BS ISO 5608:2012

BSI Standards Publication

Turning and copying tool holders and cartridges for indexable inserts — Designation

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National foreword

This British Standard is the UK implementation of ISO 5608:2012. It supersedes BS 4193-6:1997 which is withdrawn.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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INTERNATIONAL STANDARD

ISO 5608

Fourth edition
2012-08-15

Turning and copying tool holders and cartridges for indexable inserts — Designation

Porte-plaquette de tournage et de copiage et cartouches pour plaquettes amovibles — Désignation

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.

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 5608 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with cutting edges made of hard cutting materials*.

This fourth edition cancels and replaces the third edition (ISO 5608:1995), which has been technically revised.

INTERNATIONAL STANDARD ISO 5608:2012(E)

Turning and copying tool holders and cartridges for indexable inserts — Designation

1 Scope

This International Standard establishes a code for the designation of turning and copying tool holders and cartridges with a rectangular shank, having a standardized dimension, f (see 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 5610-10, ISO 5610-11, ISO 5610-12, ISO 5610-13, ISO 5610-14 and ISO 5610-15 and ISO 5611), intended for use with indexable inserts, thus simplifying orders and specifications for such tools.

The designation of boring bars (tool holders with cylindrical shank) is given in ISO 5609-1.

2 Explanation of the designation code

2.1 General

The designation code comprises 10 symbols for the designation of dimensions and other characteristics of the tool and the insert, of which the first nine symbols shall be used in any designation. The last symbol may be used where necessary.

In addition to the standardized designation [symbols in positions (1) to (10)], a supplementary symbol consisting of a maximum of three letters and/or numbers may be added by the manufacturer for a better description of his/her products, on condition that this symbol is separated from the standardized designation by a dash and that it does not contain letters specified for position (10).

No addition to, or extension of, the code specified in this International Standard shall be made without consulting and securing the agreement of ISO/TC 29. Rather than adding symbols not provided for in this system, it is preferable to add to the designation conforming with this International Standard all necessary explanations in detailed illustrations or specifications.

2.2 Letter and number symbols comprising the designation code

2.2.1 Compulsory letter and/or number symbols

a) (1): letter symbol identifying the method of holding the insert (see 3.1);

b) (2): letter symbol identifying insert shape (see 3.2);

c) (3): letter symbol identifying tool style (see 3.3);

d) (4): letter symbol identifying insert normal clearance (see 3.4);

e) (5): letter symbol identifying hand of tool (see 3.5);

f) (6): number symbol identifying tool height (shank height of tool holders and height of cutting edge) (see 3.6);

g) (7): number symbol identifying tool holder shank width or, for cartridges, the letter C followed by a letter symbol identifying the cartridge type (see 3.7);

h) (8): letter symbol identifying tool length (see 3.8);

i) (9): letter symbol identifying indexable insert size (see 3.9).

2.2.2 Optional letter symbol

(10): letter symbol indicating special tolerances (see Clause 4):

EXAMPLE

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
C	**T**	**G**	**N**	**R**	**32**	**25**	**M**	**16**	**Q**

NOTE The codes (2), (4) and (9) are in accordance with ISO 1832.

3 Compulsory symbols

3.1 Symbol for the holding method of the horizontally mounted insert — Reference position (1)

Table 1

Letter symbol	Insert holding method
C	Top clamping (insert without hole)
M	Top and hole clamping (insert with hole)
P	Hole clamping (insert with hole)
S	Screw clamping through hole (insert with hole)

3.2 Symbol for insert shape — Reference position (2)

Table 2

Letter symbol	Insert shape	Insert type
H	Hexagonal	Equilateral and equiangular
O	Octagonal	
P	Pentagonal	
S	Square	
T	Triangular	
C	Rhombic with 80° included angle	Equilateral and non-equiangular
D	Rhombic with 55° included angle	
E	Rhombic with 75° included angle	
M	Rhombic with 86° included angle	
V	Rhombic with 35° included angle	
W	Hexagonal with 80° included angle	
L	Rectangular	Non-equilateral and equiangular
A	Parallelogram-shaped with 85° included angle	Non-equilateral and non-equiangular
B	Parallelogram-shaped with 82° included angle	
K	Parallelogram-shaped with 55° included angle	
R	Round	Round

NOTE The included angle is always the smaller angle.

3.3 Symbol for tool style — Reference position (3)

Table 3 —

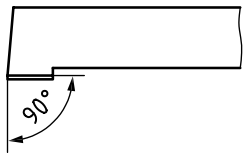
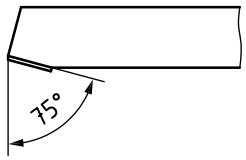
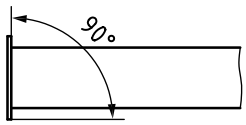
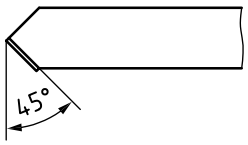
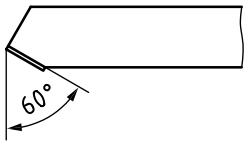
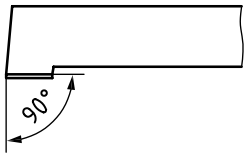
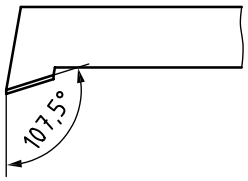
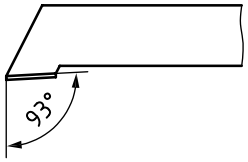
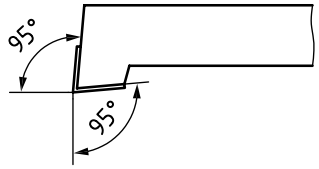
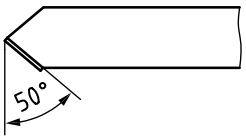
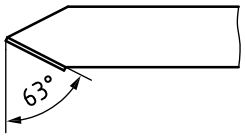
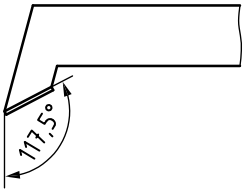
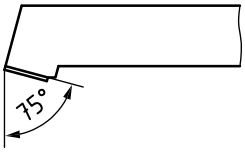
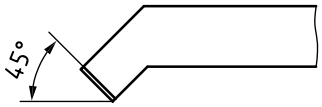
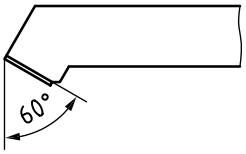
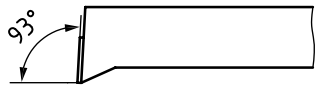
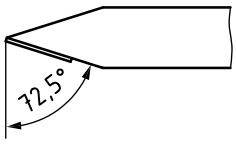
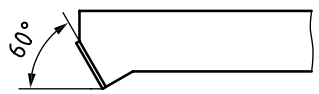
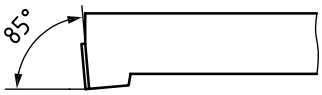
Letter symbol	Tool style	
A		90° cutting edge angle, straight shank, for side cutting
B		75° cutting edge angle, straight shank, for side cutting
C		90° cutting edge angle, straight shank, for end cutting
D[a]		45° cutting edge angle, straight shank, for side cutting
E		60° cutting edge angle, straight shank, for side cutting
F		90° cutting edge angle, offset shank, for end cutting
G		90° cutting edge angle, offset shank, for side cutting
H		107,5° cutting edge angle, offset shank, for side cutting
J		93° cutting edge angle, offset shank, for side cutting
K		75° cutting edge angle, offset shank, for end cutting

Table 3 *(continued)*

Letter symbol	Tool style	
L		95° cutting edge angles on both cutting edges, offset shank, for side and end cutting
M		50° cutting edge angle, straight shank, for side cutting
N		63° cutting edge angle, straight shank, for side cutting
P		117,5° cutting edge angle, offset shank, for side cutting
R		75° cutting edge angle, offset shank, for side cutting
S[a]		45° cutting edge angle, offset shank, for side cutting
T		60° cutting edge angle, offset shank, for side cutting
U		93° cutting edge angle, offset shank, for end cutting
V		72,5° cutting edge angle, straight shank, for side cutting
W		60° cutting edge angle, offset shank, for end cutting
Y		85° cutting edge angle, offset shank, for end cutting

[a] Tools of styles D and S may also be equipped with round inserts (shape R).

3.4 Symbol for the insert normal clearance — Reference position (4)

Table 4

Letter symbol	Insert normal clearance
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
NOTE For non-equilateral inserts, the letter symbol applies to the normal clearance of the longer side.	

3.5 Symbol for hand of tool — Reference position 5

Table 5

Letter symbol	Hand of tool
R	Right hand
L	Left hand
N	Either hand

3.6 Symbol for tool height — Reference position (6)

3.6.1 Tool holders with rectangular shank cross-section and height of cutting edge, h_1, equal to shank height, h

For tool holders with rectangular shank cross-section and height of cutting edge, h_1, equal to shank height, h, see Figure 1.

The number symbol for the tool height is the value of the shank height, h, in millimetres. If the resulting symbol has only one digit, it shall be preceded by a zero (0).

EXAMPLE 1 For $h = 32$ mm, the symbol is 32

EXAMPLE 2 For $h = 8$ mm, the symbol is 08

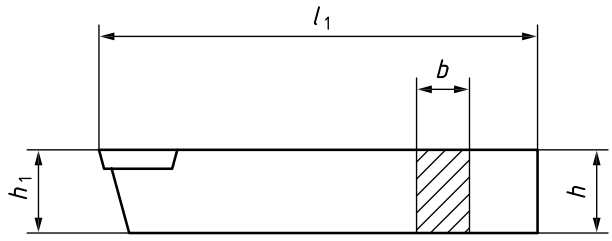


Figure 1

3.6.2 Cartridges with height of cutting edge, h_1, not equal to shank height, h

For cartridges with height of cutting edge, h_1, not equal to shank height, h, see Figure 2.

The number symbol, f, or the tool height is the value of the height of the cutting edge, h_1, in millimetres. If the resulting symbol has only one digit, it shall be preceded by a zero (0).

EXAMPLE 1 For $h_1 = 12$ mm, the symbol is 12

EXAMPLE 2 For $h_1 = 8$ mm, the symbol is 08

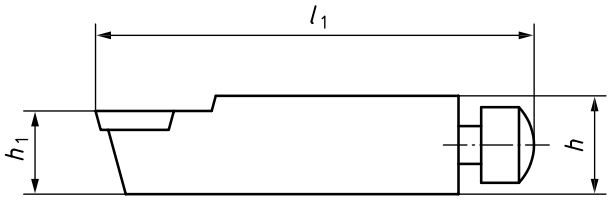


Figure 2

3.7 Symbol for tool width — Reference position (7)

3.7.1 Tool holders with rectangular shank cross-section

For tool holders with rectangular shank cross-section, see Figure 1.

The number symbol for the tool width is the value of the shank width, b, in millimetres. If the resulting symbol has only one digit, it shall be preceded by a zero (0).

EXAMPLE 1 For $b = 25$ mm, the symbol is 25

EXAMPLE 2 For $b = 8$ mm, the symbol is 08

3.7.2 Cartridges

For cartridges, see Figure 2.

Where no indication of shank width is given, a two-letter symbol is indicated instead. The first letter is always C (cartridge) and the second letter identifies the cartridge type. The second letter is specified in the dimensional standards, for example type A in accordance with ISO 5611.

3.8 Symbol for tool length — Reference position (8)

The letter symbol for the tool length shall be chosen from Table 6.

For standardized tools where only one length is specified for each tool dimension, the letter symbol for tool length may be replaced by a dash.

For standardized cartridges having a tool length, l_1, for which no letter symbol is provided in Table 6 (for example $l_1 = 44$ mm), the symbol in position (8) shall be a dash.

Table 6

Letter symbol	**Tool length,** mm (l_1 in Figures 1 and 2)
A	32
B	40
C	50
D	60
E	70
F	80
G	90
H	100
J	110
K	125
L	140
M	150
N	160
P	170
Q	180
R	200
S	250
T	300
U	350
V	400
W	450
X	Special length, to be specified
Y	500

3.9 Symbol for indexable insert size — Reference position (9)

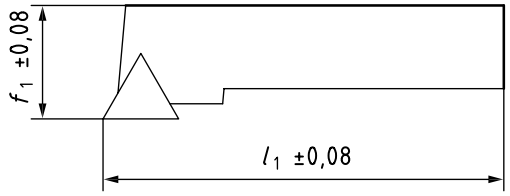
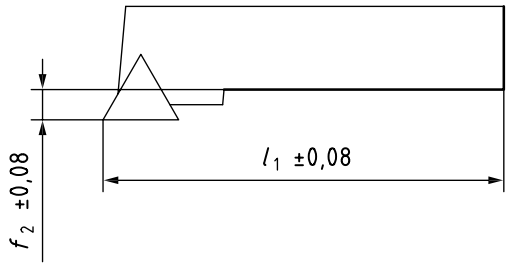
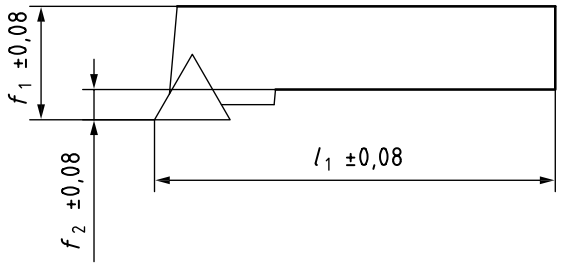
Table 7

Insert type	Number symbol
Equilateral and equiangular (H, O, P, S and T), and equilateral and non-equiangular (C, D, E, M, V and W)	The symbol of designation for the insert size is the edge length, disregarding any decimals. EXAMPLE Edge length: 16,5 mm Symbol of designation: 16
Non-equilateral and equiangular (L), and non-equilateral and non-equiangular (A, B and K)	The symbol of designation for the insert size is always the length of the major cutting edge or of the longer cutting edge, disregarding any decimals. EXAMPLE Length of the major cutting edge: 19,5 mm Symbol of designation: 19
Round (R)	The symbol of designation for the insert size is always the diameter, disregarding any decimals. EXAMPLE Diameter: 15,875 mm Symbol of designation: 15
NOTE Where the symbol resulting from the retained part of the value of a metric dimension has only one digit, it shall be preceded by a zero (0). EXAMPLE Edge length: 9,525 mm Symbol of designation: 09	

4 Optional symbol: symbol for special tolerances — Reference position (10)

A qualified tool is a tool with dimensions f_1, f_2 and $l1$ (see the illustrations in Table 8) having tolerances of $\pm$0,08 mm.

Table 8

Letter symbol	Qualification of tool	Illustration
Q	Back and end qualified tool	
F	Front and end qualified tool	
B	Front, back and end qualified tool	

Annex A
(informative)

Relationship between designations in this International Standard and the ISO 13399 series

For the relationship between designations in this International Standard and preferred symbols according to the ISO 13399 series, see Table A.1.

Table A.1 — Relationship between designations in this International Standard and the ISO 13399 series

Symbol in this International Standard (ISO 5608)	Reference in this International Standard (ISO 5608)	Property name in the ISO 13399 series	Symbol in the ISO 13399 series	Reference in the ISO 13399 series
Method of holding the insert (symbol 1)	3.1 Table 1	Clamping type code	MTP	ISO/TS 13399-3 ID-# 71CF298EEB4F5
Insert shape (symbol 2)	3.2 Table 2	Insert shape code	SC	ISO/TS 13399-2 ID-# 71CE7A9F0C79F
Tool style (symbol 3)	3.3 Table 3	No property defined	No symbol	No reference
Insert normal clearance (symbol 4)	3.4 Table 4	No property defined	No symbol	No reference
Hand of tool (symbol 5)	3.5 Table 5	Hand	HAND	ISO/TS 13399-3 ID-# 71CF29872F0AB
Tool height (symbol 6)	3.6	No property defined	No symbol	No reference
Tool holder shank width (symbol 7)	3.7	No property defined	No symbol	No reference
Tool length (symbol 8)	3.8 Table 6	No property defined	No symbol	No reference
Indexable insert size (symbol 9)	3.9 Table 7	No property defined	No symbol	No reference
Special tolerances (symbol 10)	4 Table 8	Qualified tool code	QTC	ISO/TS 13399-3 ID-# 71D078ED2C21E

Bibliography

[1] ISO 1832, *Indexable inserts for cutting tools — Designation*

[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 5609-1, *Tool holders for internal turning with cylindrical shank for indexable inserts — Part 1: Designation, styles, dimensions and calculation for corrections*

[4] ISO 5609-2, *Tool holders for internal turning with cylindrical shank indexable inserts — Part 2: Style F*

[5] ISO 5609-3, *Tool holders for internal turning with cylindrical shank indexable inserts — Part 3: Style K*

[6] ISO 5609-4, *Tool holders for internal turning with cylindrical shank indexable inserts — Part 4: Style L*

[7] ISO 5609-5, *Tool holders for internal turning with cylindrical shank indexable inserts — Part 5: Style U*

[8] ISO 5609-6, *Tool holders for internal turning with cylindrical shank indexable inserts — Part 6: Style Q*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[24] ISO 5611, *Cartridges, type A, for indexable inserts — Dimensions*

[25] ISO 13399 (all parts), *Cutting tool data representation and exchange*

ICS 25.100.10

Price based on 11 pages

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