International Standard

ISO **5748**

Pliers and nippers — End cutting nippers — Dimensions

Pinces et tenailles — Pinces coupantes en bout — Dimensions

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5748 was developed by Technical Committee ISO/TC 29, *Small tools*, and was circulated to the member bodies in April 1979.

It has been approved by the member bodies of the following countries :

Australia	Germany, F.R.	Poland
Austria	Hungary	Romania
Belgium	India	South Africa, Rep. of
Bulgaria	Israel	Spain
Canada	Italy	Sweden
Chile	Japan	Switzerland
Czechoslovakia	Korea, Dem. P. Rep. of	USSR
France	Libyan Arab Jamahiriya	Yugoslavia

The member bodies of the following countries expressed disapproval of the document on technical grounds :

United Kingdom
USA

Pliers and nippers — End cutting nippers — Dimensions

1 Scope and field of application

This International Standard lays down the principal dimensions of end cutting nippers and specifies the test values for the pliers in order to verify their aptitude to function in conformity with ISO 5744. General technical requirements are given in ISO 5743.

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

2 References

ISO 5743, *Pliers and nippers — General technical requirements.*

ISO 5744, *Pliers and nippers — Methods of test.*
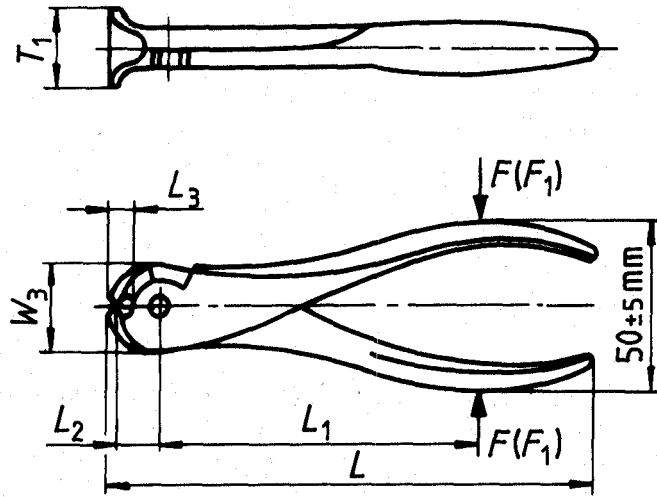
3 End cutting nippers for hard wire

Figure 1

Table 1

Dimensions in millimetres

L	L_3 max.	w_3 max.	T_1 max.
140 ± 7	8	25	22
160 ± 8	9	28	25
200 ± 10	11	36	32

Table 2

L	L_1	L_2	Hard test wire diameter (D)[1]	Maximum cutting force (F_1)	Load test load (F)	Load test maximum permanent set (s)[2]
mm	mm	mm	mm	N	N	mm
140	100	16	1,4	750	1 000	0,5
160	112	18	1,6	900	1 120	1
200	140	22	2	1 260	1 400	1

1) Data for hard test wire are given in ISO 5744.

2) $s = w_1 - w_2$ (See ISO 5744.)

Cutting nippers shall be tested in accordance with ISO 5744.

After the load test, the permanent set (s) shall not exceed the value given in table 2. If the distance L_1 is not suitable for the load test, the following formula may be applied :

$$F' = \frac{F \times L_1}{L'_1}$$

where

F' is the load which is not given in table 2;

F is the load given in table 2;

L_1 is the distance from the centre of the joint rivet to the applied load given in table 2;

L'_1 is the measured distance from the centre of the joint rivet to the applied load.

The maximum cutting force (F_1) and diameter (D) of the test wire shall not exceed the values given in table 2.

Nippers having a lever ratio differing from the values given in tables 1 and 2 may be checked for compliance with the following formula :

$$F'_1 = \frac{F_2 \times 2 \times L'_2}{L'_1}$$

where

F'_1 is the maximum cutting force which is not given in table 2;

F_2 is the cutting force of hard test wire (see ISO 5744);

2 is the correction factor for hard test wire;

L'_1 is the measured distance from the centre of the joint rivet to the applied load;

L'_2 is the measured distance from the centre of the joint rivet to the cutting edges.
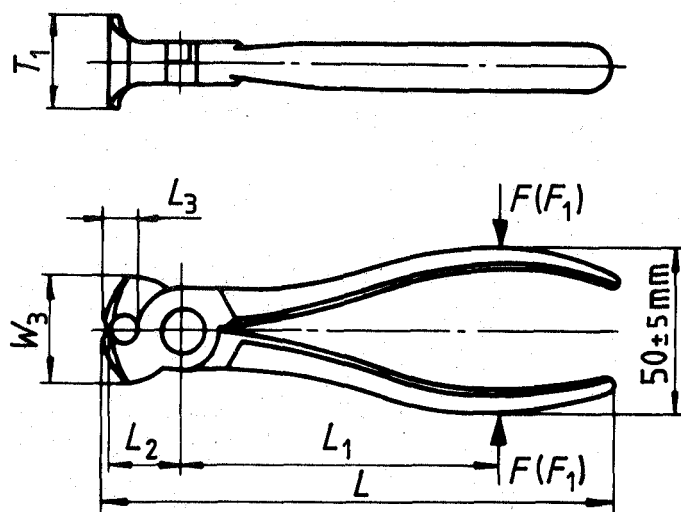
4 End cutting nippers for medium hard wire

Figure 2

Table 3

Dimensions in millimetres

L	L_3 max.	w_3 max.	T_1 max.
125 ± 6	8	25	20
160 ± 8	10	32	25

Table 4

L	L_1	L_2	Medium hard test wire diameter (D)[1]	Maximum cutting force (F_1)	Load test	
					load (F)	maximum permanent set (s)[2]
mm	mm	mm	mm	N	N	mm
125	90	18	1,6	570	900	0,5
160	112	22	1,6	570	1 120	1

1) Data for hard test wire are given in ISO 5744.

