



DPC: 25/30472155 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 04 June 2025

Origin: European

Latest date for receipt of comments: 28 July 2025

Project No. 2023/00744

Responsible committee: MTE/15 Hand tools

Interested committees:

Title: Draft BS EN ISO 6789-1 Assembly tools for screws and nuts - Hand torque tools. Part 1: Requirements and methods for design conformance testing and quality conformance testing; minimum requirements for declaration of conformance.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 28 July 2025

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <https://standardsdevelopment.bsigroup.com/>.

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 6789-1

Assembly tools for screws and nuts — Hand torque tools —

Part 1: Requirements and methods for design conformance testing and quality conformance testing: minimum requirements for declaration of conformance

*Outils de manoeuvre pour vis et écrous — Outils
dynamométriques à commande manuelle —*

*Partie 1: Exigences et méthodes d'essai pour vérifier la
conformité de conception et la conformité de qualité: exigences
minimales pour déclaration de conformité*

ICS: 25.140.30

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 6789-1:2025(en)

Full document details: 25/30472155 DC

ISO/TC 29/SC 10

Secretariat: DIN

Voting begins on:
2025-06-04

Voting terminates on:
2025-08-27

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENTS AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

© ISO 2025



Documents

Document Sharing Hub



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions and symbols	1
3.1 Terms and definitions	1
3.2 Symbols, designations and units	3
4 Classification	4
5 Requirements	4
5.1 Design conformance testing	4
5.1.1 Maximum torque values	5
5.1.2 Specified torque range	5
5.1.3 Specified angle range	5
5.1.4 Scales, dials and displays for torque	6
5.1.5 Scales, dials and displays for angle	6
5.1.6 Maximum permissible torque error	6
5.1.7 Maximum permissible angle error	7
5.1.8 Overloading test	7
5.1.9 Endurance test	7
5.1.10 Effect of geometric changes	8
5.1.11 Effect of orientation with respect to ground	9
5.1.12 Influence of bending on angle measurement	9
5.2 Manufacturer's Declaration of Conformance	9
6 Conformance with quality control requirements	10
7 Marking	10
Annex A (normative) Examples of indicating torque tools (Type I)	11
Annex B (normative) Examples of setting torque tools (Type II)	13
Annex C (informative) Explanation of key changes in this edition of the standard with relation to the performance of torque tools.	15
Annex D (informative) Example Manufacturer's Declaration of Conformance.	18
Bibliography	19

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).

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).

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

For an explanation on 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 the following URL: 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 second edition of ISO 6789-1, together with revisions of ISO 6789-2 and the addition of ISO 6789-3, cancels and replaces ISO 6789-1:2017 and ISO 6789-2:2017 which have been technically revised with changes as follows. ISO 6789-1:2017 has been divided into two parts. The requirements for design and quality control during manufacture as well as the manufacturer's Declaration of Conformance are now solely aimed at manufacturers and remain in ISO 6789-1. The minimum requirements for conformance verification of tools during use are moved to the new ISO 6789-3.

Minimum requirements for calibration are still found in ISO 6789-2

Introduction

This revision has incorporated user feedback on the following general topics.

Clarifying for users of the standard which parts they should purchase to carry out their work related to hand torque tools. (See below)

Achieving a significant reduction in the number of uncertainty measurements required to provide a calibration certificate

Separating the declaration of conformance issued by a manufacturer from the performance report issued by a test house or internal quality control function.

The calibration or verification of angle measurements found in a growing number of torque tools

The addition of tools that can be either indicating or setting according to the customer need.

The three parts of ISO 6789 that result from this revision can be summarised as follows:

ISO 6789-1 continues to provide designers and manufacturers with relevant minimum requirements for the development and documentation of hand torque tools. The manufacturer may choose the level of documentation supplied with the tool according to the typical needs of the manufacturer's customers. This could be a certificate of calibration according to ISO 6789-2 or a verification report according to ISO 6789-3

ISO 6789-2 provides manufacturers and calibration laboratories with requirements for both torque and angle calibrations of hand torque tools together with streamlined methods for the calculation of uncertainties. Additionally, minimum requirements for the calibration of torque measurement devices as an alternative when national standards are not available, are described in ISO 6789-2, Annex C

ISO 6789-3 provides basic requirements for verifying and reporting whether the torque tool complies with the torque performance requirements of ISO 6789-1. It has been created as a separate standard to make it more accessible to users who are not torque tool manufacturers. The verification defined in ISO 6789-3 does not have as much detailed information, so does not provide the same degree of confidence in the performance of the torque tool, as a calibration certificate defined in ISO 6789-2.

The following scenarios may be of help in assisting users of the ISO 6789 series to identify the appropriate part(s) applicable to their activities:

Customer requires a torque tool with an accredited calibration certificate in order to meet legislative or commercial requirements. Solution is to purchase a torque tool and submit it to an accredited calibration laboratory for a Certificate of Calibration. (Note: Some torque tool manufacturers may offer such a service.) The calibration should be according to ISO 6789-2. The torque tool will be supplied with a Manufacturer's Declaration of Conformance that the tool complies with the design requirements of ISO 6789-1

Customer requires a calibration certificate in order to understand the technical performance of the torque tool. Solution is to purchase a torque tool that is supplied with a Certificate of Calibration. If such a product is not readily available, then a torque tool with a Performance Verification Report according to ISO 6789-3 can be purchased and submitted to a calibration laboratory for calibration according to ISO 6789-2. The torque tool will be supplied with a manufacturer's Declaration of Conformance that the tool complies with the design requirements of ISO 6789-1

Customer does not have any legislative, commercial or technical constraints but would still like some confirmation that the torque tool will perform with the level of accuracy required. Solution is to purchase a torque tool that has a Manufacturer's Declaration of Conformance confirming that the tool has been designed and tested during development in accordance with ISO 6789-1 and is provided with a Performance Verification Report that shows the accuracy level of that specific tool. The lack of the above constraints should not deter the customer from obtaining the increased information and legal protection that comes with a Calibration Certificate compared with a Performance Verification Report.

Assembly tools for screws and nuts — Hand torque tools —

Part 1:

Requirements and methods for design conformance testing and quality conformance testing: minimum requirements for declaration of conformance

1 Scope

This document specifies the conformance testing and marking requirements for hand torque tools used for controlled tightening of screws and nuts. It also specifies the minimum requirements for a manufacturer's declaration of conformance for hand torque tools.

This document applies to hand torque tools which are classified as indicating torque tools (Type I) and setting torque tools (Type II).

NOTE Hand torque tools covered by this document are those identified in ISO 1703:2018 by reference numbers 7 1 00 01 0 to 7 1 00 14 0 inclusive. Torque limiting hand torque tools do not yet have reference numbers and will not do so until the next revision of ISO 1703

This document does not specify requirements of calibration certificates for hand torque tools. These are described in ISO 6789-2.

This document does not specify requirements for verifying the performance of hand torque tools. These are described in ISO 6789-3.

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 1173, *Assembly tools for screws and nuts — Drive ends for hand- and machine-operated screwdriver bits and connecting parts — Dimensions, torque testing*

ISO 1174-1, *Assembly tools for screws and nuts — Driving squares — Part 1: Driving squares for hand socket tools*

ISO 6789-2:2025, *Assembly tools for screws and nuts — Hand torque tools — Part 2: Requirements for calibration and determination of measurement uncertainty*

ISO 6789-3:2025, *Assembly tools for screws and nuts — Hand torque tools — Part 3: Requirements for performance verifications*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply