INTERNATIONAL STANDARD

ISO 9654

Second edition
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Pliers and nippers for electronics — Single-purpose nippers — Cutting nippers

Pinces pour l'électronique — Pinces unifonction — Pinces coupantes

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 9654 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 10, *Assembly tools for screws and nuts, pliers and nippers*.

This second edition cancels and replaces the first edition (ISO 9654:1989) which has been technically revised.

Pliers and nippers for electronics — Single-purpose nippers — Cutting nippers

1 Scope

This International Standard specifies the principal dimensions of single-purpose cutting nippers for electronics and the range of diameters of test wires to be used to verify the functional performance of these nippers in accordance with ISO 9656. The general technical requirements are given in ISO 9657.

The cutting nippers illustrated in this International Standard are only examples and are not intended to affect the manufacturer's design.

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 9656, *Pliers and nippers for electronics — Test methods*

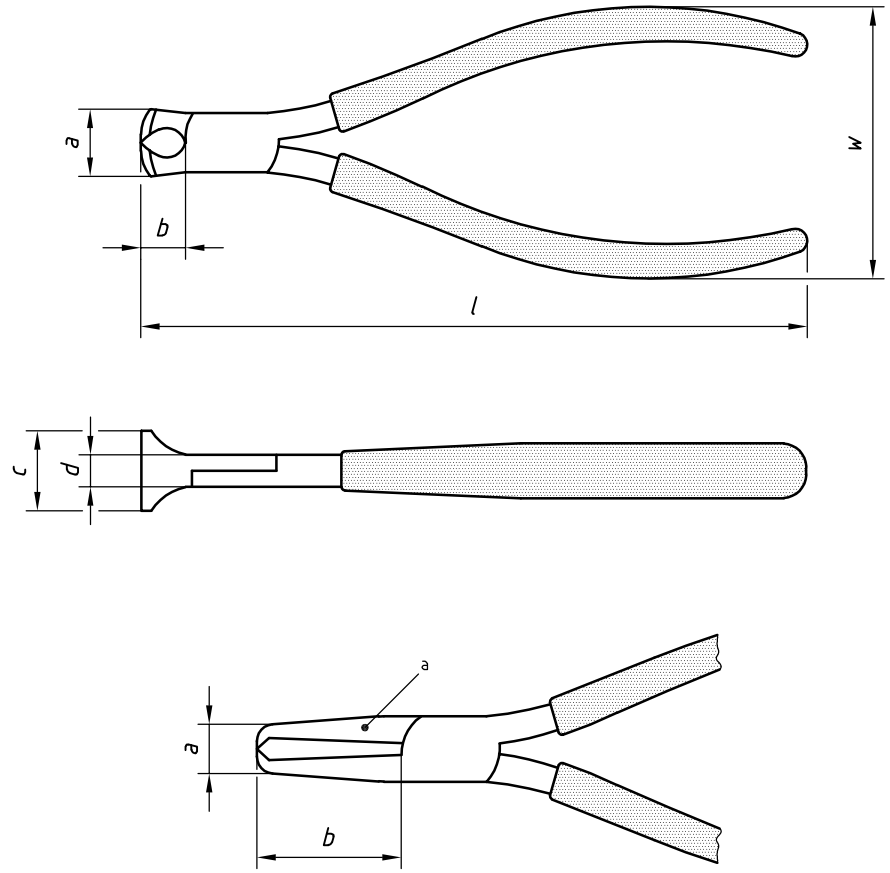
ISO 9657, *Pliers and nippers for electronics — General technical requirements*

IEC 60317-0-1, *Specifications for particular types of winding wires — Part 0-1: General requirements — Enamelled round copper wire*

3 Dimensions

3.1 End cutting nippers

The principal dimensions of end cutting nippers are shown in Figure 1 and given in Table 1. The range of test wire diameters to be used is given in Table 2.



[a] Long jaws.

Figure 1 — End cutting nippers

Table 1 — End cutting nippers, principal dimensions

Dimensions in millimetres

Length of jaws	*l*	*a* max.	*b*	*c* max.	*d* max.	*w* ± 5
Short jaws	112 ± 7	13	9 max.	22	9	48
Long jaws	125 ± 8	7	14 min.	8	9	50
	160 ± 10	7	36 min.	10	10	50

Table 2 — End cutting nippers, classification of test wire

Dimensions in millimetres

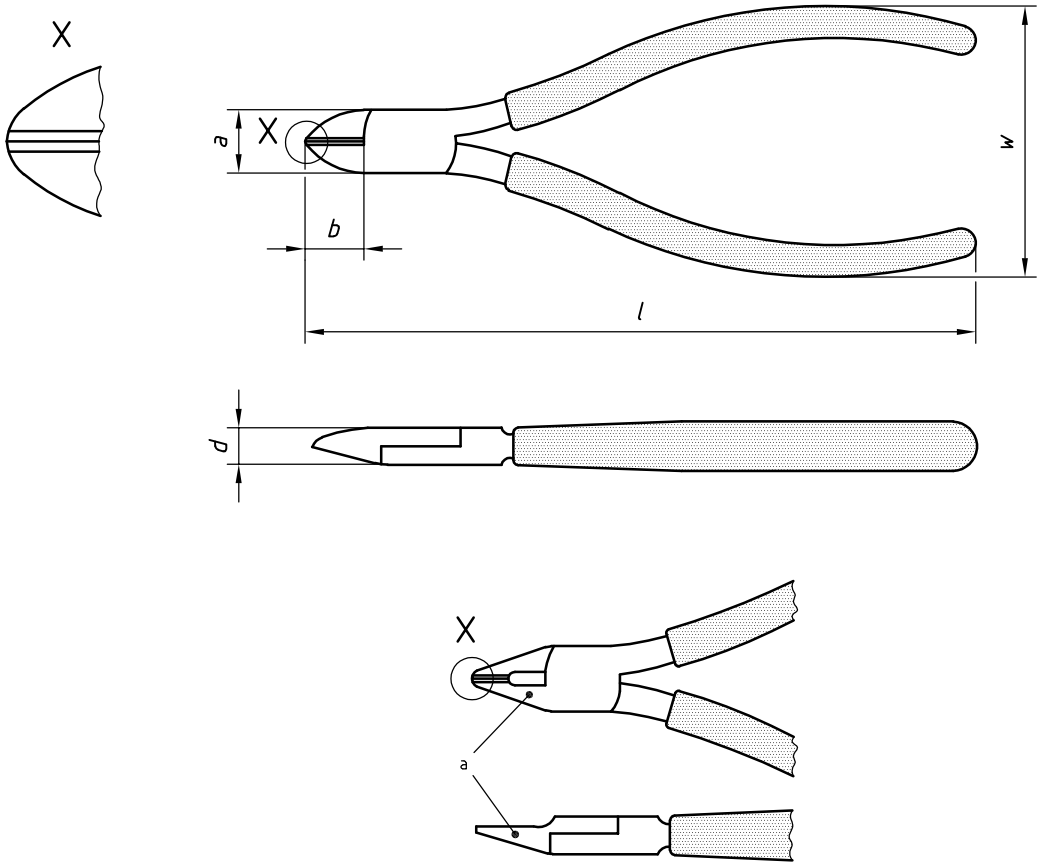
Length of jaws	Nominal length *l*	Cutting edges[a]					
		standard bevelled		semi-flush		flush	
		Diameter of test wire[b]					
		min.	max.	min.	max.	min.	max.
Short jaws	112	0,30	1,25	0,30	1,25	0,2	1,0
Long jaws	125	0,3	0,8	0,3	0,8	0,2	0,8
	160	0,3	0,8	0,3	0,8	0,2	0,8

[a] For the design of these three types of cutting edge, see ISO 8979 reference Nos. 130, 131 and 132.

[b] The test wire shall be of Cu-ETP in accordance with IEC 60317-0-1.

3.2 Diagonal cutting nippers

The principal dimensions of diagonal cutting nippers are shown in Figure 2 and given in Table 3. The range of test wire diameters to be used is given in Table 4.



[a] Alternative design of the jaws.

Figure 2 — Diagonal cutting nippers

Table 3 — Diagonal cutting nippers, principal dimensions

Dimensions in millimetres

l	*a* max.	*b* max.	*d* max.	*w* ± 5
112 ± 7	13	16	8	48
125 ± 8	16	20	10	50

Table 4 — Diagonal cutting nippers, classification of test wire

Dimensions in millimetres

Nominal length *l*	**Cutting edges**[a]					
	standard bevelled		semi-flush		flush	
	Diameter of test wire[b]					
	min.	max.	min.	max.	min.	max.
112	0,30	1,25[c]	0,30	1,25[c]	0,2	1,0
125	0,3	2,0	0,3	2,0	0,2	1,5

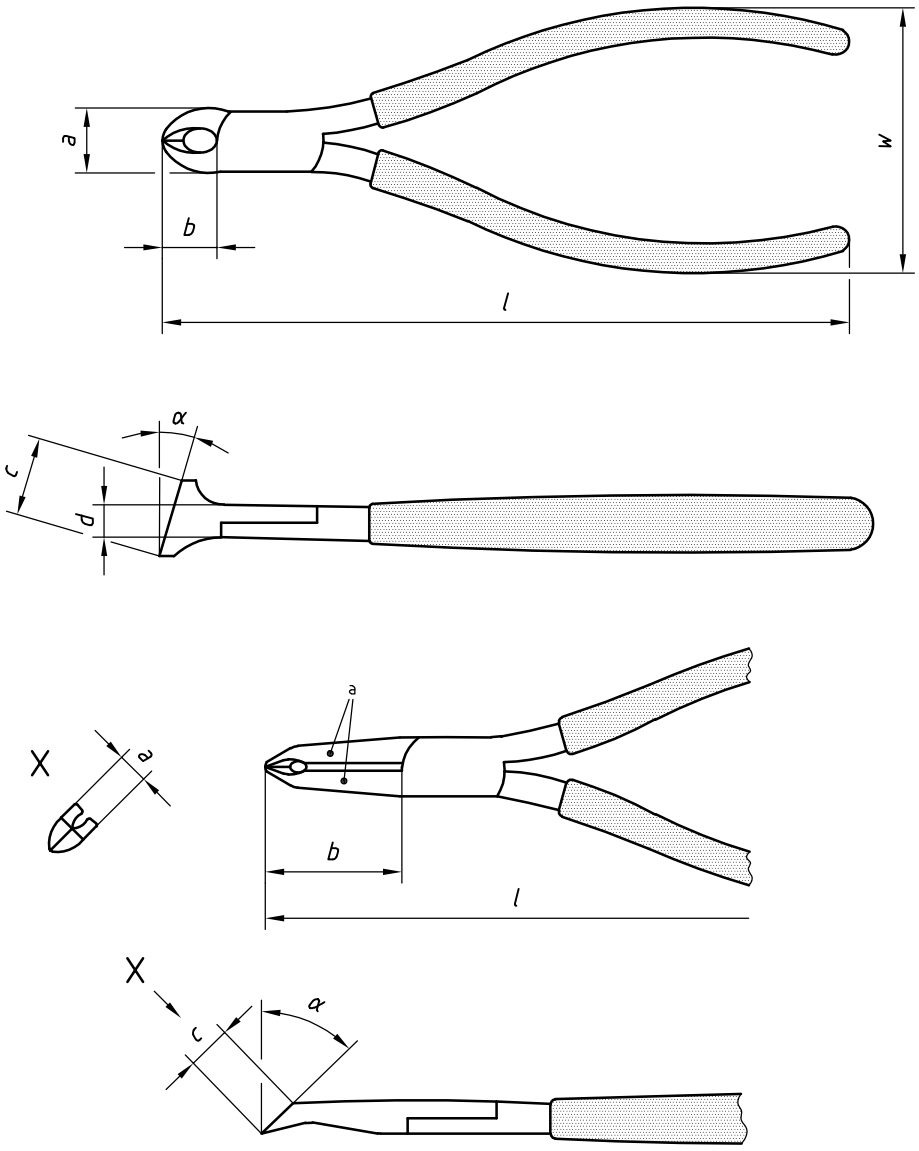
[a] For the design of these three types of cutting edge, see ISO 8979 reference Nos. 130, 131 and 132.

[b] The test wire shall be of Cu-ETP in accordance with IEC 60317-0-1.

[c] 1 max. for nippers with pointed and relieved jaws.

3.3 Oblique cutting nippers

The principal dimensions of oblique cutting nippers are shown in Figure 3 and given in Table 5. The range of test wire diameters to be used is given in Table 6.



[a] Long jaws.

Figure 3 — Oblique cutting nippers

Table 5 — Oblique cutting nippers, principal dimensions

Linear dimensions in millimetres

Length of jaws	l	a max.	b max.	c max.	d max.	w ± 5	α ± 5°
Short jaws	112 ± 7	14	14	20	8	48	15°
Long jaws	125 ± 8	8	25	10	8	50	45°

Table 6 — Oblique cutting nippers, classification of test wire

Dimensions in millimetres

Length of jaws	Nominal length l	Cutting edges[a]					
		standard bevelled		semi-flush		flush	
		Diameter of test wire[b]					
		min.	max.	min.	max.	min.	max.
Short jaws	112	0,30	1,25	0,30	1,25	0,2	1,0
Long jaws	125	0,3	0,8	0,3	0,8	0,2	0,8

[a] For the design of these three types of cutting edge, see ISO 8979 reference Nos. 130, 131 and 132.

[b] The test wire shall be of Cu-ETP in accordance with IEC 60317-0-1.

4 Designation

EXAMPLE 1

End cutting nippers, number 121 in accordance with ISO 8979, with a nominal length l = 125 mm and short jaws (S) and standard bevelled cutting edges (SB) are designated as follows:

End cutting nippers 121 - ISO 9654 - 125 - S - SB

EXAMPLE 2

Diagonal cutting nippers with pointed jaws, number 112 in accordance with ISO 8979, with a nominal length l = 112 mm and semi-flush cutting edges (SF) are designated as follows:

Diagonal cutting nippers 112 - ISO 9654 - 112 - SF

EXAMPLE 3

Oblique cutting nippers, number 122 in accordance with ISO 8979, with a nominal length l = 125 mm and long jaws (L) flush cutting edges (F) are designated as follows:

Oblique cutting nippers 122 - ISO 9654 - 125 - L - F

5 Marking

Marking shall be in accordance with ISO 9657.

Bibliography

[1] ISO 8979, *Pliers and nippers for electronics — Nomenclature*

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