

BS ISO 5611-7:2015



BSI Standards Publication

# Cartridges, type A, for indexable inserts

Part 7: Style R

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**National foreword**

This British Standard is the UK implementation of ISO 5611-7:2015. Together with BS ISO 5611-1, BS ISO 5611-2, BS ISO 5611-3, BS ISO 5611-4, BS ISO 5611-5, BS ISO 5611-6, BS ISO 5611-8, BS ISO 5611-9, BS ISO 5611-10, BS ISO 5611-11 and BS ISO 5611-12 it supersedes BS 4193-8:1997 (dual numbered as ISO 5611:1995) which will be withdrawn upon publication of the rest of the parts in this series.

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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**5611-7**

First edition  
2015-11-01

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**Cartridges, type A, for indexable  
inserts —**

Part 7:  
**Style R**

*Cartouches du type A, à plaquettes amovibles —*

*Partie 7: Forme R*



Reference number  
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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](http://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](http://www.iso.org/patents)).

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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 first edition of ISO 5611-7, together with ISO 5611-1, ISO 5611-2, ISO 5611-3, ISO 5611-4, ISO 5611-5, ISO 5611-6, ISO 5611-8, ISO 5611-9, ISO 5611-10, ISO 5611-11, and ISO 5611-12, cancels and replaces ISO 5611:1995, which has been technically revised.

ISO 5611 consists of the following parts, under the general title *Cartridges, type A, for indexable inserts*:

- *Part 1: General survey, correlation and determination of dimensions*
- *Part 2: Style F*
- *Part 3: Style G*
- *Part 4: Style J*
- *Part 5: Style K*
- *Part 6: Style L*
- *Part 7: Style R*
- *Part 8: Style S*
- *Part 9: Style T*
- *Part 10: Style U*
- *Part 11: Style W*
- *Part 12: Style Y*

# Cartridges, type A, for indexable inserts —

## Part 7: Style R

### 1 Scope

This part of ISO 5611 applies for cartridges type A, with hole(s) for fastening screw(s), of style R, i.e. with cutting edge angle  $\kappa_r = 75^\circ$  for side cutting.

Cartridges are intended to be used with indexable inserts made of hard metal, ceramic or other cutting materials and are primarily mounted to be used for internal turning of operations.

### 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 1832, *Indexable inserts for cutting tools — Designation*

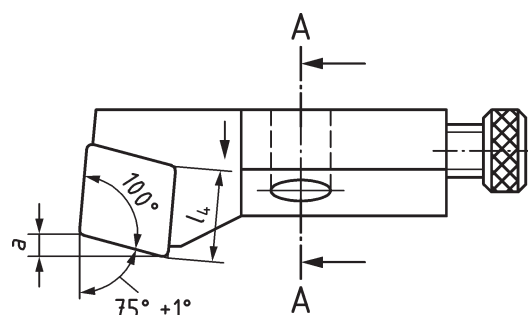
ISO 5608, *Turning and copying tool holders and cartridges for indexable inserts — Designation*

ISO 5611-1, *Cartridges, type A, for indexable inserts — Part 1: General survey, correlation and determination of dimensions*

### 3 Dimensions

Cartridges type A need not comply with the pictorial representation, only the dimensions given shall be observed.

For determination of dimensions  $h_1$ ,  $f$  and  $l_1$  see ISO 5611-1. For explanation of the designation code for cartridges, see ISO 5608.



NOTE For other dimensions, see [Figure 2](#).

**Figure 1 — Style R with height  $h_1 = 6$  mm and 8 mm with rhombic indexable insert**

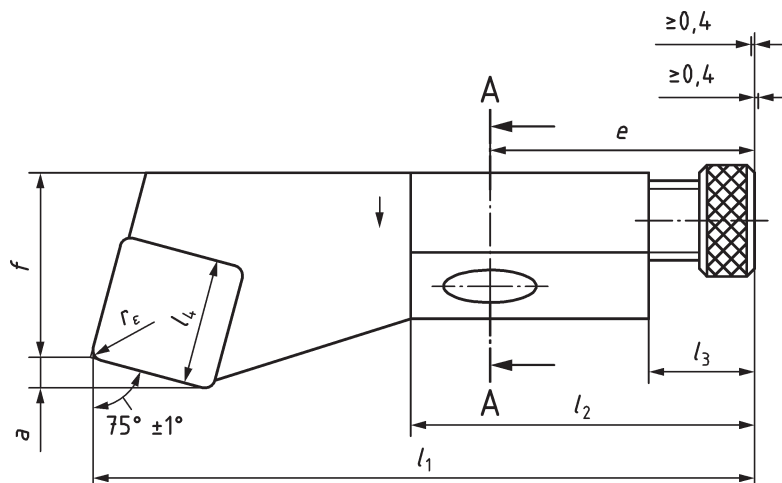
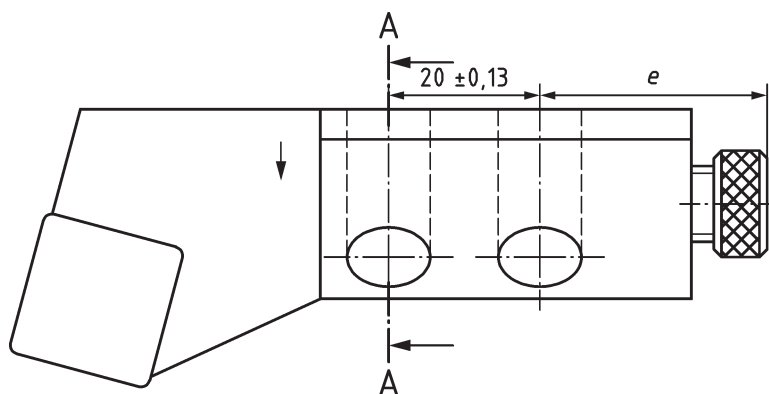


