

INTERNATIONAL STANDARD

ISO
5746

Second edition
1988-10-01



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Pliers and nippers — Engineer's and lineman's pliers — Dimensions and test values

*Pinces et tenailles — Pinces universelles et pinces «lineman's» — Dimensions et valeurs
d'essai*

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Reference number
ISO 5746 : 1988 (E)

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.

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 5746 was prepared by Technical Committee ISO/TC 29, *Small tools*.

This second edition cancels and replaces the first edition (ISO 5746 : 1982), table 2 of which has been technically revised.

Pliers and nippers — Engineer's and lineman's pliers — Dimensions and test values

1 Scope

This International Standard specifies the principal dimensions of engineer's and lineman's pliers and 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 engineer's and lineman's pliers illustrated in this International Standard are examples only and are not intended to affect the manufacturers' design.

2 Normative references

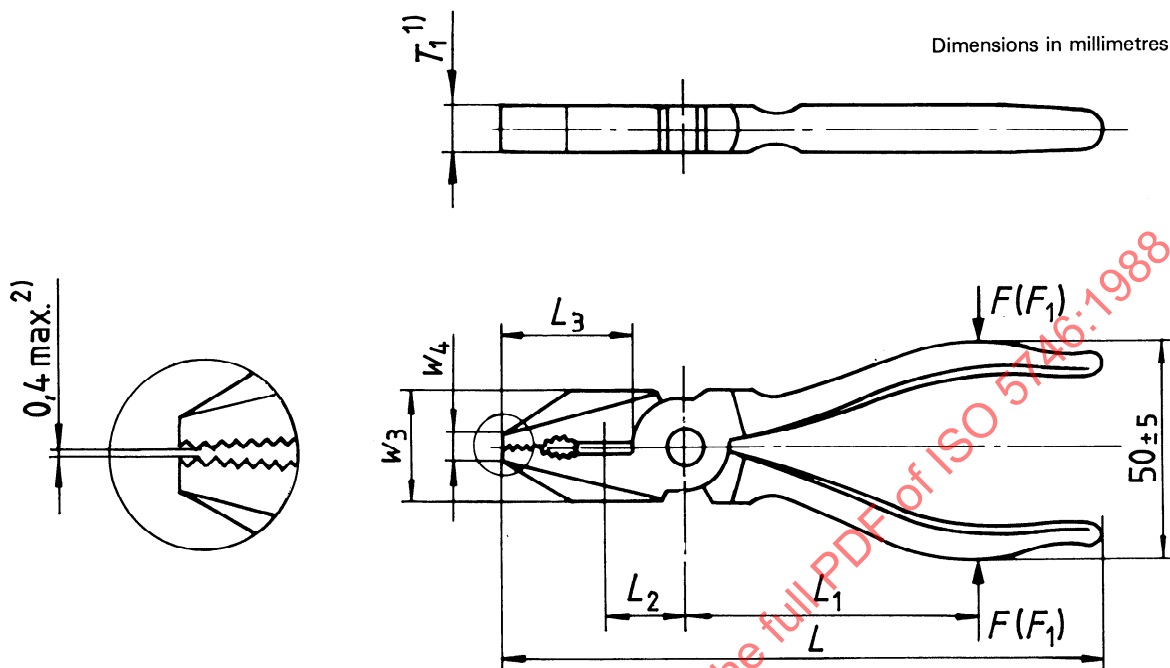
The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5743 : 1982, *Pliers and nippers — General technical requirements*.

ISO 5744 : 1988, *Pliers and nippers — Methods of test*.

3 Dimensions and test values

3.1 Engineer's pliers



- 1) The jaws may be tapered to the point over the length L_3 .
- 2) Referred to closed pliers.

Figure 1

Table 1
Dimensions in millimetres

L	L_3	w_3 max.	w_4 max.	T_1 max.
160 ± 8	32 ± 4	24	6,3	11
180 ± 9	36 ± 4	28	7,1	12
200 ± 10	40 ± 4	32	8	14

Engineer's pliers can be made with or without a joint cutter, at the manufacturer's discretion.

