BS ISO 5610-5:2014

BSI Standards Publication

Tool holders with rectangular shank for indexable inserts

Part 5: Style F

National foreword

This British Standard is the UK implementation of ISO 5610-5:2014. It supersedes BS ISO 5610-5:2010 which is withdrawn.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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ISBN 978 0 580 83613 8

ICS 25.100.01

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2014.

Amendments issued since publication

Date	Text affected

BS ISO 5610-5:2014

INTERNATIONAL STANDARD

ISO 5610-5

Second edition
2014-09-01

Tool holders with rectangular shank for indexable inserts —

Part 5: **Style F**

Porte-plaquette à queue rectangulaire pour plaquettes amovibles — Partie 5: Forme F

Reference number
ISO 5610-5:2014(E)

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

Published in Switzerland

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Foreword

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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 5610-5:2010), 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*

INTERNATIONAL STANDARD **ISO 5610-5:2014(E)**

Tool holders with rectangular shank for indexable inserts —

Part 5: Style F

1 Scope

This part of ISO 5610 specifies tool holders with rectangular shank, style F, i.e. with offset shank and cutting edge angle $\kappa_r = 90°$ for end 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

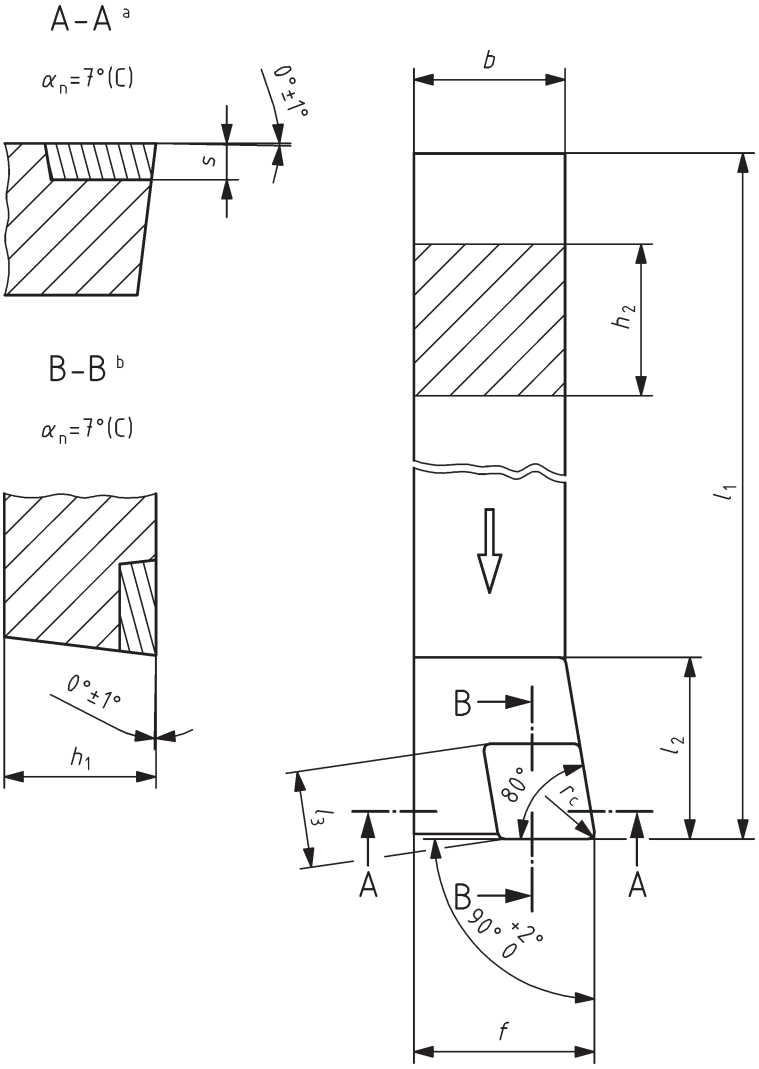
It is not necessary for tool holders to comply with the pictorial representation; only the dimensions given shall be observed.

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 F for rhombic indexable insert shape C



Key

a Inclination angle, λ_S.

b Rake angle, γ_O.

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

Figure 1 — Tool holder style F for rhombic indexable insert — C

Table 1

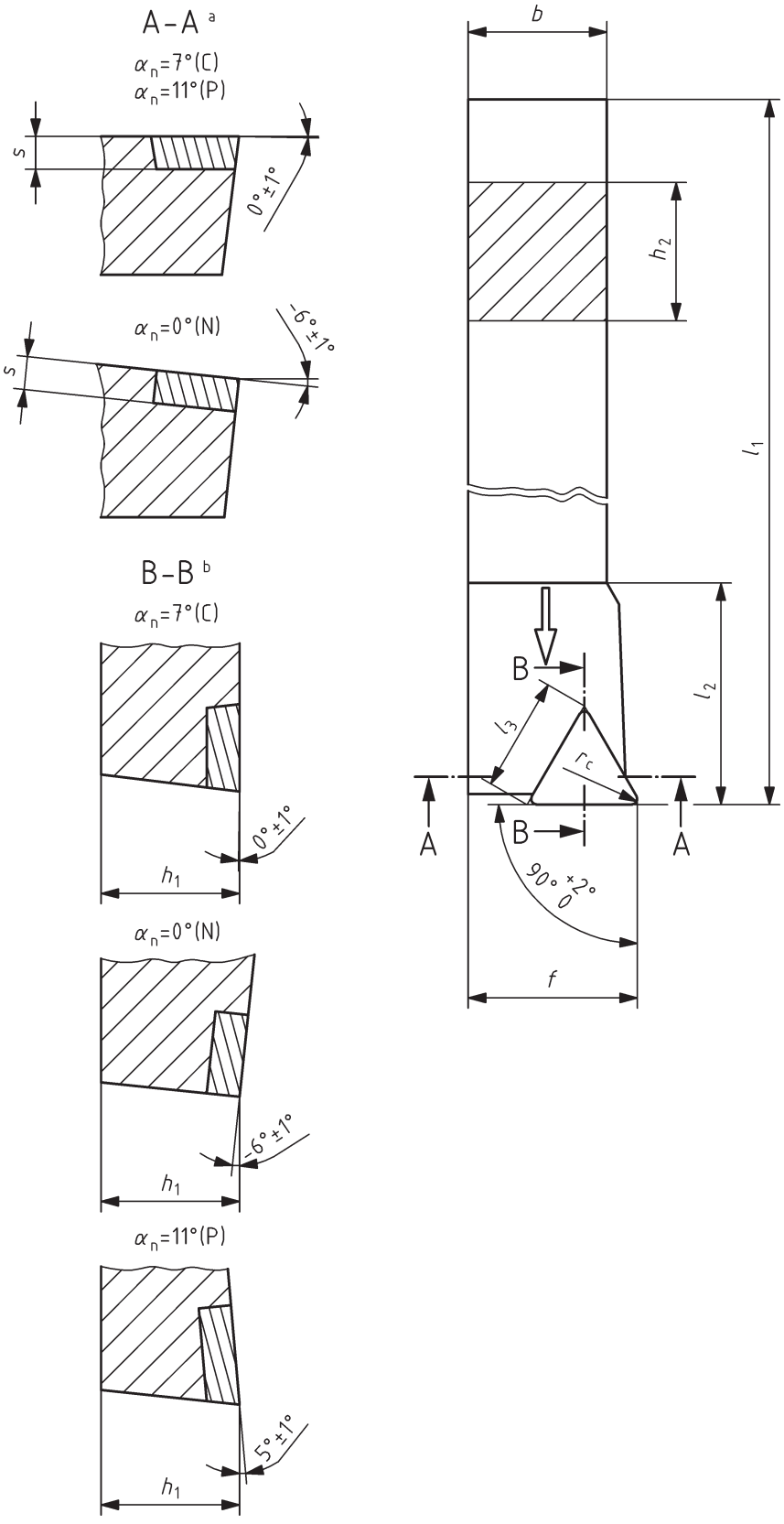
Dimensions in millimetres

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]
SCFCR 0808 — 06	8	8	6,4	10	8	—	12	2,38
SCFCL 0808 — 06								
SCFCR 1010 — 06	10	10	6,4	12	10	—	12	2,38
SCFCL 1010 — 06								

[a] For the selection of length, l_1, the dash can be replaced by the dimensions of ISO 5610-1:2010, 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 F for triangular indexable insert shape T



Key

a Inclination angle, λ_S.

b Rake angle, γ_O.

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

Figure 2 — Tool holder style F for triangular indexable insert — T

Table 2

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]
STFCR 1212 — 11	12	12	11	16	12	—	25	2,38
STFCL 1212 — 11								
PTFNR 1212 — 11								3,18
PTFNL 1212 — 11								
CTFPR 1212 — 11								
CTFPL 1212 — 11								
STFCR 1616 — 11	16	16	11	20	16	—	25	2,38
STFCL 1616 — 11								
PTFNR 1616 — 11								3,18
PTFNL 1616 — 11								
CTFPR 1616 — 11								
CTFPL 1616 — 11								
STFCR 1616 — 16	16	16	16,5	20	16	—	32	3,97
STFCL 1616 — 16								
PTFNR 1616 — 16								4,76
PTFNL 1616 — 16								
CTFPR 1616 — 16								3,18
CTFPL 1616 — 16								
STFCR 2020 — 16	20	20	16,5	25	20	—	32	3,97
STFCL 2020 — 16								
PTFNR 2020 — 16								4,76
PTFNL 2020 — 16								
CTFPR 2020 — 16								3,18
CTFPL 2020 — 16								
STFCR 2525 — 16	25	25	16,5	32	25	—	32	3,97
STFCL 2525 — 16								
PTFNR 2525 — 16								4,76
PTFNL 2525 — 16								
CTFPR 2525 — 16								3,18
CTFPL 2525 — 16								

[a] For the selection of length, l_1, the dash can be replaced by the dimensions of ISO 5610-1:2010, Table 2. For letter symbols identifying the tool length, see ISO 5608:2012, Table 6.

[b] Insert thickness without shim, if applicable.

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]
STFCR 2525 — 22	25	25	22	32	25	—	36	4,76
STFCL 2525 — 22								
PTFNR 2525 — 22								
PTFNL 2525 — 22								
CTFPR 2525 — 22								
CTFPL 2525 — 22								
STFCR 3225 — 16	32	25	16,5	32	32	—	32	3,97
STFCL 3225 — 16								
PTFNR 3225 — 16								4,76
PTFNL 3225 — 16								
CTFPR 3225 — 16								3,18
CTFPL 3225 — 16								
STFCR 3225 — 22	32	25	22	32	32	—	36	4,76
STFCL 3225 — 22								
PTFNR 3225 — 22								
PTFNL 3225 — 22								
CTFPR 3225 — 22								
CTFPL 3225 — 22								
STFCR 3232 — 22	32	32	22	40	32	—	36	4,76
STFCL 3232 — 22								
PTFNR 3232 — 22								
PTFNL 3232 — 22								
CTFPR 3232 — 22								
CTFPL 3232 — 22								
STFCR 4040 — 22	40	40	22	50	40	—	36	4,76
STFCL 4040 — 22								
PTFNR 4040 — 22								
PTFNL 4040 — 22								
CTFPR 4040 — 22								
CTFPL 4040 — 22								
PTFNR 4040 — 27	40	40	27,5	50	40	—	40	6,35
PTFNL 4040 — 27								

[a] For the selection of length, l_1, the dash can be replaced by the dimensions of ISO 5610-1:2010, 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 5610-5);

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 screw-clamped (S) rhombic indexable insert shape C (C), tool holder style F (F), for normal clearance of indexable insert $\alpha_n = 7°$ (C), right-hand type (R), with height $h_1 = 10$ mm and width $b = 10$ mm (1010), length $l_1 = 70$ mm (E), for cutting edge length $l_3 = 6{,}4$ mm (06) is designated as follows:

Tool holder ISO 5610-5 - SCFCR 1010 E06

EXAMPLE 2 Tool holder for a horizontally mounted, bore-clamped (P) triangular indexable insert shape T (T), tool holder style F (F), 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 $l_3 = 22$ mm (22) is designated as follows:

Tool holder ISO 5610-5 - PTFNR 3225 P22

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 lengths, 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
6,4	0,4
11	
16,5	0,8
22	
27,5	1,2
NOTE The values given for r_ε are nominal values. The accurate values converted from the inch dimensions are 0,397 mm, 0,794 mm, and 1,191 mm.	

For indexable inserts with corner radii r_ε, other than those specified in Table 3, the dimensions of *f* 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 any.

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 5610-5:2014, 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*

ICS 25.100.01
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BSI Group Headquarters

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