BS ISO 5610-1:2014

BSI Standards Publication

Tool holders with rectangular shank for indexable inserts

Part 1: General survey, correlation and determination of dimensions

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National foreword

This British Standard is the UK implementation of ISO 5610-1:2014. It supersedes BS ISO 5610-1:2010 which is withdrawn.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.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments issued since publication

Date	Text affected

BS ISO 5610-1:2014

INTERNATIONAL STANDARD

ISO 5610-1

Second edition
2014-09-01

Tool holders with rectangular shank for indexable inserts —

Part 1: General survey, correlation and determination of dimensions

Porte-plaquette à queue rectangulaire pour plaquettes amovibles —
Partie 1: Vue d'ensemble, corrélation et détermination des dimensions

Reference number
ISO 5610-1:2014(E)

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 of ISO 5610-1 cancels and replaces the first edition (ISO 5610-1:2010), 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 5610-1:2014(E)**

Tool holders with rectangular shank for indexable inserts —

Part 1: General survey, correlation and determination of dimensions

1 Scope

This part of ISO 5610 specifies tool holders with rectangular shank for indexable inserts and specifies their styles in relation to their dimensions according to ISO 5610-2, ISO 5610-3, ISO 5610-4, ISO 5610-5, ISO 5610-6, ISO 5610-7, ISO 5610-8, ISO 5610-9, ISO 5610-10, ISO 5610-11, ISO 5610-12, ISO 5610-13, ISO 5610-14, and ISO 5610-15.

These tool holders are primarily intended for indexable inserts made of hard metal, ceramic, or other cutting materials intended to be mounted by clamping and used for turning operations. This part of ISO 5610 is general and is intended to be used with ISO 5610-2, ISO 5610-3, ISO 5610-4, ISO 5610-5, ISO 5610-6, ISO 5610-7, ISO 5610-8, ISO 5610-9, ISO 5610-10, ISO 5610-11, ISO 5610-12, ISO 5610-13, ISO 5610-14, and ISO 5610-15.

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 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*

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

ISO 5610-2, *Tool holders with rectangular shank for indexable inserts — Part 2: Style A*

ISO 5610-3, *Tool holders with rectangular shank for indexable inserts — Part 3: Style B*

ISO 5610-4, *Tool holders with rectangular shank for indexable inserts — Part 4: Style D*

ISO 5610-5, *Tool holders with rectangular shank for indexable inserts — Part 5: Style F*

ISO 5610-6, *Tool holders with rectangular shank for indexable inserts — Part 6: Style G*

ISO 5610-7, *Tool holders with rectangular shank for indexable inserts — Part 7: Style J*

ISO 5610-8, *Tool holders with rectangular shank for indexable inserts — Part 8: Style K*

ISO 5610-9, *Tool holders with rectangular shank for indexable inserts — Part 9: Style L*

ISO 5610-10, *Tool holders with rectangular shank for indexable inserts — Part 10: Style N*

ISO 5610-11, *Tool holders with rectangular shank for indexable inserts — Part 11: Style R*

ISO 5610-12, *Tool holders with rectangular shank for indexable inserts — Part 12: Style S*

ISO 5610-13, *Tool holders with rectangular shank for indexable inserts — Part 13: Style T*

ISO 5610-14, *Tool holders with rectangular shank for indexable inserts — Part 14: Style H*

ISO 5610-15, *Tool holders with rectangular shank for indexable inserts — Part 15: Style V*

3 Survey

The survey of the tool holders with rectangular shank cross section shall be as given in Table 1. The tool holders with rectangular shank cross section and their corresponding letter symbols and shank sizes shall be in accordance with ISO 5610-2, ISO 5610-3, ISO 5610-4, ISO 5610-5, ISO 5610-6, ISO 5610-7, ISO 5610-8, ISO 5610-9, ISO 5610-10, ISO 5610-11, ISO 5610-12, ISO 5610-13, ISO 5610-14, and ISO 5610-15.

The designation code shall be as given in ISO 5608.

Table 1 — Tool holders with rectangular shanks

Dimensions in millimetres

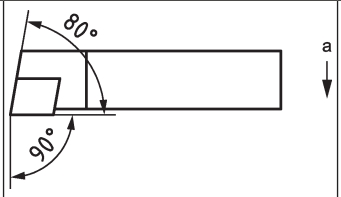
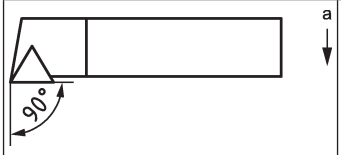
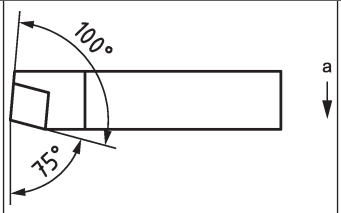
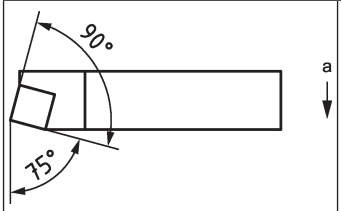
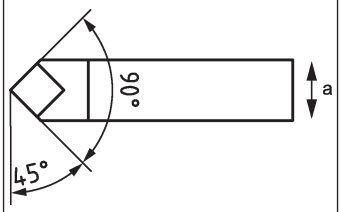
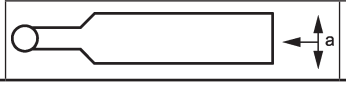
Style of tool holder	Illustration	Symbols for the cross section $h_2 \times b$										Dimensions in
		0808	1010	1212	1616	2020	2525	3225	3232	4032	4040	5050	
A			•										ISO 5610-2
				•	•	•	•	•	•		•		
B		•	•										ISO 5610-3
				•	•	•	•	•	•		•	•	
D			•	•	•	•	•	•					ISO 5610-4
		•	•	•	•	•	•	•	•		•		

