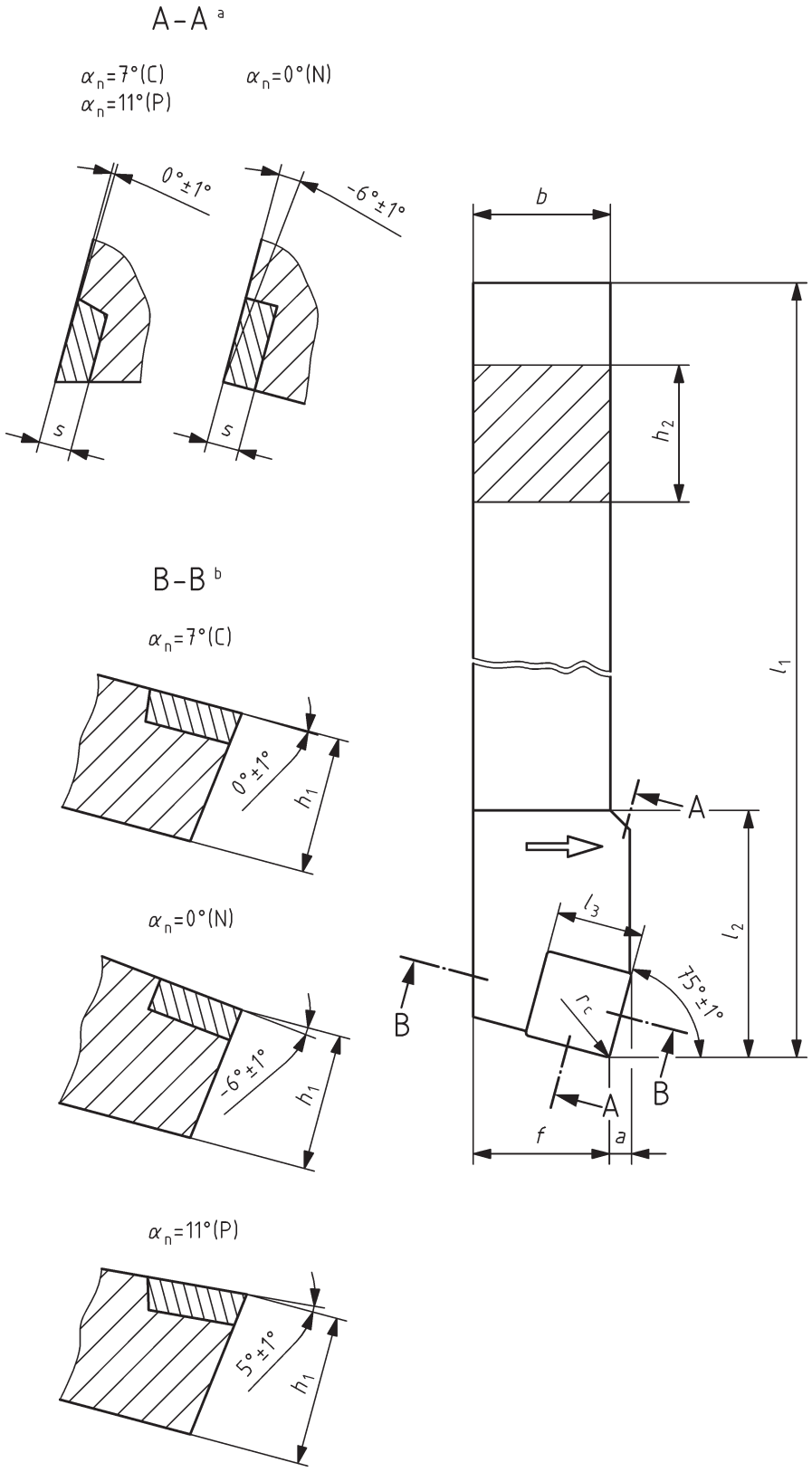
It is not necessary for tool holders to comply with the pictorial representation; only the dimensions given shall be observed.

For determination of dimensions h_1, f, and l_1, see ISO 5610-1.

For explanation of the designation code for tool holders, see ISO 5608.

NOTE The values of rake angles and inclination angles shown in the figures are recommended values; they can vary according to the application.

3.2 Tool holder style R for square indexable insert shape S



Key

a Inclination angle, λ_S.

b Rake angle, γ_O.

NOTE This figure shows a right-hand tool holder (R); left-hand tool holder (L) laterally reversed.

Figure 1 — Tool holder style R for square indexable insert — S

Table 1

Dimensions in millimetres

Symbol[a]	h_1 js13	b h13	l_3 ≈	a	f +0,5 0	h_2 h13	l_1[a] k16	l_2 max.	s[b]
SSRCR 1212 — 09	12	12	9,52	2,2	13	12	—	32	3,97
SSRCL 1212 — 09									
PSRNR 1212 — 09									3,18
PSRNL 1212 — 09									
CSRPR 1212 — 09									
CSRPL 1212 — 09									
SSRCR 1616 — 12	16	16	12,7	3,1	17	16	—	36	4,76
SSRCL 1616 — 12									
PSRNR 1616 — 12									
PSRNL 1616 — 12									
SSRCR 2020 — 12	20	20	12,7	3,1	22	20	—	36	4,76
SSRCL 2020 — 12									
PSRNR 2020 — 12									
PSRNL 2020 — 12									
CSRPR 2020 — 12									3,18
CSRPL 2020 — 12									
SSRCR 2525 — 12	25	25	12,7	3,9	27	25	—	36	4,76
SSRCL 2525 — 12									
PSRNR 2525 — 12									
PSRNL 2525 — 12									
CSRPR 2525 — 12									3,18
CSRPL 2525 — 12									
SSRCR 2525 — 15	25	25	15,88	4,6	27	25	—	40	5,56
SSRCL 2525 — 15									
PSRNR 2525 — 15									6,35
PSRNL 2525 — 15									
SSRCR 3225 — 12	32	25	12,7	3,9	27	32	—	36	4,76
SSRCL 3225 — 12									
PSRNR 3225 — 12									
PSRNL 3225 — 12									
CSRPR 3225 — 12									3,18
CSRPL 3225 — 12									

[a] For the selection of length, l_1, the dash can be replaced by the dimensions of ISO 5610-1:2014, Table 2. For letter symbols identifying the tool length, see ISO 5608:2012, Table 6.

[b] Insert thickness without shim, if applicable.

Table 1

Symbol[a]	h_1 js13	b h13	l_3 ≈	a	f +0,5 0	h_2 h13	l_1[a] k16	l_2 max.	s[b]
SSRCR 3225 — 15	32	25	15,88	4,6	27	32	—	40	5,56
SSRCL 3225 — 15									
PSRNR 3225 — 15									6,35
PSRNL 3225 — 15									
SSRCR 3232 — 19	32	32	19,05	4,6	35	32	—	45	6,35
SSRCL 3232 — 19									
PSRNR 3232 — 19									
PSRNL 3232 — 19									
CSRPR 3232 — 19									4,76
CSRPL 3232 — 19									
SSRCR 4040 — 19	40	40	19,05	4,6	43	40	—	45	6,35
SSRCL 4040 — 19									
PSRNR 4040 — 19									
PSRNL 4040 — 19									
CSRPR 4040 — 19									4,76
CSRPL 4040 — 19									
PSRNR 4040 — 25	40	40	25,4	5,9	43	40	—	50	7,94
PSRNL 4040 — 25									
PSRNR 5050 — 25	50	50	25,4	5,9	53	50	—	50	7,94
PSRNL 5050 — 25									

[a] For the selection of length, l_1, the dash can be replaced by the dimensions of ISO 5610-1:2014, Table 2. For letter symbols identifying the tool length, see ISO 5608:2012, Table 6.

[b] Insert thickness without shim, if applicable.

4 Designation

A tool holder in accordance with this part of ISO 5610 shall be designated by the following:

a) “Tool holder”;

b) a reference to this part of ISO 5610 (i.e. ISO 5610-11);

c) type of mounting, in accordance with ISO 5608;

d) symbol for indexable insert shape, in accordance with ISO 5608;

e) symbol for tool style, in accordance with ISO 5608;

f) symbol for the indexable insert normal clearance, in accordance with ISO 5608;

g) symbol for hand of tool, in accordance with ISO 5608;

h) its height, h_1, width, b, and length, l_1 (symbol for tool length in accordance with ISO 5608);

i) its cutting edge length, l_3.

EXAMPLE Tool holder for a horizontally mounted bore-clamped (P) square indexable insert shape S (S), tool holder style R (R), for normal clearance of indexable insert $\alpha_n = 0°$ (N), right-hand type (R), with height $h_1 = 32$ mm and width $b = 25$ mm (3225), length $l_1 = 170$ mm (P), for cutting edge length $l_3 = 15{,}88$ mm (15) is designated as follows:

Tool holder ISO 5610-11 - PSRNR 3225 P15

5 Material

The material should be steel with a tensile strength of at least 1 200 N/mm^2.

6 Design

6.1 Type of mounting

Standard design of tool holders with indexable insert shall be mounted in accordance with Table 1.

Other types of mounting are at the manufacturer's discretion or upon agreement. The letter symbol in the designation, symbol 1, shall then be replaced by the respective symbol for the chosen or agreed-upon type of mounting in accordance with ISO 5608.

For the modified type of mounting deviating from Table 1, the relevant indexable insert thickness shall also be considered.

6.2 Corner radius, r_ε

Tool holders in accordance with this part of ISO 5610 can be equipped with indexable inserts with cutting edge length, l_3, as specified in Table 1, and any corner radius, r_ε.

The values for a and f given in Table 1 and for l_1 in ISO 5610-1:2014, Table 2, apply to tool holders with indexable inserts having corner radii, r_ε, in accordance with Table 2.

Table 2

Dimensions in millimetres

l_3	r_ε
9,52	0,8
12,7	
15,88	1,2
19,05	
25,4	2,4
NOTE The values given for r_ε are nominal values. The accurate values converted from the inch dimensions are 0,794 mm, 1,191 mm, and 2,381 mm.	

For indexable inserts with corner radii, r_ε, other than those specified in Table 2, the dimensions a, f, and l_1 shall be determined in accordance with ISO 5610-1.

The tolerances for h_1, f, and l_1 refer to dimensions measured with master indexable insert and master shim, if applicable.

6.3 Thickness, s, of indexable insert

The values for thickness, s, given in Table 1 apply to indexable inserts without shim and for the standard design of tool holders.

For tool holders for indexable inserts with thicknesses deviating from the specified values, the thickness shall be indicated when ordering or upon delivery (in the handbook).

7 Extent of delivery

Tool holders shall be delivered complete with clamping device, but without indexable insert(s).

8 Marking

Tool holders shall be marked with the letter symbol and the name or trademark of the manufacturer.

Additional marking is at the manufacturer's discretion or upon agreement.

Deviations in marking may be by mutual agreement.

A reference to this part of ISO 5610, i.e. ISO 5610-11:2014, shall be given on the packaging.

Bibliography

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

[2] ISO 3002-1, *Basic quantities in cutting and grinding — Part 1: Geometry of the active part of cutting tools — General terms, reference systems, tool and working angles, chip breakers*

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

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

[5] ISO/TS 13399-2, *Cutting tool data representation and exchange — Part 2: Reference dictionary for the cutting items*

[6] ISO/TS 13399-3, *Cutting tool data representation and exchange — Part 3: Reference dictionary for tool items*

NATIONAL ANNEX A
(*National Foreword*)

A-1 BIS CERTIFICATION MARKING

The tool holders with rectangular shank for indexable inserts may also be marked with the Standard Mark.

A-1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act,* 2016 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

(*Continued from second cover*)

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 5608 : 2012 Turning and copying tool holders and cartridges for indexable inserts — Designation	IS 14863 : 2018 Turning and copying tool holders and cartridges for indexable inserts — Designation (*first revision*)	Identical
ISO 5610-1 : 2014 Tool holders with rectangular shank for indexable inserts — Part 1: General survey, correlation and determination of dimensions	IS 16637 (Part 1) : 2018 Tool holders with rectangular shank for indexable inserts : Part 1 General survey, correlation and determination of dimensions	do

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc No.: PGD 32 (10140).

Amendments Issued Since Publication

Amendment No.	Date of Issue	Text Affected

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