Figure 2 — Style R with height  $h_1 = 10 \text{ mm}, 12 \text{ mm}, 16 \text{ mm}$  and  $20 \text{ mm}$  with square indexable insert



NOTE For other dimensions, see [Figure 2](#).

Figure 3 — Style R with height  $h_1 = 25 \text{ mm}$  with square indexable insert

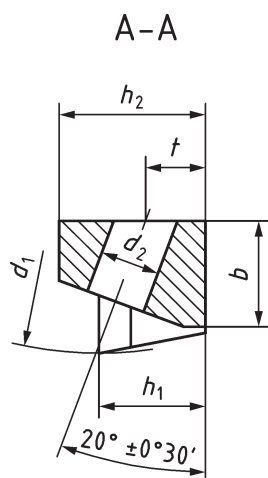


Figure 4 — Sectional drawing A-A at height  $h_1 = 6 \text{ mm}, 8 \text{ mm}, 10 \text{ mm}$  and  $12 \text{ mm}$



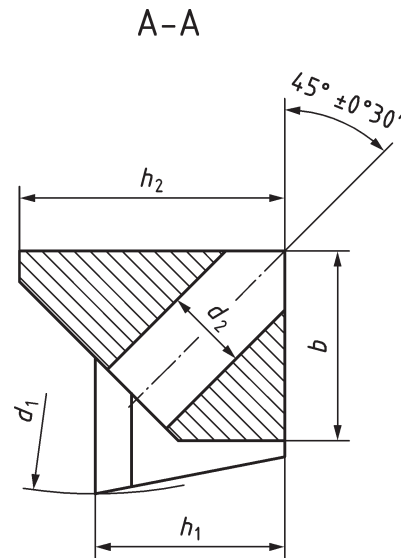


Figure 5 — Sectional drawing A-A at height  $h_1 = 16 \text{ mm}$ ,  $20 \text{ mm}$  and  $25 \text{ mm}$

NOTE Pictured is a right hand cartridge (Figure 4); left hand cartridge (Figure 5) laterally reversed.

Table 1

Dimensions in millimetres

Symbol <sup>a</sup>	$h_1$ $\pm 0,08$	$l_4$ $\approx$	$a$	$b$ 0 -0,2	$d_1^b$ min.	$d_2^c$ H13	$e$	$f$ 0 -0,08	$h_2$ 0 -0,2	$l_1$	$l_2$ min.	$l_3$	$t$ $\pm 0,13$	Fastening screw
SCRPR 06CA — 05	6	5,6	1,3	6	20	4	12	8	8,5	25	16	4,5	3,5	M3,5
SCRPL 06CA — 05														
SCRRCR 08CA — 06	8	6,4	1,6	8	25	4,5	17	10	11	32	21,5	6	4,5	M4
SCRCL 08CA — 06														
SSRCR 10CA — 09	10	9,52	2,2	11	40	7	20	14	15	50	26	8	5	M6
SSRCL 10CA — 09														
CSRPR 12CA — 12	12	12,7	3,1	16	50	7	20	20	20	55	26	8	6	M6
CSRPL 12CA — 12														
PSRNR 12CA — 12														
PSRNL 12CA — 12														
SSRCR 12CA — 12														
SSRCL 12CA — 12														

<sup>a</sup> Cartridges for indexable inserts for holding horizontally mounted with hole clamping (first letter symbol P) can be equipped with additional top and hole clamping; the letter symbol replaced P by M in this case.

<sup>b</sup> Smallest possible internal diameter for operating.

<sup>c</sup> The hole for fastening screws of the cartridges can be designed also as slotted hole at the manufacturer's option.

**Table 1** (continued)

Symbol <sup>a</sup>	$h_1$	$l_4$	$a$	$b$	$d_1^b$	$d_2^c$	$e$	$f$	$h_2$	$l_1$	$l_2$	$l_3$	$t$	Fastening screw
	±0,08	≈		0 -0,2	min.	H13		0 -0,08	0 -0,2		min.		±0,13	
CSRPR 16CA — 12	16	12,7	3,1	20	60	9	25	25	25	63	32,5	8	—	M8
CSRPL 16CA — 12														
PSRNR 16CA — 12														
PSRNL 16CA — 12														
SSRCR 16CA — 12														
SSRCL 16CA — 12														
PSRNR 20CA — 15	20	15,88	3,8	20	70	9	30	25	30	70	37,5	10	—	M8
PSRNL 20CA — 15														
PSRNR 25CA — 19	25	19,05	4,6	25	100	11	30	32	35	100	59	10	—	M10
PSRNL 25CA — 19														

<sup>a</sup> Cartridges for indexable inserts for holding horizontally mounted with hole clamping (first letter symbol P) can be equipped with additional top and hole clamping; the letter symbol replaced P by M in this case.  
<sup>b</sup> Smallest possible internal diameter for operating.  
<sup>c</sup> The hole for fastening screws of the cartridges can be designed also as slotted hole at the manufacturer's option.

## 4 Designation

A cartridge in accordance with this part of ISO 5611 shall be designated by:

- "Cartridge";
- reference of this part of ISO 5611, i.e. ISO 5611-5;
- letter symbol identifying the method of holding the insert, in accordance with ISO 5608;
- letter symbol identifying insert shape, in accordance with ISO 1832;
- letter symbol identifying cartridge style, in accordance with ISO 5608;
- letter symbol identifying insert normal clearance, in accordance with ISO 1832;
- letter symbol identifying hand of cartridge, in accordance with ISO 5608;
- number symbol identifying tool height (shank height of cartridges and height of cutting edge), in accordance with ISO 5608;
- number symbol identifying tool holder shank width or, for cartridges, letter C followed by a letter symbol identifying the cartridge type, in accordance with ISO 5608;
- letter symbol identifying tool length, in accordance with ISO 5608;
- number symbol identifying indexable insert size, in accordance with ISO 1832.

**EXAMPLE** Cartridge with top clamping (insert without hole) (C) square indexable insert shape (S), cartridge style R (R), for the insert normal clearance 11° (P), right hand cartridge (R), with height  $h_1 = 12$  mm (12), cartridge Type A (CA), length  $l_1 = 55$  mm (-), edge length  $l_4 = 12,7$  mm (12) is designated as follows:

**Cartridge ISO 5611-7 – CSRPR 12CA – 12**

## 5 Material

Steel with a tensile strength of at least 1 200 N/mm<sup>2</sup>.

## 6 Design

### 6.1 Method of holding

(first letter symbol identifying the method of holding the insert)

#### 6.1.1 Cartridge for indexable inserts with insert normal clearance $\alpha_n = 7^\circ$

(fourth symbol identifying insert normal clearance C)

— holding screw clamping through hole; letter symbol S, e.g. SCRCR.

#### 6.1.2 Cartridge for indexable inserts with insert normal clearance $\alpha_n = 11^\circ$

(fourth symbol identifying insert normal clearance P)

— holding with top clamping; letter symbol C, e.g. CSRPR;

— holding screw clamping through hole; letter symbol S, e.g. SCRPR.

#### 6.1.3 Cartridge for indexable inserts with insert normal clearance $\alpha_n = 0^\circ$

(fourth symbol identifying insert normal clearance N)

— holding with hole clamping; letter symbol P, e.g. PSRNR.

### 6.2 Corner radius $r_\varepsilon$

Cartridges in accordance with this part of ISO 5611 can be equipped with indexable inserts with cutting edge lengths  $l_4$  as specified in [Table 1](#) and any corner radius  $r_\varepsilon$ .

The values for  $a$ ,  $f$  and  $l_1$  given in [Table 1](#) apply to cartridges with indexable inserts having corner radii  $r_\varepsilon$  in accordance with [Table 2](#).

For cartridges with indexable inserts with corner radii other than those specified in [Table 2](#), the dimensions for  $a$ ,  $f$  and  $l_1$  shall be determined in accordance with ISO 5611-1.

The tolerances on  $h_1$  and  $f$  refer to dimensions measured with master indexable insert and master shim, if any.

**Table 2**

Dimensions in millimetres

C□	$l_4$		$r_\epsilon$
		T△	
5,6		—	0,4
6,4		—	
—		9,52	0,8
—		12,7	
—		15,88	1,2
—		19,05	

NOTE The values given for  $r_\epsilon$  are nominal values. The accurate values converted from the inch dimensions are 0,397 mm; 0,794 mm and 1,191 mm.

### 6.3 Adjusting screw

For the adjustment of the cartridge in the direction of the  $f$  dimension, it is the manufacturer's option to equip the cartridge with an adjustment screw.

## 7 Extent of delivery

Cartridges to be delivered with complete clamping device and adjusting screws.

## 8 Marking

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

Additional marking based on the manufacturer's option or upon agreement.

Deviations in marking are based upon agreement.

The general number of this International Standard (ISO 5611) shall be given on the packaging.







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