Table 1 — *(continued)*

Dimensions in millimetres

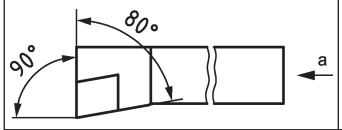
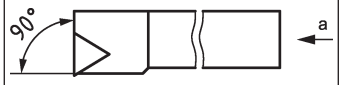
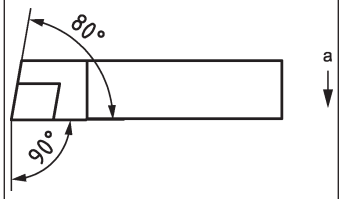
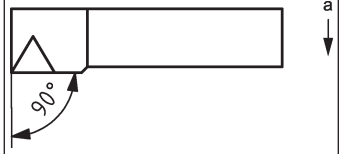
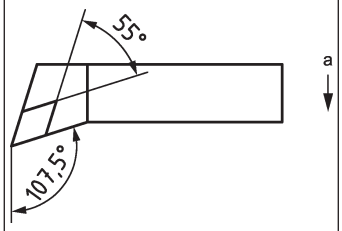
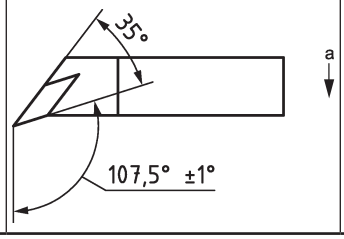
Style of tool holder	Illustration	Symbols for the cross section $h_2 \times b$											Dimensions in
		0808	1010	1212	1616	2020	2525	3225	3232	4032	4040	5050	
F		•	•										ISO 5610-5
				•	•	•	•	•	•		•		
G		•	•										ISO 5610-6
				•	•	•	•	•	•		•	•	
H			•	•	•	•	•	•					ISO 5610-14
				•	•	•	•	•					

Table 1 — *(continued)*

Dimensions in millimetres

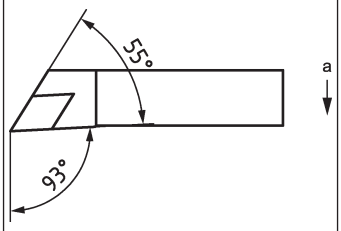
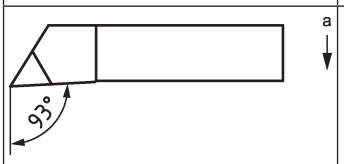
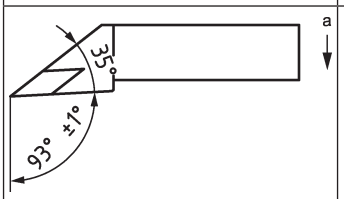
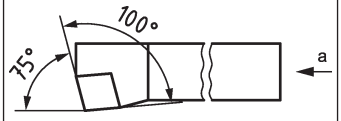
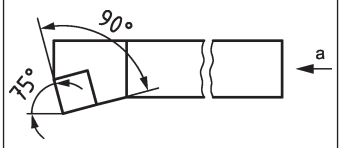
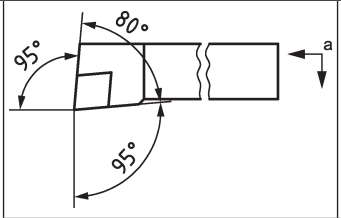
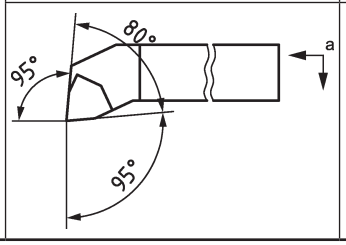
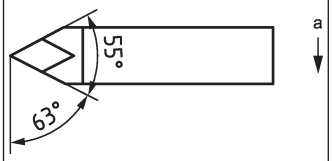
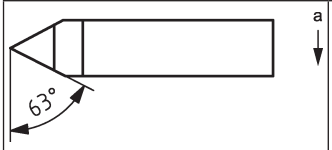
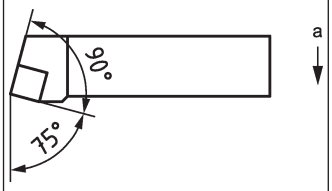
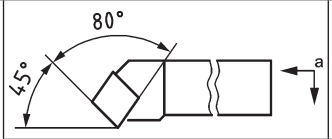
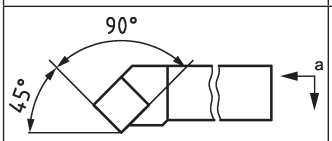
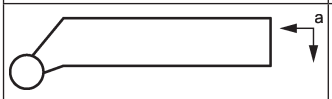
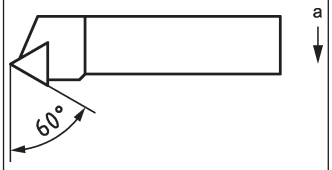
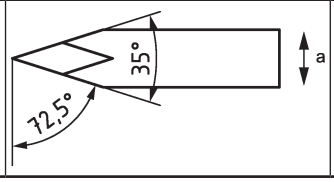
Style of tool holder	Illustration	Symbols for the cross section $h_2 \times b$											Dimensions in
		0808	1010	1212	1616	2020	2525	3225	3232	4032	4040	5050	
J		•	•	•	•	•	•	•		•			ISO 5610-7
						•	•	•		•			
				•	•	•	•	•					
K		•	•										ISO 5610-8
				•	•	•	•	•	•		•		
L		•	•	•	•	•	•	•	•		•		ISO 5610-9
		•	•	•	•	•	•	•	•				

