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

**Part 12:  
Style Y**

*Cartouches du type A, à plaquettes amovibles —*

*Partie 12: Forme Y*



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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)).

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 first edition of ISO 5611-12, together with ISO 5611-1, ISO 5611-2, ISO 5611-3, ISO 5611-4, ISO 5611-5, ISO 5611-6, ISO 5611-7, ISO 5611-8, ISO 5611-9, ISO 5611-10 and ISO 5611-11, 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 12: Style Y

### 1 Scope

This part of ISO 5611 applies for cartridges type A, with hole(s) for fastening screw(s), of style Y, i.e. with cutting edge angle  $\kappa_r = 85^\circ$  for end 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*

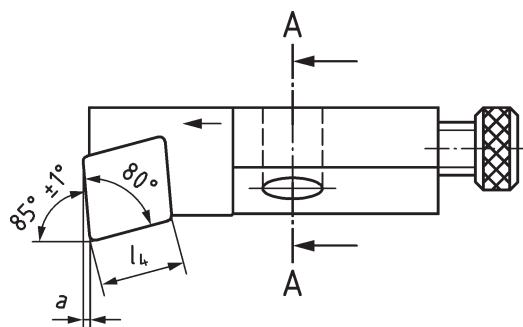
ISO 5608, *Turning and copying tool holders and cartridges for indexable inserts — Designation*

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 Y with height  $h_1 = 6$  mm and 8 mm with rhombic indexable insert**

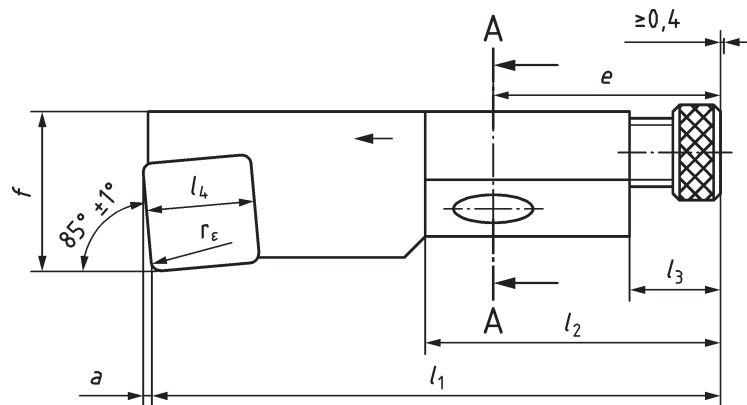
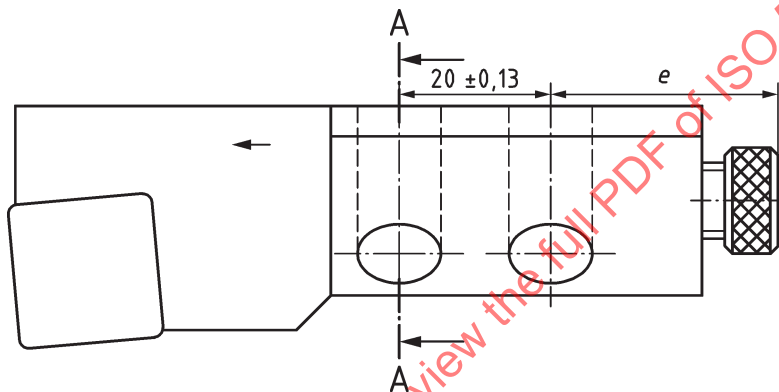


Figure 2 — Style Y with height  $h_1 = 10 \text{ mm}, 12 \text{ mm}, 16 \text{ mm}$  and  $20 \text{ mm}$  with triangular indexable insert



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

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

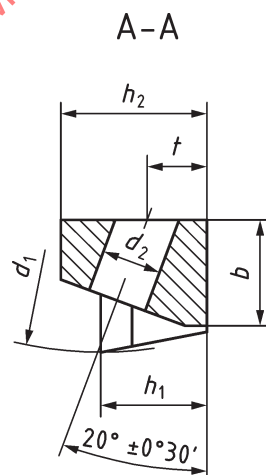


Figure 4 — Sectional drawing A-A at height  $h_1 = 6 \text{ mm}, 8 \text{ mm}, 10 \text{ mm}$  and  $12 \text{ mm}$

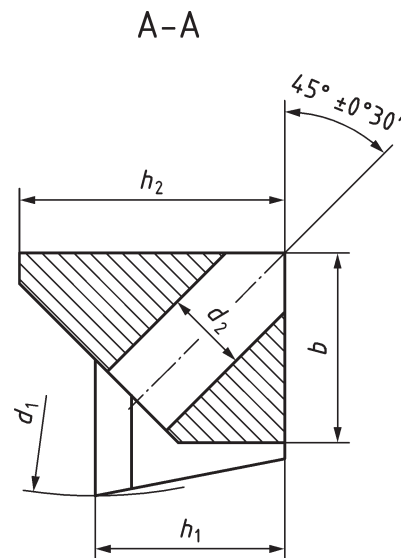


Figure 5 — Sectional drawing A-A at height  $h_1 = 16 \text{ mm}$ ,  $20 \text{ mm}$  and  $25 \text{ mm}$

