

BS ISO 5743:2021



BSI Standards Publication

## **Pliers and nippers — General technical requirements**

---

## National foreword

This British Standard is the UK implementation of [ISO 5743:2021](#). It supersedes [BS ISO 5743:2004](#), which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/15, Hand tools.

A list of organizations represented on this committee can be obtained on request to its committee manager.

### Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2022  
Published by BSI Standards Limited 2022

ISBN 978 0 539 06694 4

ICS 25.140.30

### **Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2022.

### Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

---

INTERNATIONAL  
STANDARD

**ISO**  
**5743**

Fourth edition  
2021-11-23

---

---

**Pliers and nippers — General  
technical requirements**

*Pinces et tenailles — Spécifications techniques générales*



Reference number  
ISO 5743:2021(E)



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2021, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
[copyright@iso.org](mailto:copyright@iso.org)  
[www.iso.org](http://www.iso.org)

<b>Contents</b>		Page
<b>Foreword</b> .....		<b>iv</b>
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>1</b>
<b>4</b>	<b>Handles</b> .....	<b>1</b>
<b>5</b>	<b>Heads</b> .....	<b>3</b>
	5.1 Joint	3
	5.2 Jaws	4
<b>6</b>	<b>Designation</b> .....	<b>4</b>
	6.1 Nippers.....	4
	6.2 Gripping and dual-purpose pliers.....	4
<b>7</b>	<b>Marking</b> .....	<b>5</b>
<b>Bibliography</b> .....		<b>6</b>

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

This fourth edition cancels and replaces the third edition ([ISO 5743:2004](http://www.iso.org/iso/5743:2004)), which has been technically revised.

The main changes are as follows:

- requirements against accidental pinching of the hands are more specific.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Pliers and nippers — General technical requirements

## 1 Scope

This document specifies the general technical requirements to be met by pliers and nippers.

It does not specify insulating or antistatic characteristics of handle coatings. Plastic coatings or plastic sleeves are intended for gripping comfort only.

This document is only applicable to pliers for which ISO standards exist.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 5742](#), *Pliers and nippers — Nomenclature*

[ISO 5744](#), *Pliers and nippers — Methods of test*

## 3 Terms and definitions

No terms and definitions are listed in this document.

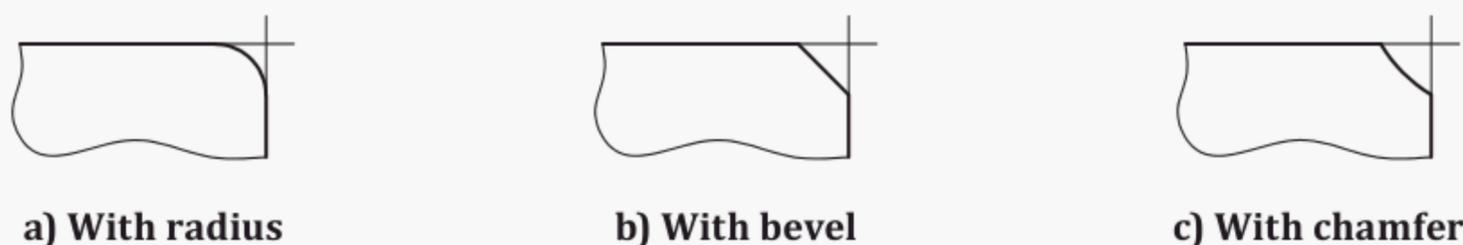
ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Handles

Handles of pliers shall be shaped to afford a comfortable grip and shall prevent accidental bruising or clamping.