Table 1 — *(continued)*

Dimensions in millimetres

Style of tool holder	Illustration	Symbols for the cross section $h_2 \times b$											Dimensions in
		0808	1010	1212	1616	2020	2525	3225	3232	4032	4040	5050	
N		•	•	•	•	•	•	•		•			ISO 5610-10
							•	•		•			
R				•	•	•	•	•	•		•	•	ISO 5610-11
S		•	•	•	•	•	•	•					ISO 5610-12
				•	•	•	•	•	•		•	•	
		•	•	•	•	•	•	•	•		•		
T				•	•	•	•	•	•		•		ISO 5610-13
V				•	•	•	•	•					ISO 5610-15

NOTE "•" represents standardized letter symbols and shank sizes. Cells left blank represent non-standardized letter symbols and shank sizes.

[a] Primary direction of feed.

4 Dimensions

4.1 Cross section and length, l_1

The dimensions of the cross section, depending on the length, l_1, and height, h_1, of the cutting edge shall be in accordance with Figure 1 and Table 2.

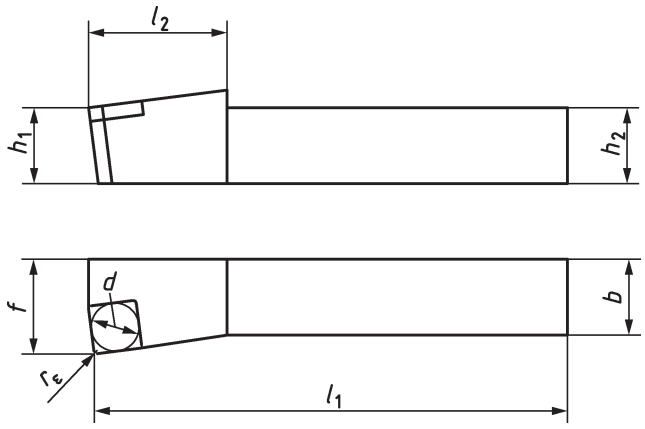


Figure 1 — Tool holder style K

Table 2 — Dimensions of the cross section

Dimensions in millimetres

h_1 js13	h_2 h13	b[a] h13		l_1 k16	
		Series 1	**Series 2**	**Long**	**Short**
8	8	8	—	60	40
10	10	10	8	70	50
12	12	12	10	80	60
16	16	16	12	100	70
20	20	20	16	125	80
25	25	25	20	150	100
32	32	32	25	170	125
40	40	40	32	200	150
50	50	50	40	250	—

[a] Series 1: $b = h_2$; Series 2: b approximately $0{,}8h_2$.

4.2 Head length, l_2

The maximum head length, l_2, depending on the diameter, d, of the inscribed circle of the indexable inserts, shall be in accordance with Figure 1 and Table 3.

The head length given in Table 3 shall not apply to tool holders with indexable insert styles D and V.

Table 3 — Head length

Dimensions in millimetres

d	l_2 max.
6,35	25
7,94	28
9,525	32
12,7	36

d	l_2 max.
15,875	40
19,05	45
25,4	50

4.3 Dimension *f*

The dimension *f*, depending on the width, *b*, of the cross section and the shape of the tool holder, shall be in accordance with Table 4.

Table 4 — Dimension *f*

Dimensions in millimetres

b	*f* for tool holder styles					
	D, V	N	B, T	A	R	F, G, H, J, K, L, S
	±0,25	+0,5 0	+0,5 0	+0,5 0	+0,5 0	+0,5 0
8	4		7	8,5	9	10
10	5		9	10,5	11	12
12	6		11	12,5	13	16
16	8		13	16,5	17	20
20	10		17	20,5	22	25
25	12,5		22	25,5	27	32
32	16		27	33	35	40
40	20		35	41	43	50
50	25		43	51	53	60

5 Determination of dimensions

5.1 Cutting edge corner

5.1.1 Specified point *K*

Case 1: The specified point *K* shall be defined as follows.