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> | $h_1$<br>$\pm 0,08$ | $l_4$<br>$\approx$ | $a$ | $b$<br>0<br>-0,2 | $d_1^b$<br>mm | $d_2^c$<br>H13 | $e$ | $f$<br>0<br>-0,08 | $h_2$<br>0<br>-0,2 | $l_1$ | $l_2$<br>min. | $l_3$ | $t$<br>$\pm 0,13$ | Fastening<br>screw |
|---------------------|---------------------|--------------------|-----|------------------|---------------|----------------|-----|-------------------|--------------------|-------|---------------|-------|-------------------|--------------------|
| SCYPR 06CA — 05     | 6                   | 5,6                | 0,5 | 6                | 20            | 4              | 12  | 8                 | 8,5                | 25    | 16            | 4,5   | 3,5               | M3,5               |
| SCYPL 06CA — 05     |                     |                    |     |                  |               |                |     |                   |                    |       |               |       |                   |                    |
| SCYCR 08CA — 06     | 8                   | 6,4                | 0,5 | 8                | 25            | 4,5            | 17  | 10                | 11                 | 32    | 21,5          | 6     | 4,5               | M4                 |
| SCYCL 08CA — 06     |                     |                    |     |                  |               |                |     |                   |                    |       |               |       |                   |                    |
| SSYCR 10CA — 09     | 10                  | 9,52               | 0,8 | 11               | 40            | 7              | 20  | 14                | 15                 | 50    | 26            | 8     | 5                 | M6                 |
| SSYCL 10CA — 09     |                     |                    |     |                  |               |                |     |                   |                    |       |               |       |                   |                    |
| CSYPR 12CA — 12     | 12                  | 12,7               | 1   | 16               | 50            | 7              | 20  | 20                | 20                 | 55    | 26            | 8     | 6                 | M6                 |
| CSYPL 12CA — 12     |                     |                    |     |                  |               |                |     |                   |                    |       |               |       |                   |                    |
| PSYNR 12CA — 12     |                     |                    |     |                  |               |                |     |                   |                    |       |               |       |                   |                    |
| PSYNL 12CA — 12     |                     |                    |     |                  |               |                |     |                   |                    |       |               |       |                   |                    |
| SSYCR 12CA — 12     |                     |                    |     |                  |               |                |     |                   |                    |       |               |       |                   |                    |
| SSYCL 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>                                                                                                                                                                                                              | $h_1$<br>±0,08 | $l_4$<br>≈ | $a$ | $b$<br>0<br>-0,2 | $d_1^b$<br>min. | $d_2^c$<br>H13 | $e$ | $f$<br>0<br>-0,08 | $h_2$<br>0<br>-0,2 | $l_1$ | $l_2$<br>min. | $l_3$ | $t$<br>±0,13 | Fastening<br>screw |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------|-----|------------------|-----------------|----------------|-----|-------------------|--------------------|-------|---------------|-------|--------------|--------------------|
| CSYPR 16CA — 12                                                                                                                                                                                                                  | 16             | 12,7       | 1   | 20               | 60              | 9              | 25  | 25                | 25                 | 63    | 32,5          | 8     | —            | M8                 |
| CSYPL 16CA — 12                                                                                                                                                                                                                  |                |            |     |                  |                 |                |     |                   |                    |       |               |       |              |                    |
| PSYNR 16CA — 12                                                                                                                                                                                                                  |                |            |     |                  |                 |                |     |                   |                    |       |               |       |              |                    |
| PSYNL 16CA — 12                                                                                                                                                                                                                  |                |            |     |                  |                 |                |     |                   |                    |       |               |       |              |                    |
| SSYCR 16CA — 12                                                                                                                                                                                                                  |                |            |     |                  |                 |                |     |                   |                    |       |               |       |              |                    |
| SSYCL 16CA — 12                                                                                                                                                                                                                  |                |            |     |                  |                 |                |     |                   |                    |       |               |       |              |                    |
| PSYNR 20CA — 15                                                                                                                                                                                                                  | 20             | 15,88      | 1,3 | 20               | 70              | 9              | 30  | 25                | 30                 | 70    | 37,5          | 10    | —            | M8                 |
| PSYNL 20CA — 15                                                                                                                                                                                                                  |                |            |     |                  |                 |                |     |                   |                    |       |               |       |              |                    |
| PSYNR 25CA — 19                                                                                                                                                                                                                  | 25             | 19,05      | 1,6 | 25               | 100             | 11             | 30  | 32                | 35                 | 100   | 59            | 10    | —            | M10                |
| PSYNL 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 5611-12;
- 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 Y (Y), 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 5611-12 – CSYPR 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. SCYCR.

#### 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. CSYPR;

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

#### 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 R, e.g. PSYNR.

### 6.2 Corner radius $r_\epsilon$

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  $r_\epsilon$ .

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

For cartridges with indexable inserts with corner radii other than those specified in [Table 2](#), are the dimensions of  $a$ ,  $f$  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.