2) $s = w_1 - w_2$ (See ISO 5744.)

Cutting nippers shall be tested in accordance with ISO 5744.

After the load test, the permanent set (s) shall not exceed the value given in table 4. If the distance L_1 is not suitable for the load test, the following formula may be applied :

$$F' = \frac{F \times L_1}{L'_1}$$

where

F' is the load which is not given in table 4;

F is the load given in table 4;

L_1 is the distance from the centre of the joint rivet to the applied load given in table 4;

L'_1 is the measured distance from the centre of the joint rivet to the applied load.

The maximum cutting force (F_1) and diameter (D) of the test wire shall not exceed the values given in table 4.

Nippers having a lever ratio differing from the values given in tables 3 and 4 may be checked for compliance with the following formula :

$$F'_1 = \frac{F_2 \times 1,6 \times L'_2}{L'_1}$$

where

F'_1 is the maximum cutting force which is not given in table 4;

F_2 is the cutting force of medium hard test wire (see ISO 5744);

1,6 is the correction factor for medium hard test wire;

L'_1 is the measured distance from the centre of the joint rivet to the applied load;

L'_2 is the measured distance from the centre of the joint rivet to the cutting edges.

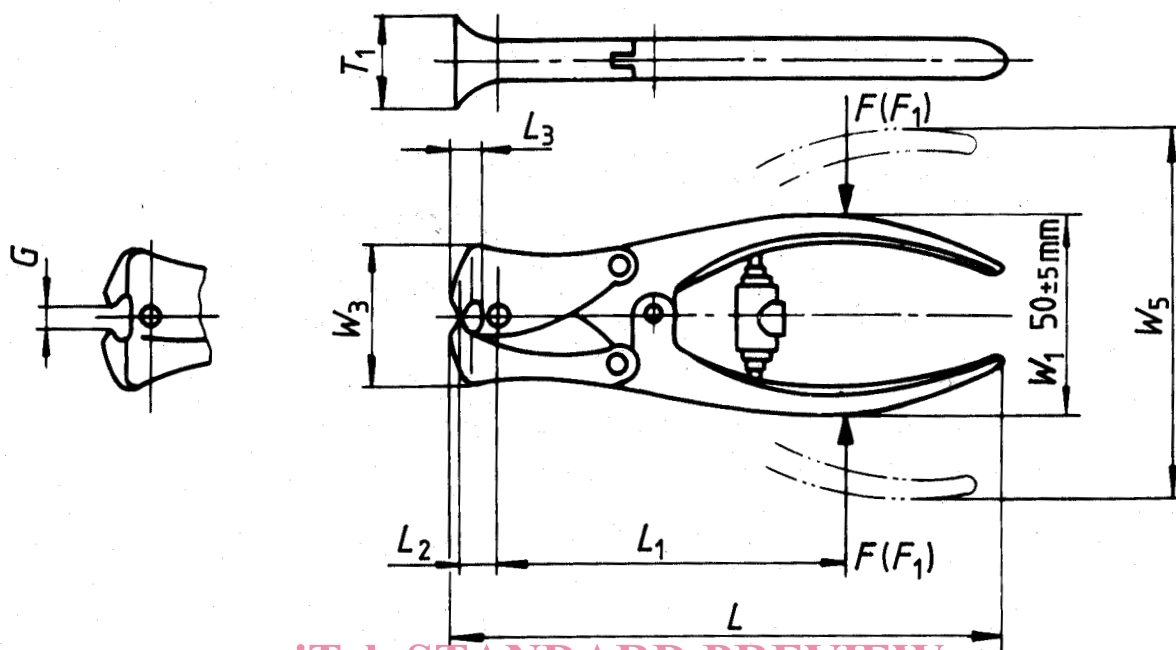## 5 Toggle lever assisted end cutting nippers for hard wire

Figure 3

Table 5

Dimensions in millimetres

L	L_3 max.	w_3 max.	G min.	T_1 max.
180 ± 9	8	45	4	32
200 ± 10	9	50	4	35

Cutting nippers shall be tested in accordance with ISO 5744.

After the load test, the permanent set (s) shall not exceed the value given in table 6. If the distance L_1 is not suitable for the load test, the following formula may be applied :

$$F' = \frac{F \times L_1}{L'_1}$$

where

F' is the load which is not given in table 6;

F is the load given in table 6;

L_1 is the distance from the centre of the joint rivet to the applied load given in table 6;

L'_1 is the measured distance from the centre of the joint rivet to the applied load.

The maximum cutting force (F_1) and diameter (D) of the test wire shall not exceed the values given in table 6.

Table 6

L	L_1	L_2	Hard test wire diameter $(D)^{1)}$	Lever ratio$^{2)}$	Maximum cutting force (F_1)	Load test	
						load (F)	maximum permanent set $(s)^{3)}$
mm	mm	mm	mm		N	N	mm
180	125	16	2	12,5	640	750	1
200	140	18	2,5	14,5	790	840	1

1) Data for hard test wire are given in ISO 5744.

2) Lever ratio $= \dfrac{w_5 - w_1}{G}$

3) $s = w_1 - w_2$ (See ISO 5744.)

Nippers having a lever ratio differing from the values given in table 6 may be checked for compliance with the following formula :

$$F'_1 = \frac{F_2 \times 2 \times G}{w_5 - w_1}$$

where

F'_1 is the maximum cutting force which is not given in table 6;

F_2 is the cutting force of hard test wire (see ISO 5744);

2 is the correction factor for hard test wire;

G is the measured opening of the jaws;

w_1 is the measured width of the handles at the closed position;

w_5 is the measured width of the handles at the open position.

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