Engineer's 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 point of application of the load given in table 2;

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

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

Table 2

L	L_1	L_2	Cutting test		Torsion test ²⁾		Load test	
			Diameter of medium hard test wire $D^{1)}$	Maximum cutting force $F_{1, \max}$	Torque T	Maximum twist $\alpha_{\max}$	Load F	Maximum permanent set $s_{\max}^{3)}$
mm	mm	mm	mm	N	N.m		N	mm
160	80	16	1,6	580	20	$\pm 15^\circ$	1 120	1
180	90	18	1,6	580	25	$\pm 15^\circ$	1 260	1
200	100	20	1,6	580	25	$\pm 15^\circ$	1 400	1

1) Data for medium hard test wire are given in ISO 5744.
2) The test shall be carried out in accordance with the torsion test for flat nose pliers given in ISO 5744.
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 using 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 2;

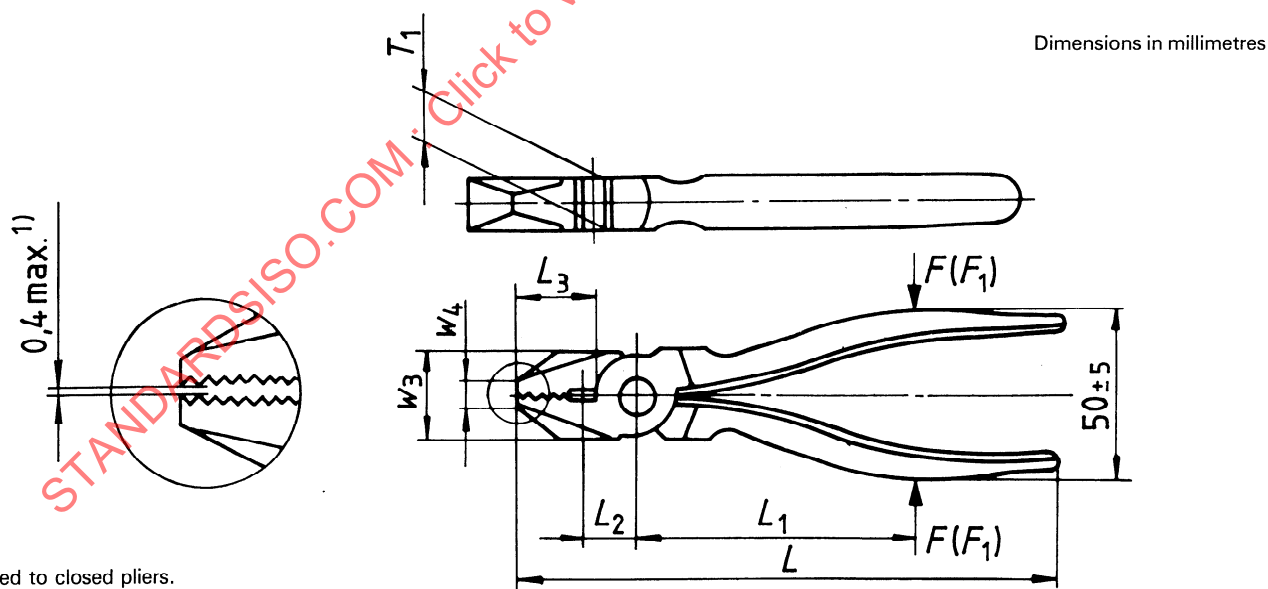
F_2 is the cutting force of medium hard test wire (see ISO 5744);

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 point of application of the load;

L'_2 is the measured distance from the centre of the joint rivet to the location of the test wire.

3.2 Lineman's pliers



1) Referred to closed pliers.

Figure 2

Table 3

Dimensions in millimetres

L	L_3	w_3 max.	w_4 max.	T_1 max.
160 ± 8	28 ± 4	25	6,3	11
180 ± 9	32 ± 4	28	7,1	12
200 ± 10	36 ± 4	32	8	14

Lineman's pliers can be made with or without a joint cutter, at the manufacturer's discretion.

Lineman's 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 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 point of application of the load given in table 4;

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

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

Table 4

L	L_1	L_2	Cutting test		Load test	
			Diameter of medium hard test wire $D^{1)}$	Maximum cutting force $F_{1, \max}$	Force F	Maximum permanent set $s_{\max}^{2)}$
mm	mm	mm	mm	N	N	mm
160	80	16	1,6	580	1 120	1
180	90	18	1,6	580	1 260	1
200	100	20	1,6	580	1 400	1

1) Data for medium hard test wire are given in ISO 5744.
2) $s = w_1 - w_2$ (See ISO 5744.)

Pliers having a lever ratio differing from the values given in table 4 may be checked for compliance using 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 point of application of the load;

L'_2 is the measured distance from the centre of the joint rivet to the location of the test wire.