TC 29

International Standard **ISO** 5747

Pliers and nippers — Lever assisted side cutting pliers, end and diagonal cutting nippers — Dimensions

Pinces et tenailles — Pinces articulées coupantes de côté, coupantes en bout et coupantes diagonale — Dimensions

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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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5747 was prepared by Technical Committee ISO/TC 29, *Small tools*.

Pliers and nippers — Lever assisted side cutting pliers, end and diagonal cutting nippers — Dimensions

1 Scope and field of application

This International Standard lays down the principal dimensions of lever assisted side cutting pliers and end and diagonal cutting nippers, and specifies the test values for the pliers and nippers to verify their functioning, 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 manufacturers' design.

2 References

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

ISO 5744, *Pliers and nippers — Methods of test.*

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3 Lever assisted side cutting pliers for hard wire
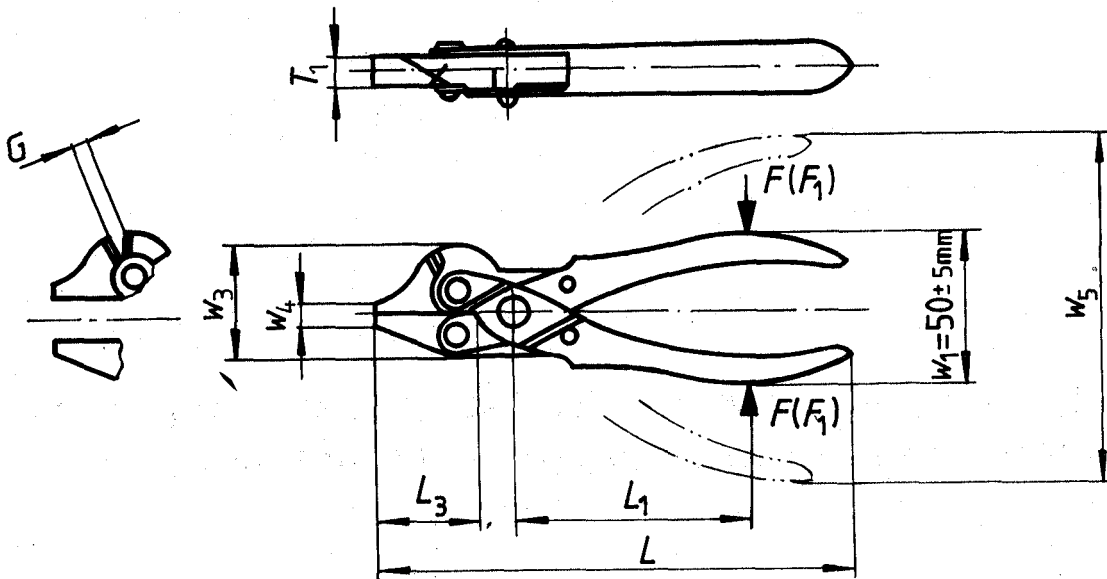
Figure 1

Table 1

Dimensions in millimetres

L	L_3 max.	w_3 max.	w_4 max.	G min.	T_1 max.
125 ± 6	25	32	4	10	6
140 ± 7	28	36	4,5	11	8
160 ± 8	32	40	5	12	10
200 ± 10	40	50	6	16	16

Table 2

	L_1	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		N	N	mm
125	60	1,25	15	260	360	1
140	75	1,4	15	310	450	1
160	90	1,6	15	370	540	2
200	125	2	15	530	750	3

Cutting pliers 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.

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

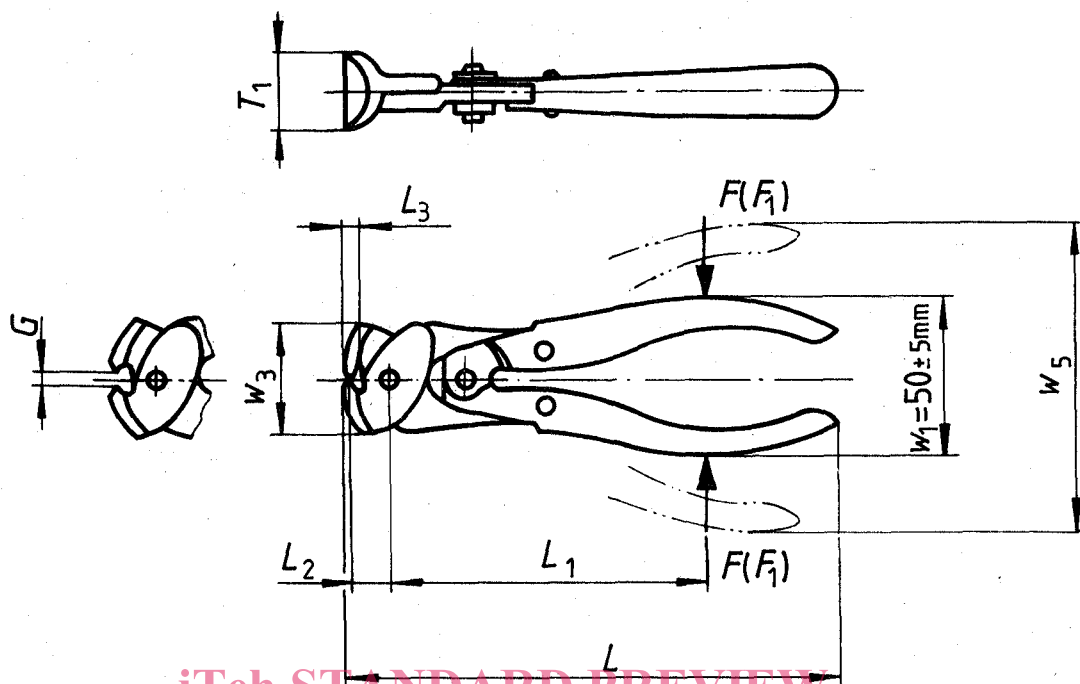2) Lever ratio $= \dfrac{w_5 - w_1}{G}$

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

Pliers having a lever ratio differing from the values given in table 2 may be checked for compliance by 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 2;

F_2 is the cutting force of hard test wire given in 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 when closed;

w_5 is the measured width of the handles when open.

2

4 Lever assisted end cutting nippers for hard wire

Figure 2

Table 3

Dimensions in millimetres

L	L_3 max.	w_3 max.	G min.	T_1 max.
160 ± 8	8	40	3,2	25

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.

Table 4

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
160	112	15	1,6	14	400	670	2

[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 value given in table 4 may be checked for compliance by 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 4;

F_2 is the cutting force of hard test wire given in 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 when closed;

w_5 is the measured width of the handles when open.

3

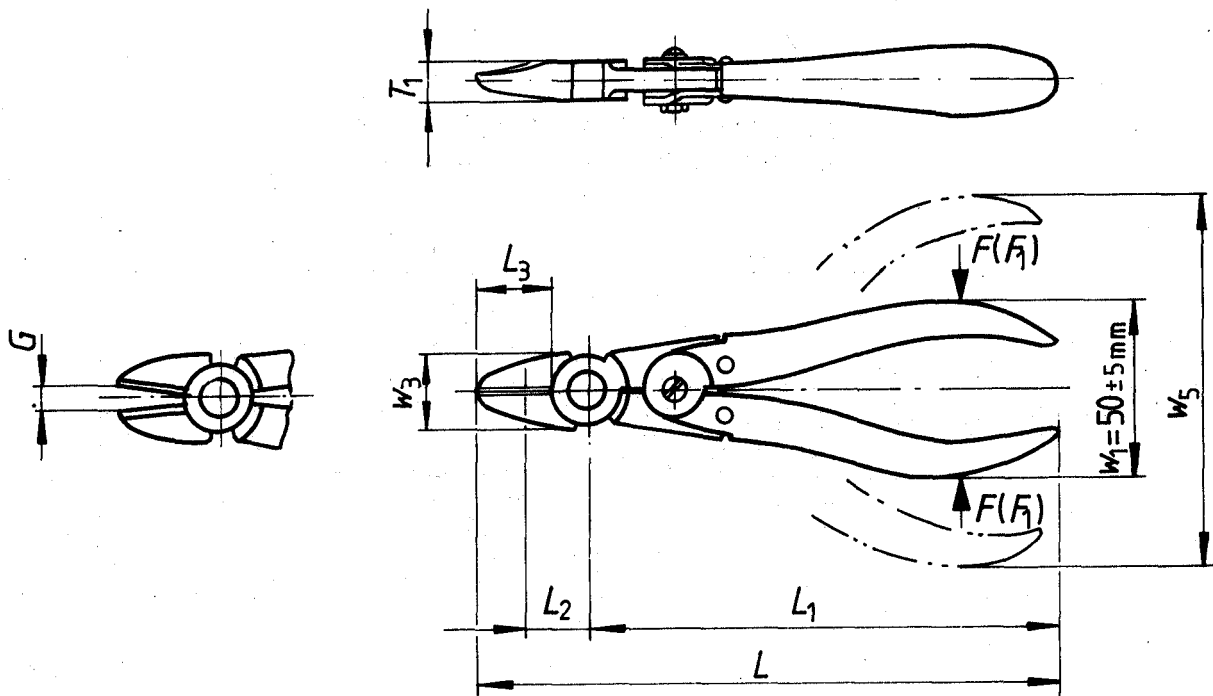## 5 Lever assisted diagonal cutting nippers for hard wire

Figure 3

Table 5

Dimensions in millimetres

L	L_3 max.	w_3 max.	G min.	T_1 max.
140 ± 7	20	25	5	10
160 ± 8	20	25	5	12

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
140	95	12	1,4	12	310	450	2
160	112	15	1,6	10	400	670	2

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 value given in table 6 may be checked for compliance by 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 given in 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 when closed;

w_5 is the measured width of the handles when open.

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