BSI Standards Publication

Tool holders with rectangular shank for indexable inserts

Part 14: Style H

National foreword

This British Standard is the UK implementation of ISO 5610-14:2014. It supersedes BS ISO 5610-14:2010 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/18, Tools tips and inserts for cutting applications.

A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL STANDARD

ISO

5610-14

Second edition
2014-09-01

Tool holders with rectangular shank for indexable inserts —

Part 14:
Style H

Porte-plaquette à queue rectangulaire pour plaquettes amovibles —

Partie 14: Forme H

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with defined cutting edges, cutting items*.

This second edition cancels and replaces the first edition (ISO 5610-14:2010), of which it constitutes a minor revision.

ISO 5610 consists of the following parts, under the general title *Tool holders with rectangular shank for indexable inserts*:

— *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 11: Style R*

— *Part 12: Style S*

— *Part 13: Style T*

— *Part 14: Style H*

— *Part 15: Style V*

Tool holders with rectangular shank for indexable inserts —

Part 14: Style H

1 Scope

This part of ISO 5610 specifies tool holders with rectangular shank, style H, i.e. with offset shank and cutting edge angle κ_r = 107,5° 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
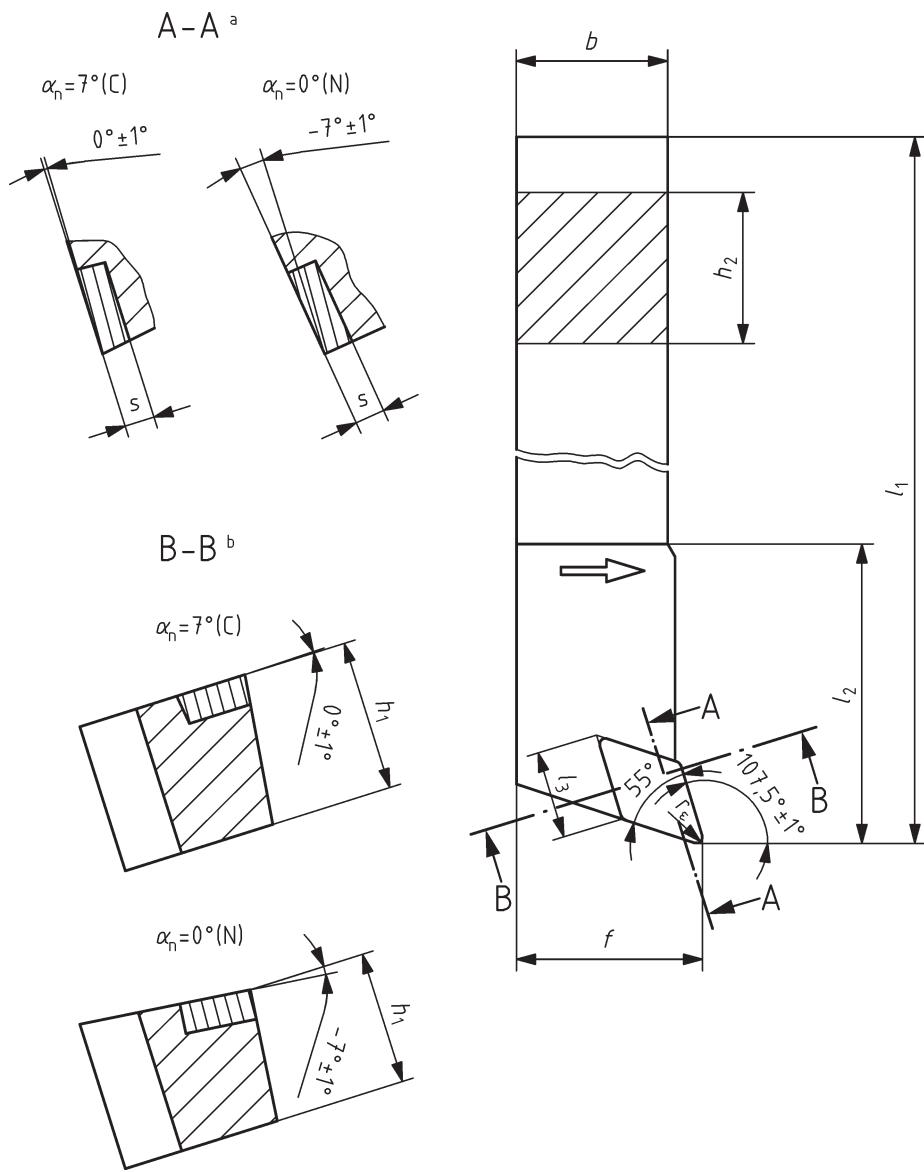
It is not necessary for tool holders to comply with the pictorial representation; only the dimensions given shall be observed.

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 H for rhombic indexable insert shape D

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 H for rhombic indexable insert — D

Table 1
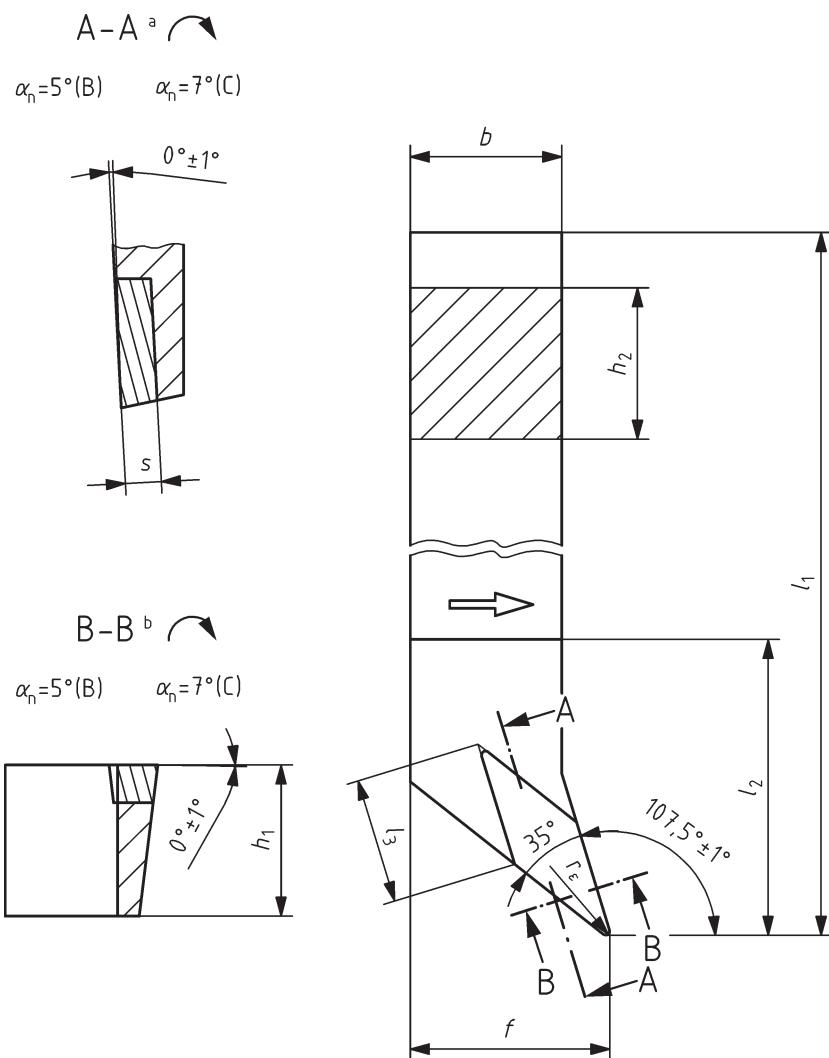
Dimensions in millimetres

Symbol[a]	h_1 js13	b h13	l_3 ≈	f +0,5 0	h_2 h13	l_1[a] k16	l_2 max.	s[b]
SDHCR 1010 — 07	10	10	7,75	12	10	—	25	2,38
SDHCL 1010 — 07								
SDHCR 1212 — 07	12	12	7,75	16	12	—	32	2,38
SDHCL 1212 — 07								
SDHCR 1616 — 11	16	16	11,6	20	16	—	32	3,97
SDHCL 1616 — 11								
SDHCR 2020 — 11	20	20	11,6	25	20	—	40	3,97
SDHCL 2020 — 11								
PDHNR 2020 — 15			15,5					6,35
PDHNL 2020 — 15								
CDHNR 2525 — 15	25	25	15,5	32	25	—	40	7,94
CDHNL 2525 — 15								
SDHCR 2525 — 15								4,76
SDHCL 2525 — 15								
PDHNR 2525 — 15								6,35
PDHNL 2525 — 15								
CDHNR 3225 — 15	32	25	15,5	32	32	—	40	7,94
CDHNL 3225 — 15								
SDHCR 3225 — 15								4,76
SDHCL 3225 — 15								
PDHNR 3225 — 15								6,35
PDHNL 3225 — 15								

[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.

3.3 Tool holder style H for rhombic indexable insert shape V

Key

a   Inclination angle, λ_S.

b   Rake angle, γ_0.

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

Figure 2 — Tool holder style H for rhombic indexable insert — V

Table 2

Symbol[a]	h_1 js13	b h13	l_3 ≈	f +0,5 0	h_2 h13	l_1[a] k16	l_2 max.	s[b]
SVHBR 1212 — 11	12	12	11,1	16	12	—	25	
SVHBL 1212 — 11								3,18
SVHBR 1616 — 11	16	16	11,1	20	16	—	25	
SVHBL 1616 — 11								
SVHBR 2020 — 16	20	20	16,6	25	20	—	40	4,76
SVHBL 2020 — 16								
SVHBR 2525 — 16	25	25	16,6	32	25	—	40	4,76
SVHBL 2525 — 16								
SVHBR 3225 — 16	32	25	16,6	32	25	—	40	4,76
SVHBL 3225 — 16								

[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:

a)   "Tool holder";

b)   a reference to this part of ISO 5610 (i.e. ISO 5610-14);

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 1   Tool holder for a horizontally mounted, bore-clamped (P) rhombic indexable insert shape D (D), tool holder style H (H), for normal clearance of indexable insert α_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 = 15,5 mm (15) is designated as follows:

Tool holder ISO 5610-14 - PDHNR 3225 P15

EXAMPLE 2   Tool holder for a screw-clamped (S) rhombic indexable insert shape V (V), tool holder style H (H), for normal clearance of indexable insert α_n = 5° (B), right-hand type (R), with height h_1 = 25 mm and width b = 25 mm (2525), length l_1 = 150 mm (M), for cutting edge length l_3 = 16,6 mm (16) is designated as follows:

Tool holder ISO 5610-14 - SVHBR 2525 M16

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 Tables 1 and 2.

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 Tables 1 and 2, 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 Tables 1 and 2, and any corner radius r_ε.

The values for l_1 given in ISO 5610-1:2014, Table 2, apply to tool holders with indexable inserts having corner radii, r_ε, in accordance with Table 3.

Table 3

Dimensions in millimetres

l_3		r_ε
D	V	
7,75	—	0,4
—	11,1	
11,6	—	0,8
15,5	—	
—	16,6	
NOTE The values given for r_ε are nominal values. The accurate values converted from the inch dimensions are 0,397 mm and 0,794 mm.		

For indexable inserts with corner radii, r_ε, other than those specified in Table 3, the dimensions 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 Tables 1 and 2, 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 5610-14:2014, 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*

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