INTERNATIONAL STANDARD

ISO 5610-10

First edition
2010-08-01

Tool holders with rectangular shank for indexable inserts —

Part 10: **Style N**

Porte-plaquette à queue rectangulaire pour plaquettes amovibles —

Partie 10: Forme N

Reference number
ISO 5610-10:2010(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 5610-10 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with cutting edges made of hard cutting materials*.

This first edition of ISO 5610-10, together with ISO 5610-1, 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 5610-11, ISO 5610-12, ISO 5610-13, ISO 5610-14 and ISO 5610-15, cancels and replaces ISO 5610:1998.

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 10: **Style N**

1 Scope

This part of ISO 5610 specifies tool holders with rectangular shank, style N, i.e. with straight shank and cutting edge angle $\kappa_r = 63°$ for side cutting.

These tool holders are primarily intended for indexable inserts made of hardmetal 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 5610-1:2010, Table A.1.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5608:1995, *Turning and copying tool holders and cartridges for indexable inserts — Designation*

ISO 5610-1:2010, *Tool holders with rectangular shank for indexable inserts — Part 1: General survey, correlation and determination of dimensions*

3 Dimensions

3.1 General

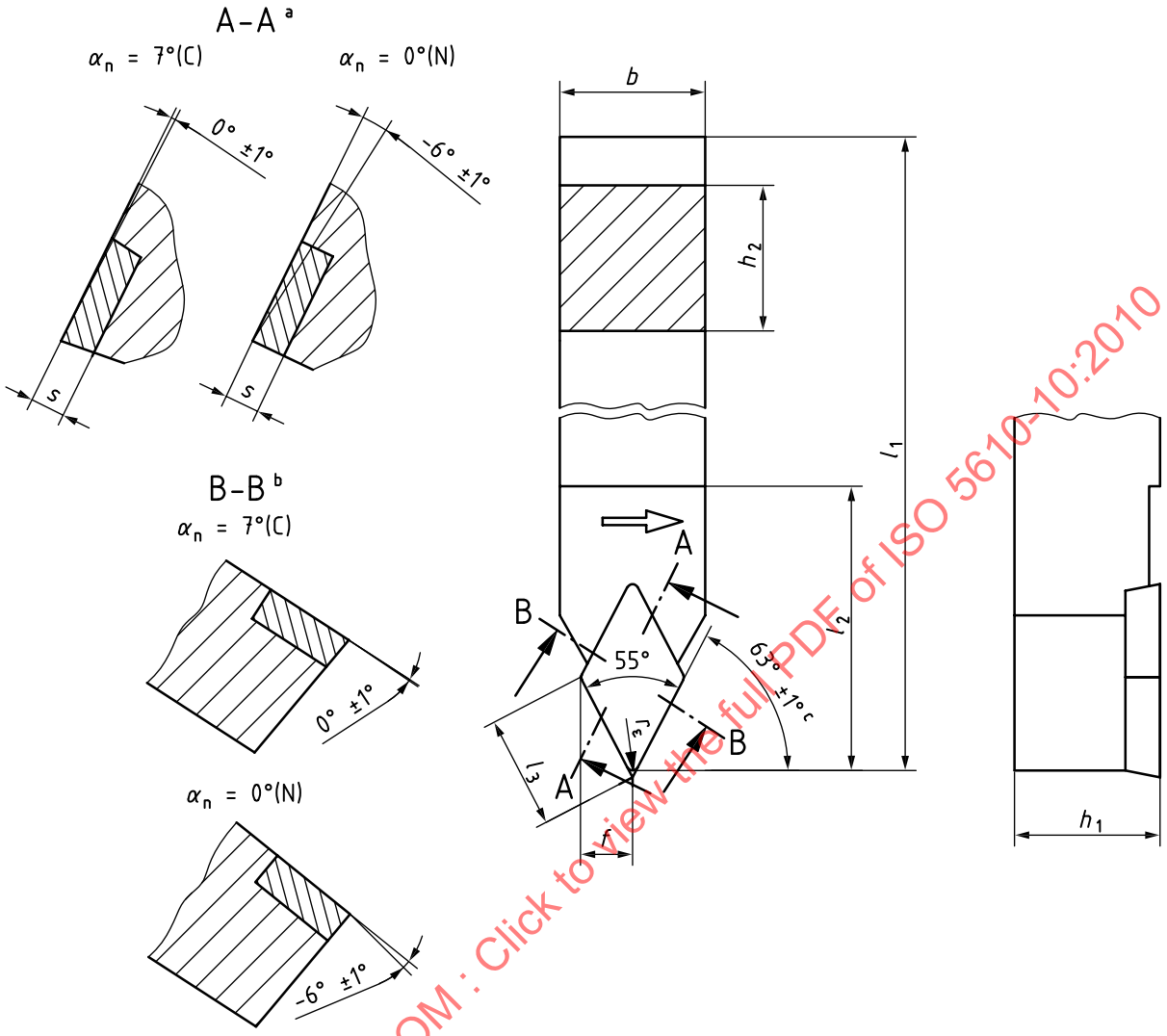
It is not necessary for tool holders to comply with the pictorial representation; only the dimensions given shall be observed.

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 N for rhombic indexable insert shape D



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

a Inclination angle λ_n.

b Rake angle γ_n.

c Neutral tool holders, note c of Table 1.

Figure 1 — Tool holder style N for rhombic indexable insert — D

Table 1

Dimensions in millimetres

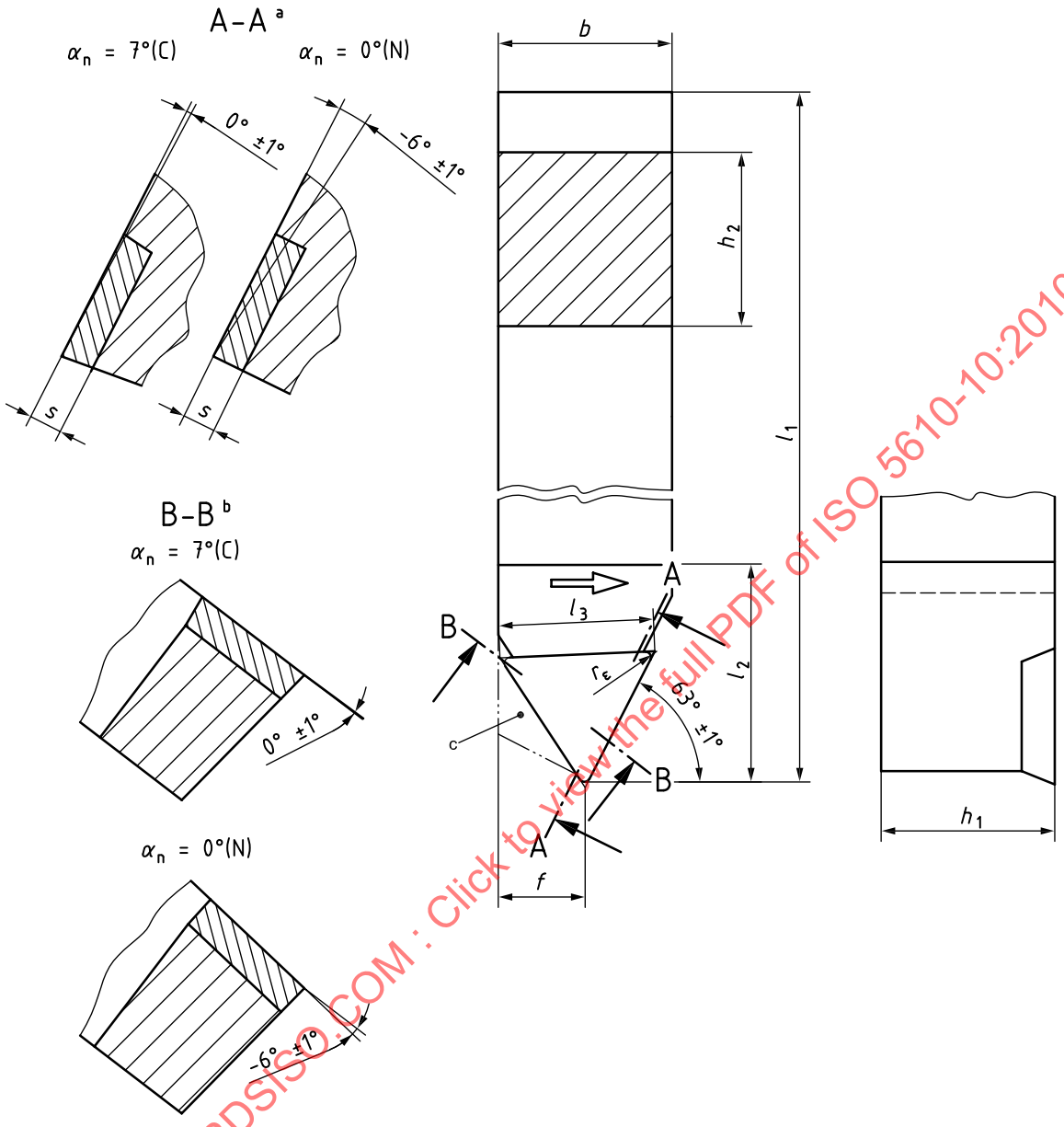
Symbol[a]	h_1 js13	b h13	l_3 ≈	f $^{+0,5}_{0}$	h_2 h13	l_1[a] k16	l_2 max.	s[b]
SDNCR 0808 — 07	8	8	7,75	4	8	—	25	2,38
SDNCL 0808 — 07								
SDNCN 0808 — 07[c]								
SDNCR 1010 — 07	10	10	7,75	5	10	—	25	2,38
SDNCL 1010 — 07								
SDNCN 1010 — 07[c]								
SDNCR 1212 — 07	12	12	7,75	6	12	—	25	2,38
SDNCL 1212 — 07								
SDNCN 1212 — 07[c]								
SDNCR 1616 — 11	16	16	11,6	8	16	—	32	3,97
SDNCL 1616 — 11								
SDNCN 1616 — 11[c]								
SDNCR 2020 — 11	20	20	11,6	10	20	—	32	3,97
SDNCL 2020 — 11								
SDNCN 2020 — 11[c]								
SDNCR 2020 — 15	20	20	15,5	10	20	—	40	4,76
SDNCL 2020 — 15								
SDNCN 2020 — 15[c]								
PDNNR 2020 — 15								6,35
PDNNL 2020 — 15								
SDNCR 2525 — 15	25	25	15,5	12,5	25	—	40	4,76
SDNCL 2525 — 15								
SDNCN 2525 — 15[c]								
PDNNR 2525 — 15								6,35
PDNNL 2525 — 15								
SDNCR 3225 — 15	32	25	15,5	12,5	32	—	40	4,76
SDNCL 3225 — 15								
SDNCN 3225 — 15[c]								
PDNNR 3225 — 15								6,35
PDNNL 3225 — 15								
SDNCR 4032 — 15	40	32	15,5	16	40	—	40	4,76
SDNCL 4032 — 15								
SDNCN 4032 — 15[c]								
PDNNR 4032 — 15								6,35
PDNNL 4032 — 15								