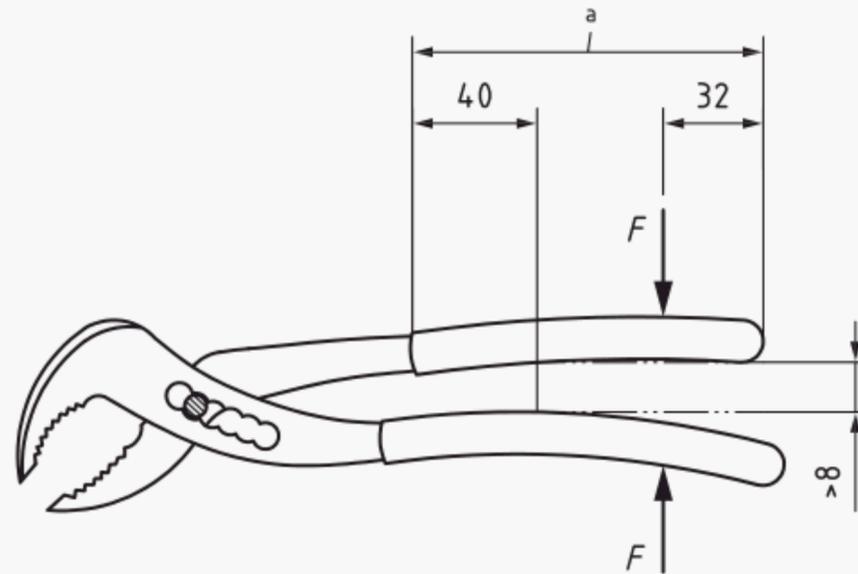
To prevent bruising of skin, clear-cut edges should be avoided, e.g. by designing the edges of the gripping zone with a radius, bevel or chamfer > 2 mm (see [Figure 1](#)) or similar solutions with a distance between the handles smaller than 10 mm.



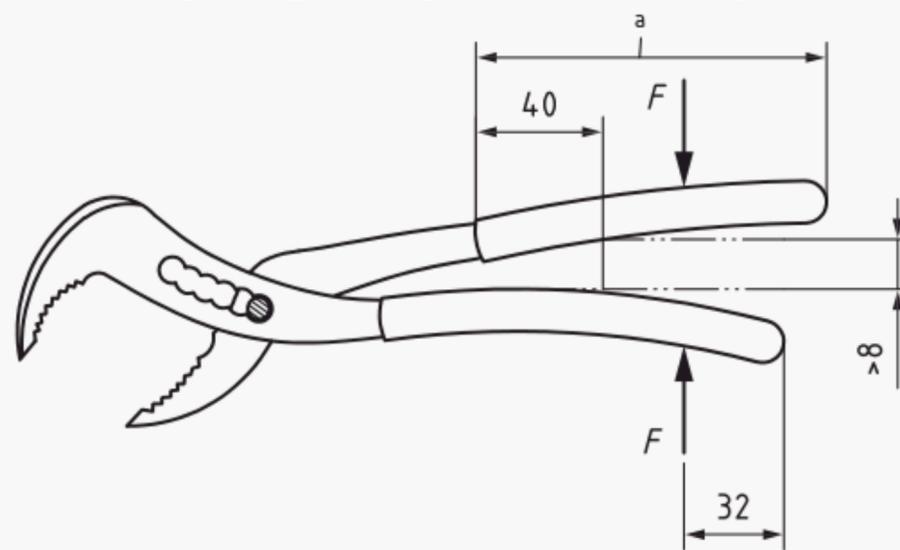
**Figure 1 — Possible edge designs for pliers' handles**

To avoid bruising of skin and clamping of fingers, pliers having a nominal length > 160 mm shall always have a minimum gap of 8 mm width between the handles in the outer areas of the handles. This outer

Dimensions in millimetres



a) Multiple slip-joint plier in a narrow position



b) Multiple slip-joint plier in a wide position

**Key**

- $F$  hand force
- $a$  Gripping zone.

**Figure 3 — Gripping zone on a multiple slip-joint plier (see ISO 8976)**

Evaluation shall be carried out while the handles are squeezed by a hand force  $F$  of 50 N to be applied 32 mm inwards from the outer end of the pliers' handles (Figure 2).

For multiple slip-joint pliers every position shall be tested. The hand force  $F$  of 50 N shall be applied 32 mm inwards from the outer end of the shorter length handle (Figure 3).

For pliers provided with a comfort grip, the width of the handles shall include the thickness of the comfort grip.

## 5 Heads

### 5.1 Joint

The joint shall be constructed to allow free movement from the closed to the open position and shall be free from excessive side movement in any position that can impair the function of the tool.