Consider planes P_f (assumed working plane) and P_s (tool cutting edge plane), as defined in ISO 3002-1, for a selected point on the major cutting edge (e.g. point of tangency of major cutting edge with inscribed circle).

a) For $\kappa_r \leq 90°$, point *K* shall be defined as the intersection of plane P_s, a plane parallel to plane P_f tangent to the corner radius, and a plane containing the tool face A_γ (see Figures 2 and 3).

b) For $\kappa_r > 90°$, point *K* shall be defined as the intersection of a plane parallel to plane P_f tangent to the corner radius, a plane perpendicular to plane P_f tangent to the corner radius, and a plane containing the tool face A_γ (see Figures 4 and 5).

For tool holders style S, the side rake shall be equal to the back rake.

Case 2: For special cases of tool holders styles D and S with round indexable inserts, specified point *K* shall be defined as follows.

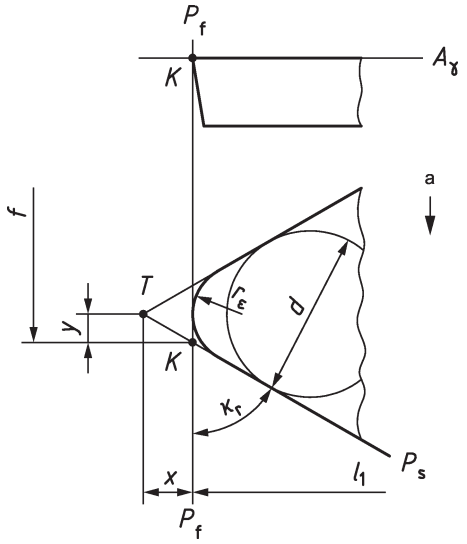
a) For tool holders style D (see Figure 6), point *K* shall be defined as the intersection of

   — a plane parallel to P_f passing through the axis of the indexable insert,

   — a plane perpendicular to P_f and tangential to the cutting edge, and

   — a plane containing A_γ.

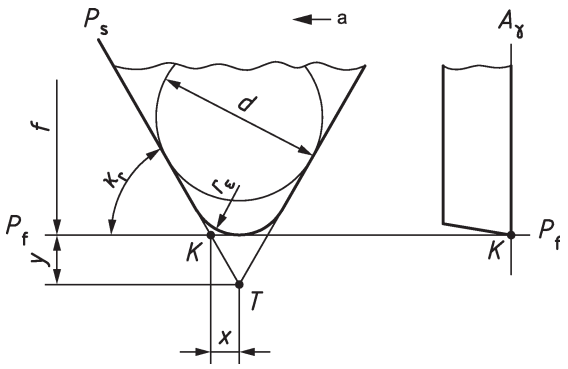
b) For tool holders style S (see Figure 7), there are two cases of point *K*. These shall be defined by two planes, P_f, in directions of two main perpendicular feeds, which are tangential to the cutting edge of the indexable insert.



Key

a Primary direction of feed.

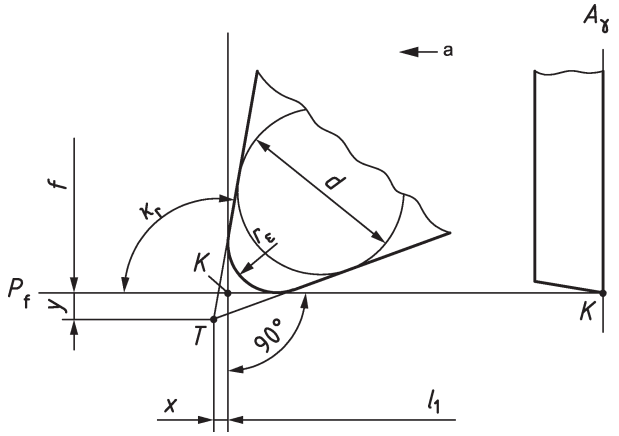
Figure 2 — Cutting edge angle $\kappa_r \leq 90°$, with transverse feed



Key

a Primary direction of feed.

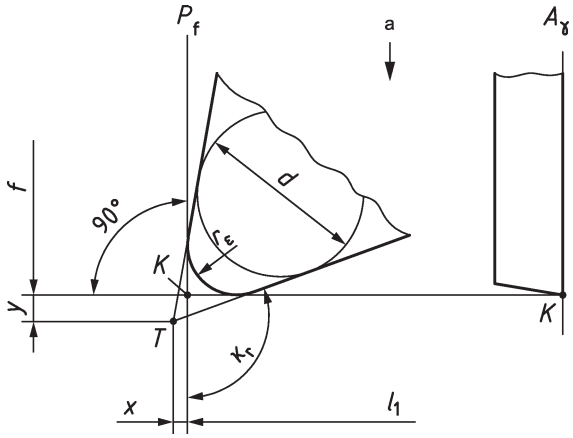
Figure 3 — Cutting edge angle $\kappa_r \leq 90°$, with longitudinal feed



Key

a Primary direction of feed.