[a] For the selection of length, l_1, the en-dash may be replaced by the dimensions of ISO 5610-1:2010, Table 2. For letter symbols identifying the tool length, see ISO 5608:1995, Table 6.

[b] Insert thickness without shim, if any.

[c] Tool holder for use in both directions of feed. The cutting edge angle $\kappa_r = 62,5° \pm 1°$ and the tolerances ± 0,25 mm on dimension f apply for this design.

3.3 Tool holder style N for triangular indexable insert shape T



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

a Inclination angle λ_n.

b Rake angle γ_n.

c Tool holder style with feed of insert in both directions.

Figure 2 — Tool holder style N 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]
STNCR 2525 — 16	25	25	16,5	12,5	25	—	32	3,97
STNCL 2525 — 16								
PTNNR 2525 — 16								4,76
PTNNL 2525 — 16								
STNCR 2525 — 22	25	25	22	12,5	25	—	32	4,76
STNCL 2525 — 22								
PTNNR 2525 — 22								
PTNNL 2525 — 22								
STNCR 3225 — 16	32	25	16,5	12,5	32	—	32	3,97
STNCL 3225 — 16								
PTNNR 3225 — 16								4,76
PTNNL 3225 — 16								
STNCR 3225 — 22	32	25	22	12,5	32	—	36	4,76
STNCL 3225 — 22								
PTNNR 3225 — 22								
PTNNL 3225 — 22								
STNCR 4032 — 22	40	32	22	16	40	—	36	4,76
STNCL 4032 — 22								
PTNNR 4032 — 22								
PTNNL 4032 — 22								

[a] See Table 1.

[b] See Table 1.

4 Designation

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

a) “Tool holder”;

b) reference to this part of ISO 5610, i.e. ISO 5610-10;

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 (N), for normal clearance of indexable insert $\alpha_n = 0°$ (N), right-hand type (R), with height $h_1 = 40$ mm and width $b = 32$ mm (4032), length $l_1 = 170$ mm (P), for cutting edge length $l_3 = 15{,}5$ mm (15) is designated as follows:

Tool holder ISO 5610-10 - PDNNR 4032 P15

EXAMPLE 2 Tool holder for a horizontally mounted bore-clamped (P) triangular indexable insert shape T (T), tool holder style N (N), for normal clearance of indexable insert $\alpha_n = 0°$ (N), right-hand type (R), with height $h_1 = 40$ mm and width $b = 32$ mm (4032), length $l_1 = 150$ mm (M), for cutting edge length $l_3 = 22$ mm (22) is designated as follows:

Tool holder ISO 5610-10 - PTNNR 4032 M22

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 may be left to 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 may be equipped with 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 5610-1:2010, Table 2, apply to tool holders with inserts having corner radii, r_ε, in accordance with Table 3.

Table 3

Dimensions in millimetres

l_3	r_ε
7,75	0,4
11,6	0,8
15,5	
16,5	
22	
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 on 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 may be left to the manufacturer's discretion or upon agreement.

Deviations in marking shall be upon agreement.

A reference to this part of ISO 5610, i.e. ISO 5610-10:2010, shall be given on the packaging.