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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

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## **Pliers and nippers — Methods of test**

*Pinces et tenailles — Méthodes d'essai*

Reference number  
ISO 5744:1988 (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 5744 was prepared by Technical Committee ISO/TC 29, *Small tools*.

This second edition cancels and replaces the first edition (ISO 5744 : 1983), clause 5 of which has been technically revised.

# Pliers and nippers – Methods of test

## 1 Scope

This International Standard specifies methods of test for checking the correct functioning of pliers and nippers.

The test parameters have been specified on the basis of the functional uses of the tools.

## 2 Load test

### 2.1 General

The test shall be carried out using suitable equipment which can be checked by comparison with a standard.

### 2.2 Pliers and nippers

For the type and size of tool, given in the dimensional standards, define a point for the application of the load on the handles at the distance  $L_1$  from the centre of the joint rivet, and insert a suitable test piece into the jaws (see 2.4).

Apply a load of 50 N and measure the width,  $w_1$ , of the handles. Increase the load to the specified value  $F$ , and then reduce it to 50 N. The load  $F$  shall be applied four times and then the width,  $w_2$ , of the handles shall again be measured at the same distance  $L_1$ . The difference between the first and second readings shall not exceed the maximum value of permanent set ( $s = w_1 - w_2$ ), see figures 1, 2 and 3, appropriate to the type and size of tool.

After the test, the tool shall show no deformation that can affect its use.

If the load test cannot conveniently be carried out at the distance  $L_1$  from the centre of the joint rivet, then a more suitable position for the load may be chosen at the distance  $L'_1$  from the centre of the joint rivet. The load  $F'$  at distance  $L'_1$  from the centre of the joint rivet shall then be calculated from the formula

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

where  $F$  is the load at distance  $L_1$  (see figures 1, 2 and 3).

### 2.3 Lever-assisted pliers

For the type and size of tool, given in the dimensional standards, define a point for the application of the load on the handles at the distance  $L_1$  from the centre of the joint rivet, and insert a suitable test piece into the jaws (see 2.4).

Apply a load of  $0,5 \times F$ ; reduce it to 50 N and measure the width,  $w_1$ , of the handles. Increase the load to the specified value  $F$ , and then reduce it to 50 N. The load  $F$  shall be applied four times and then the width,  $w_2$ , of the handles shall again be measured at the same distance  $L_1$ . The difference between the first and second readings shall not exceed the maximum value of permanent set ( $s = w_1 - w_2$ ), see figures 1, 2 and 3, appropriate to the type and size of tool.

After the test, the tool shall show no deformation that can affect its use.

### 2.4 Test piece

The test piece shall have a hardness value of 30 HRC to 40 HRC and be of such a size and profile as to make contact with the jaws over a length of  $8 \text{ mm} \pm 1 \text{ mm}$  from the point of the jaws. For end cutting nippers the test piece shall make contact over the full length of the jaws. With the test piece inserted, the gap between the points of the jaws shall be  $3 \text{ mm} \pm 1 \text{ mm}$ .

## 3 Wire cutting test

### 3.1 Calibration of test wire

The wire to be used for cutting tests shall first be calibrated in equipment which can be checked by comparison with a standard.

Assemble in the test equipment two tungsten carbide cutters, with edges ground to an inclusive angle of  $60^\circ \pm 1^\circ$  having a radius of 0,3 mm, with the cutting edges parallel to each other and at right angles to the test wire (see figure 4).

Record the force required to cut the wire. The mean of three readings shall correspond to the values given in 3.2.