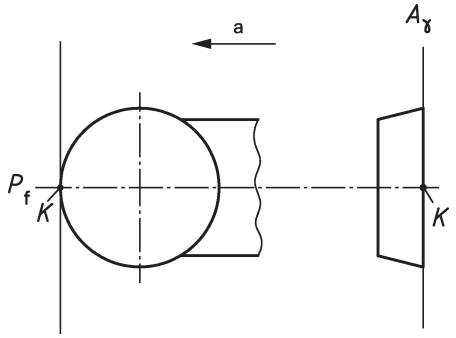
Figure 4 — Cutting edge angle κ_r >90°, with longitudinal feed



Key

a Primary direction of feed.

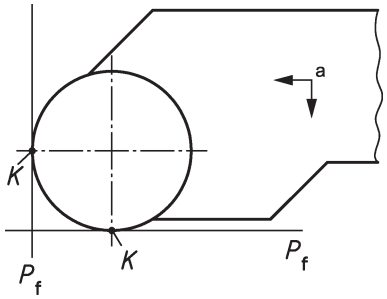
Figure 5 — Cutting edge angle κ_r >90°, with transverse feed



Key

a Primary direction of feed.

Figure 6 — Point *K* for tool style D with round indexable insert



Key

a Primary direction of feed.

Figure 7 — Point *K* for tool style *S* with round indexable insert

5.1.2 Theoretical sharp corner, *T*

The intersection of the theoretical extensions of the major cutting edge and minor cutting edge shall be considered as the theoretical sharp cutting edge corner *T* (see Figures 2 to 5).

NOTE The position of the theoretical corner, *T*, is independent of the corner radius, r_ε, of the indexable insert.

5.2 Corner radius, r_ε, of the master indexable inserts

The values of the corner radius, r_ε, of the master indexable insert (master gauge) used for the determination and testing of length, l_1, dimension *f*, and height, h_1 shall be in accordance with Table 5.

Table 5 — Corner radius

Dimensions in millimetres

d	r_ε **Nominal dimension**[a]
6,35	0,4
7,94	
9,525	0,8
12,7	
15,875	1,2
19,05	
25,4	2,4

[a] The correction values *x* and *y* are derived from the accurate values of the corner radii r_ε = 0,397 mm, 0,794 mm, 1,191 mm, and 2,381 mm, which correspond to the inch dimensions.

The corner radius, r_ε, of the master indexable insert shall be a function of the size of the indexable insert associated to the tool holder and, therefore, it shall be related to the diameter of the inscribed circle as shown in Table 5.

5.3 Length, l_1

The length, l_1 (for values, see Table 2), shall be the distance between the specified point *K* and the shank end (see Figures 1 to 5 and the illustrations in Table 6), measured on a master indexable insert with corner radius, r_ε, in accordance with 5.2.

For tool holders with indexable inserts with a corner radius, r_ε deviating from Table 5, the modified length, l_1, shall be determined with correction value *x* as shown in Figures 2 to 5.

Table 5 *(continued)*

The correction value x (see Table 6) corresponds to the distance, measured parallel to the shank, between the specified point K and the theoretical corner, T.

The modified length shall be obtained from the length l_1 given in Table 2 and the difference between the values x for the new corner radius and the corner radius given in Table 5.

5.4 Dimension f

Dimension f (for values, see Table 4) shall be the distance between the specified point K and the rear backing surface of the tool holder (see Figures 1 to 5 and the illustrations in Table 6), measured on a master indexable insert with corner radius, r_ε, in accordance with 5.2.

Exceptions to this definition are symmetrical tool holders styles D and V, for which the values given in Table 4 for dimension f shall apply to the distance measured between the theoretical cutting edge corner, T, and the rear backing surface of the tool holders (see Figures 2 and 3).

For tool holders style D, the functional dimension relating to the cutting edge corner, K, shall be either the dimension $f + y$ or $f - y$, where y shall be taken from Table 6.

For tool holders with indexable inserts with a corner radius, r_ε, deviating from Table 5, the modified dimension f shall be determined with correction value y as shown in Figures 2 to 5.

Correction value y corresponds to the distance between the specified point K and the theoretical cutting edge corner, T, measured transverse to the shank.

The modified dimension f shall be obtained from the value given in Table 4 and the difference between the y-values for the new corner radius and the corner radius given in Table 5.

5.5 Height, h_1

The height, h_1 (for values, see Table 2), shall be the distance between the specified point K and the base of the tool holder (see Figure 1), measured on a master indexable insert and on a master shim, if applicable.

5.6 Tolerances

The tolerances given in Tables 2 and 4 refer to length, l_1, dimension f, and height, h_1, measured on a master indexable insert and a master shim, if applicable. Therefore, the tolerances for l_1, f, and h_1 shall not include the tolerances for indexable insert and shim.

5.7 Dimension a

5.7.1 General

Dimension a, shall be related to the determination of the overall width and overall length of tool holders.

In general, the overall width corresponds to dimension f or the shank width and the overall length corresponds to dimension l_1, with the exception of tool holders of styles defined in 5.7.2 and 5.7.3.

5.7.2 Styles R and T

For styles R and T, the overall width of the tool holder shall be the sum of the values for f and a.

Dimension a is defined as the distance between the specified point K and the tangent to the corner radius of the indexable insert, measured perpendicular to the shank length (see the illustrations in Table 6).

5.7.3 Styles K and S

For styles K and S, the overall length of the tool holder shall be the sum of the values for l_1 and a.

Dimension *a* shall be defined as the distance between the specified point *K* and the tangent on the corner radius of the indexable insert, measured parallel to the shank length (see the illustrations in Table 6).

5.7.4 Values for dimension *a*

The values for dimension *a* shall be given in the respective dimension standards and apply to indexable inserts with corner radii in accordance with 5.2, with orthogonal rake angle $\gamma_o = 0°$ and inclination angle $\lambda_s = 0°$.

For tool holders with indexable inserts with corner radii deviating from the values given in Table 5, the modified dimension *a* shall be determined for styles R and T with correction value *y* and for styles K and S with correction value *x* (for values for *x* and *y*, see Table 6).

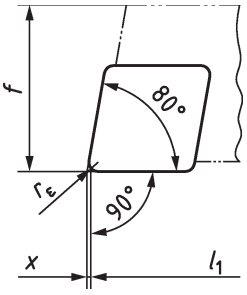
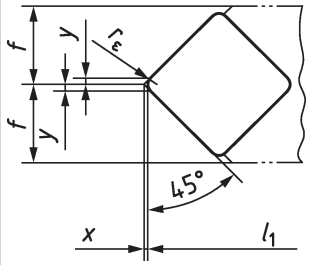
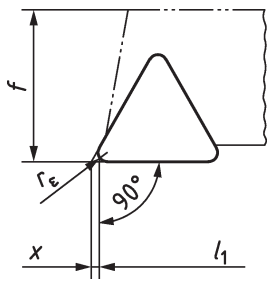
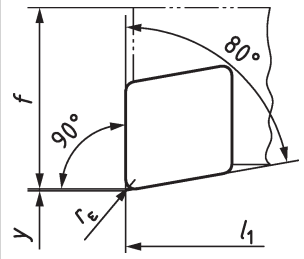
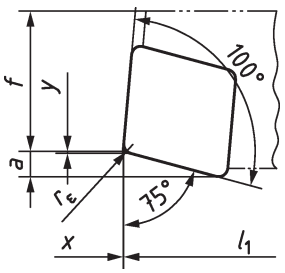
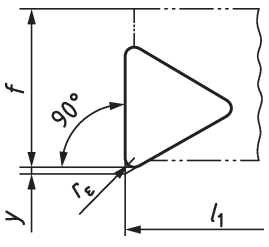
For the rake angle γ_o and the inclination angle λ_s varying between −6° and +6°, variations of the values for *a* are less than 0,1 mm and, thus, negligible.

5.8 Correction values *x* and *y*

The correction values *x* and *y* given in Table 6 shall apply to orthogonal rake angle $\gamma_o = 0°$ and inclination angle $\lambda_s = 0°$. Orthogonal rake angles γ_o and inclination angles λ_s varying between −6° and +6° result in variations from the *x*- and *y*-values in the range of 0,001 mm to 0,01 mm, which are significantly smaller than the tolerances for l_1, *f*, and h_1. If necessary, the correction values shall be determined.

Table 6 — Correction values

Dimensions in millimetres

Style	Illustration	r_ε	*x*	*y*	Style	Illustration	r_ε	*x*	*y*
A and G		0,2	0,039	—	D		0,2	0,084	0,084
		0,4	0,076	—			0,4	0,164	0,164
		0,8	0,152	—			0,8	0,329	0,329
		1,2	0,228	—			1,2	0,493	0,493
		1,6	0,456	—			1,6	0,658	0,658
	rhombic-shaped insert	2,4	0,456	—		square-shaped insert	2,4	0,986	0,986
		0,2	0,149	—	F		0,2	—	0,039
		0,4	0,291	—			0,4	—	0,076
		0,8	0,581	—			0,8	—	0,152
		1,2	0,872	—			1,2	—	0,228
		1,6	1,162	—			1,6	—	0,304
	triangular-shaped insert	2,4	1,743	—		rhombic-shaped insert	2,4	—	0,456
B		0,2	0,014	0,004			0,2	—	0,149
		0,4	0,028	0,007			0,4	—	0,291
		0,8	0,055	0,015			0,8	—	0,581
		1,2	0,083	0,022			1,2	—	0,872
		1,6	0,110	0,029			1,6	—	1,162
	rhombic-shaped insert	2,4	0,165	0,044		triangular-shaped insert	2,4	—	1,743

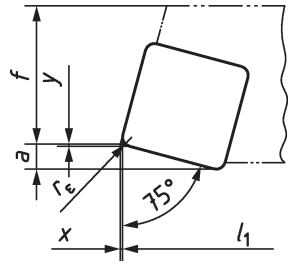
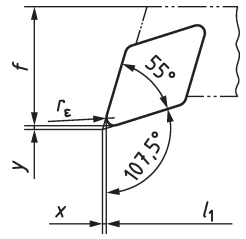
Style	Illustration	r_ε	x	y	Style	Illustration	r_ε	x	y
B and R		0,2	0,046	0,012	H		0,2	0,108	0,108
		0,4	0,089	0,024			0,4	0,211	0,211
		0,8	0,178	0,048			0,8	0,422	0,422
		1,2	0,268	0,072			1,2	0,633	0,633
		1,6	0,357	0,096			1,6	0,844	0,844
	square-shaped insert	2,4	0,535	0,147		rhombic-shaped insert	2,4	1,265	1,265

Table 6 — *(continued)*

Dimensions in millimetres

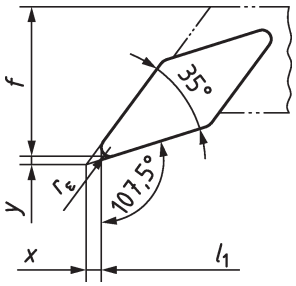
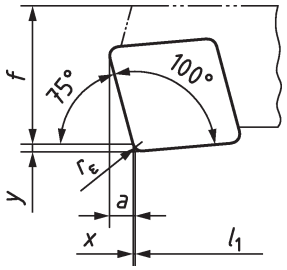
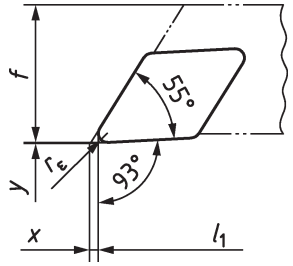
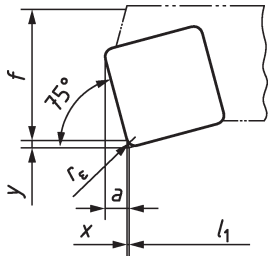
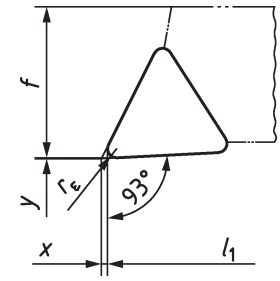
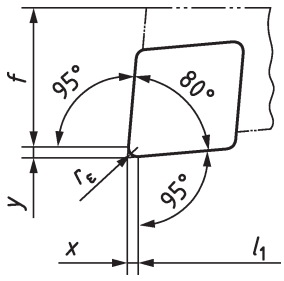
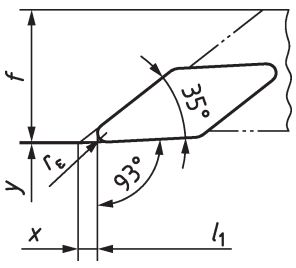
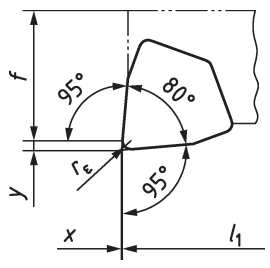
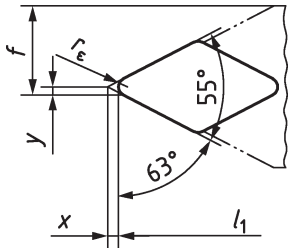
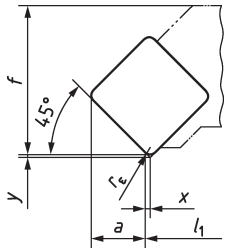
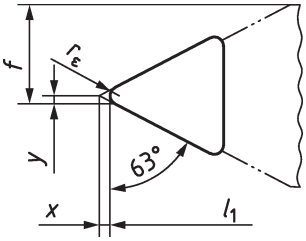
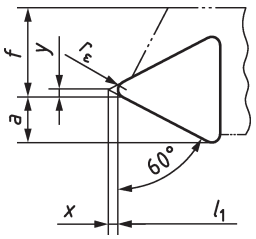
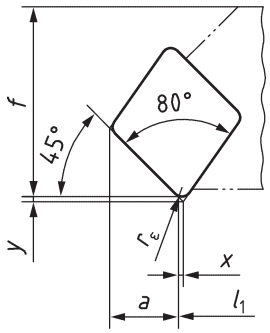
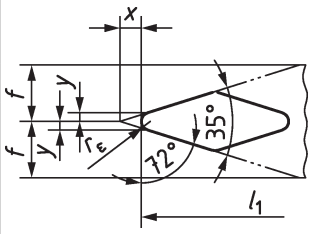
Style	Illustration	r_ε	x	y	Style	Illustration	r_ε	x	y
H		0,2	0,342	0,180	K		0,2	0,004	0,014
		0,4	0,684	0,360			0,4	0,007	0,028
		0,8	1,369	0,721			0,8	0,015	0,055
		1,2	2,053	1,081			1,2	0,022	0,083
		1,6	2,738	1,441			1,6	0,029	0,110
	rhombic-shaped insert	2,4	4,107	2,162		rhombic-shaped insert	2,4	0,044	0,165
J		0,2	0,176	0,020			0,2	0,012	0,046
		0,4	0,344	0,039			0,4	0,024	0,089
		0,8	0,687	0,079			0,8	0,048	0,178
		1,2	1,031	0,118			1,2	0,072	0,268
		1,6	1,375	0,157			1,6	0,096	0,357
	rhombic-shaped insert	2,4	2,062	0,236		square-shaped insert	2,4	0,143	0,535
		0,2	0,138	0,018	L		0,2	0,020	0,020
		0,4	0,269	0,035			0,4	0,040	0,040
		0,8	0,538	0,071			0,8	0,079	0,079
		1,2	0,806	0,106			1,2	0,119	0,119
		1,6	1,075	0,142			1,6	0,159	0,159
	triangular-shaped insert	2,4	1,613	0,213		rhombic-shaped insert	2,4	0,238	0,238
		0,2	0,420	0,033			0,2	0,020	0,020
		0,4	0,840	0,065			0,4	0,040	0,040
		0,8	1,680	0,131			0,8	0,079	0,079
		1,2	2,519	0,196			1,2	0,119	0,119
		1,6	3,358	0,261			1,6	0,159	0,159
	rhombic-shaped insert	2,4	5,038	0,392		hexagonal-shaped insert	2,4	0,238	0,238

Table 6 — (*continued*)

Dimensions in millimetres

Style	Illustration	r_ε	x	y	Style	Illustration	r_ε	x	y
N		0,2	0,237	0,121	S		0,2	0,084	0,084
		0,4	0,463	0,236			0,4	0,164	0,164
		0,8	0,925	0,471			0,8	0,329	0,329
		1,2	1,388	0,707			1,2	0,493	0,493
		1,6	1,850	0,943			1,6	0,658	0,658
	rhombic-shaped insert	2,4	2,776	1,414		square-shaped insert	2,4	0,986	0,986
		0,2	0,203	0,103	T		0,2	0,203	0,117
		0,4	0,396	0,202			0,4	0,397	0,229
		0,8	0,792	0,403			0,8	0,794	0,458
		1,2	1,187	0,605			1,2	1,191	0,687
		1,6	1,583	0,807			1,6	1,588	0,917
	triangular-shaped insert	2,4	2,375	1,210		triangular-shaped insert	2,4	2,381	1,375
S		0,2	0,112	0,112	V		0,2	0,463	0,146
		0,4	0,218	0,218			0,4	0,926	0,291
		0,8	0,437	0,437			0,8	1,851	0,582
		1,2	0,655	0,655			1,2	2,777	0,873
		1,6	0,873	0,873			1,6	3,703	1,164
	rhombic-shaped insert	2,4	1,310	1,310		rhombic-shaped insert	2,4	5,539	1,747

Annex A
(informative)

Relationship between designations in ISO 5610 (all parts) and ISO/TS 13399-2 and ISO/TS 13399-3

For the relationship between designations in this part of ISO 5610 and preferred symbols according to ISO/TS 13399-2 and ISO/TS 13399-3, see Table A.1.

Table A.1 — Relationship between designations in ISO 5610 (all parts) and ISO/TS 13399-2 and ISO/TS 13399-3

Symbol in ISO 5610	Reference in ISO 5610	Property name in ISO/TS 13399-2 and ISO/ TS 13399-3	Symbol in ISO/TS 13399-2 and ISO/ TS 13399-3	Reference in ISO/TS 13399-2 and ISO/ TS 13399-3
a^a	ISO 5610-1:2014, 5.7 in direction of overall length	Dimension *a* on lf	LFA	ISO/TS 13399-3
a^b	ISO 5610-1:2014, 5.7 in direction of overall width	Dimension *a* on wf	WFA	ISO/TS 13399-3
b	ISO 5610-1:2014, Clause 3, Table 1; 4.1, Figure 1, and Table 2	Shank width	B	ISO/TS 13399-3
d	ISO 5610-1:2014, 4.1, Figure 1; 5.2, Table 5	Inscribed circle diameter	IC	ISO/TS 13399-2
f	ISO 5610-1:2014, 4.1, Figure 1; 4.3, Table 4	Functional width	WF	ISO/TS 13399-3
h_1	ISO 5610-1:2014, 4.1, Figure 1 and Table 2	Functional height	HF	ISO/TS 13399-3
h_2	ISO 5610-1:2014, Clause 3, Table 1; 4.1, Figure 1, and Table 2	Shank height	H	ISO/TS 13399-3
l_1	ISO 5610-1:2014, 4.1, Figure 1 and Table 2	Functional length	LF	ISO/TS 13399-3
l_2	ISO 5610-1:2014, 4.1, Figure 1; 4.2, Table 3	Head length	LH	ISO/TS 13399-3
l_3	ISO 5610-2 to ISO 5610-15	Cutting edge length	L	ISO/TS 13399-2
r_ε	ISO 5610-1:2014, 4.1, Figure 1; 5.2, Table 5	Corner radius	RE	ISO/TS 13399-2
γ_o	ISO 5610-2 to ISO 5610-15	Rake angle orthogonal	GAMO	ISO/TS 13399-3
λ_s	ISO 5610-2 to ISO 5610-15	Inclination angle	LAMS	ISO/TS 13399-3
s	ISO 5610-2 to ISO 5610-15	Insert thickness	S	ISO/TS 13399-2
κ_r	ISO 5610-2 to ISO 5610-15	Tool cutting edge angle	KAPR	ISO/TS 13399-3

[a] Dimension *a* measured in the direction of l_1.

[b] Dimension *a* measured in the direction of *f*.

Bibliography

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

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

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

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

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

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