## 5.2 Jaws

For all pliers the jaws shall meet at the point. Pliers and nippers for which other specifications are laid down in the dimensional standards are excluded.

Cutting edge of cutting pliers shall have a minimum hardness of 55 HRC.

The hardness of the gripping surfaces for all pliers shall be a minimum of 42 HRC. The hardness shall be measured in accordance with [ISO 5744](#).

NOTE Rockwell C hardness (HRC) is defined in [ISO 6508-1](#).

## 6 Designation

### 6.1 Nippers

The principal information for the designation of nippers shall be given in the following order and in accordance with [ISO 5742](#):

- a) designation and number of nomenclature;
- b) ISO standard concerned;
- c) dimensions;
- d) direction and position of cutting edges;
- e) type and shape of cutting edges;
- f) type of joint;
- g) shape of handles in the longitudinal direction;
- h) field of application (only if required for better understanding).

### 6.2 Gripping and dual-purpose pliers

The principal information for the designation of gripping and dual-purpose pliers shall be given in the following order and in accordance with [ISO 5742](#):

- a) designation and number of nomenclature;
- b) ISO standard concerned;
- c) dimensions;
- d) shape of nose (end view at the point);
- e) shape of nose (in the longitudinal direction);
- f) shape of back of the nose;
- g) whether with or without serrations;
- h) whether with or without grooves;
- i) type of joint;
- j) shape of handles in the longitudinal direction;
- k) field of application; for dual-purpose pliers, specify the test wire (only if required for better understanding).

## 7 Marking

Pliers shall be marked with at least the name or trademark of the manufacturer or responsible supplier.

## Bibliography

- [1] [ISO 5746](#), *Pliers and nippers — Engineer's and Lineman's pliers — Dimensions and test values*
- [2] [ISO 6508-1](#), *Metallic materials — Rockwell hardness test — Part 1: Test method*
- [3] [ISO 8976](#), *Pliers and nippers — Multiple slip joint pliers — Dimensions and test values*



# British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

## About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

## Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at [bsigroup.com/standards](http://bsigroup.com/standards) or contacting our Customer Services team or Knowledge Centre.

## Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at [bsigroup.com/shop](http://bsigroup.com/shop), where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

## Copyright in BSI publications

All the content in BSI publications, including British Standards, is the property of and copyrighted by BSI or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use.

Save for the provisions below, you may not transfer, share or disseminate any portion of the standard to any other person. You may not adapt, distribute, commercially exploit or publicly display the standard or any portion thereof in any manner whatsoever without BSI's prior written consent.

## Storing and using standards

Standards purchased in soft copy format:

- A British Standard purchased in soft copy format is licensed to a sole named user for personal or internal company use only.
- The standard may be stored on more than one device provided that it is accessible by the sole named user only and that only one copy is accessed at any one time.
- A single paper copy may be printed for personal or internal company use only.

Standards purchased in hard copy format:

- A British Standard purchased in hard copy format is for personal or internal company use only.
- It may not be further reproduced – in any format – to create an additional copy. This includes scanning of the document.

If you need more than one copy of the document, or if you wish to share the document on an internal network, you can save money by choosing a subscription product (see 'Subscriptions').

## Reproducing extracts

For permission to reproduce content from BSI publications contact the BSI Copyright and Licensing team.

## Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to [bsigroup.com/subscriptions](http://bsigroup.com/subscriptions).

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

**PLUS** is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit [bsigroup.com/shop](http://bsigroup.com/shop).

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email [cservices@bsigroup.com](mailto:cservices@bsigroup.com).

## Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

## Useful Contacts

### Customer Services

**Tel:** +44 345 086 9001

**Email:** [cservices@bsigroup.com](mailto:cservices@bsigroup.com)

### Subscriptions

**Tel:** +44 345 086 9001

**Email:** [subscriptions@bsigroup.com](mailto:subscriptions@bsigroup.com)

### Knowledge Centre

**Tel:** +44 20 8996 7004

**Email:** [knowledgecentre@bsigroup.com](mailto:knowledgecentre@bsigroup.com)

### Copyright & Licensing

**Tel:** +44 20 8996 7070

**Email:** [copyright@bsigroup.com](mailto:copyright@bsigroup.com)

## BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK