INTERNATIONAL STANDARD

ISO 5749

Third edition
2004-09-15

Pliers and nippers — Diagonal cutting nippers — Dimensions and test values

Pinces et tenailles — Pinces coupantes diagonales — Dimensions et valeurs d'essai

Reference number
ISO 5749:2004(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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 5749 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 10, *Assembly tools for screws and nuts, pliers and nippers*.

This third edition cancels and replaces the second edition (ISO 5749:1988) which has been technically revised.

Pliers and nippers — Diagonal cutting nippers — Dimensions and test values

1 Scope

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

The diagonal cutting nippers illustrated in this International Standard are examples only 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 5743, *Pliers and nippers — General technical requirements*

ISO 5744:2004, *Pliers and nippers — Methods of test*

3 Dimensions and test values

3.1 Diagonal cutting nippers for hard wire

The main dimensions for cutting nippers for hard wire are shown in Figure 1 and given in Table 1.

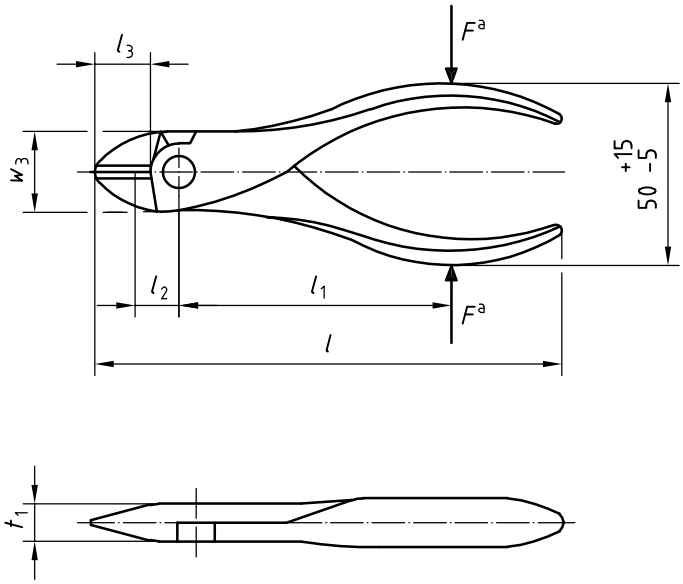
The cutting nippers shall be tested in accordance with ISO 5744.

After the load test, the permanent set s shall not exceed the value given in Table 2. If distance l_1 is not suitable for the load test, the formula given in ISO 5744:2004, 4.2 shall be used.

The cutting force, F_1, and the 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 Table 2 shall be checked for compliance using the formula given in ISO 5744:2004, 5.3.3.

Dimensions in millimetres



a F = Load applied in load test or F_1 force applied in cutting test.

Figure 1 — Diagonal cutting nippers for hard wire

Table 1 — Diagonal cutting nippers for hard wire, main dimensions

Dimensions in millimetres

l	l_3 max.	w_3 max.	t_1 max.
125 ± 6	18	22	10
140 ± 7	20	25	11
160 ± 8	22	28	12
180 ± 9	25	32	14
200 ± 10	28	36	16

Table 2 — Diagonal cutting nippers for hard wire, force application and test values

Nominal length			Cutting test		Load test	
			Diameter of hard test wire	Maximum cutting force	Load	Maximum permanent set
l	l_1	l_2	d [a]	$F_{1\,max}$	F	s_{max} [b]
mm	mm	mm	mm	N	N	mm
125	80	10	1,25	500	800	0,5
140	90	11	1,4	575	900	1
160	100	12,5	1,6	700	1 000	1
180	112	14	1,8	850	1 120	1
200	125	16	2	1 020	1 250	1

a Data for hard test wire are given in ISO 5744.

b $s = w_1 - w_2$ (see ISO 5744).

3.2 Diagonal cutting nippers for medium hard wire

The main dimensions for cutting nippers for hard wire are shown in Figure 2 and given in Table 3.

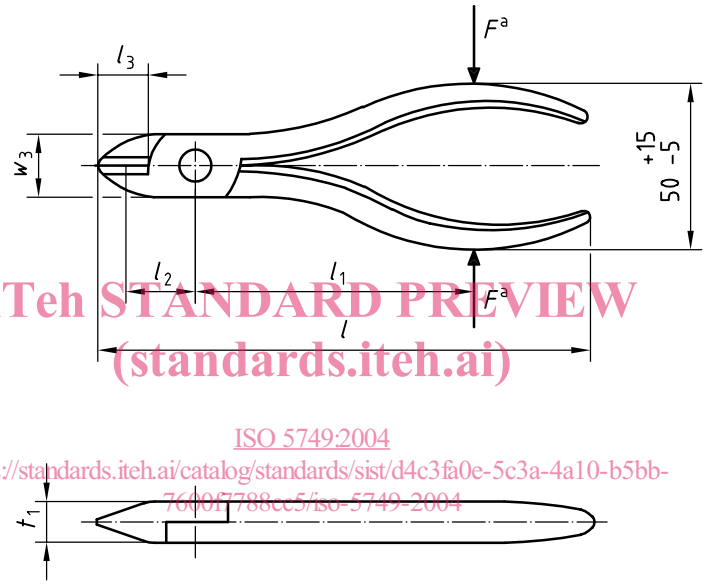
The cutting nippers shall be tested in accordance with ISO 5744.

After the load test, the permanent set s shall not exceed the value given in Table 4. If distance l_1 is not suitable for the load test, the formula given in ISO 5744:2004, 4.2 shall be used.

The cutting force, F_1, and the 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 Table 4 shall be checked for compliance using the formula given in ISO 5744:2004, 5.3.2.

Dimensions in millimetres



a F = Load applied in load test or F_1 force applied in cutting test.

Figure 2 — Diagonal cutting nippers for medium hard wire

Table 3 — Diagonal cutting nippers for medium hard wire, main dimensions

Dimensions in millimetres

l	l_3 max.	w_3 max.	t_1 max.
125 ± 6	18	22	10
140 ± 7	20	25	11
160 ± 8	22	28	12
180 ± 9	25	32	14
200 ± 10	28	36	16

Table 4 — Diagonal cutting nippers for medium hard wire, force application and test values

Nominal length			Cutting test		Load test	
			Diameter of medium hard test wire	Maximum cutting force	Load	Maximum permanent set
l	l_1	l_2	d [a]	$F_{1\,max}$	F	s_{max} [b]
mm	mm	mm	mm	N	N	mm
125	80	12,5	1,6	450	800	0,5
140	90	14	1,6	450	900	1
160	100	16	1,6	460	1 000	1
180	112	18	1,6	460	1 120	1
200	125	20	1,6	460	1 250	1

a Data for medium hard test wire are given in ISO 5744.

b $s = w_1 - w_2$ (see ISO 5744).

3.3 Toggle lever assisted side cutting nippers for hard wire

The main dimensions for cutting nippers for hard wire are shown in Figure 3 and given in Table 5.

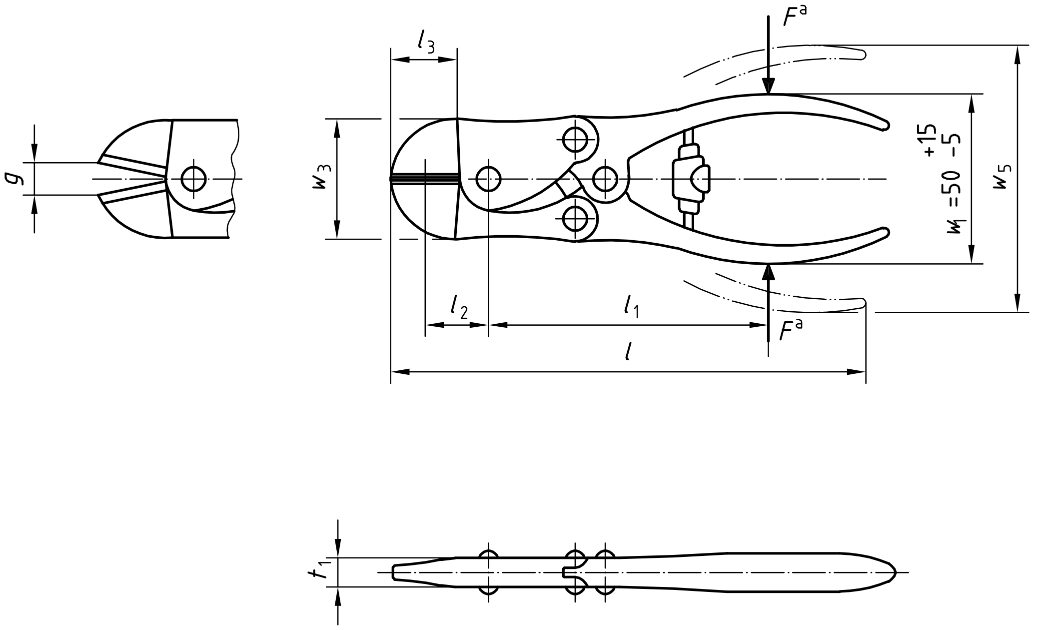
The cutting nippers shall be tested in accordance with ISO 5744.

After the load test, the permanent set s shall not exceed the value given in Table 6. If distance l_1 is not suitable for the load test, the formula given in ISO 5744:2004, 4.2 shall be used.

The cutting force, F_1, and the diameter, d, of the test wire shall not exceed the values given in Table 6.

Nippers having a lever ratio differing from the values given in Table 6 shall be checked for compliance using the formula given in ISO 5744:2004, 5.3.4.

Dimensions in millimetres



a F = Load applied in load test or F_1 force applied in cutting test.

Figure 3 — Toggle lever assisted side cutting nippers for hard wire

Table 5 — Toggle lever assisted side cutting nippers for hard wire, main dimensions

Dimensions in millimetres

l	l_3 max.	w_3 max.	g min.	t_1 max.
200 ± 10	25	45	5	18
224 ± 11	28	48	6	18

Table 6 — Toggle lever assisted side cutting nippers for hard wire, force application and test values

Nominal length			Cutting test			Load test	
			Lever ratio[a]	Diameter of hard test wire	Maximum cutting force	Load	Maximum permanent set
l	l_1	l_2		d[b]	$F_{1\,max}$	F	s_{max}[c]
mm	mm	mm		mm	N	N	mm
200	140	18	14,5	2,5	690	840	1
224	160	20	16,5	2,5	790	950	1

a The lever ratio is equal to $(w_5 - w_1)/g$.

b Data for hard test wire are given in ISO 5744.

c $s = w_1 - w_2$ (see ISO 5744).

