BS 7882:2017

BSI Standards Publication

# Method for calibration and classification of torque measuring devices

bsi.

**Publishing and copyright information**

The BSI copyright notice displayed in this document indicates when the document was last issued.



Published by BSI Standards Limited 2017

ISBN 978 0 580 93963 1

ICS 17.100

The following BSI references relate to the work on this document:
Committee reference ISE/101/1
Draft for comment 17/30340200 DC

**Amendments/corrigenda issued since publication**

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

# Contents



 

**Summary of pages**
This document comprises a front cover, and inside front cover, pages i to iv, pages 1 to 30, an inside back cover and a back cover.

 

# Foreword

## Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 August 2017. It was prepared by Panel ISE/101/1/2, *Torque measuring and testing*, under the authority of Subcommittee ISE/101/1, *Uniaxial testing*, and Technical Committee ISE/101, *Test methods for metals*. A list of organizations represented on these committees can be obtained on request to their secretary.

## Supersession

This British Standard supersedes BS 7882:2008, which is withdrawn.

## Information about this document

This revision introduces the relative measurement uncertainty interval, the range in which the expected error is likely to lie, calculated as the sum of the absolute relative deviation and the expanded uncertainty.

Some of the values in Table B.4 and Table B.7 are given to 8 decimal places, to allow users to check the data manually against these and the other tables in Annex B, and to eliminate rounding errors. It is not necessary to report at this level.

## Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its methods are expressed as a set of instructions, a description, or in sentences in which the principal auxiliary verb is “shall”.

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

## Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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

 

THIS PAGE DELIBERATELY LEFT BLANK

## 1 Scope

This British Standard specifies requirements for the calibration and classification of torque measuring devices, including those used for the calibration of torque tools.

It describes the method of calibration, calculation of calibration results and the classification of the torque measuring device in a static mode. The information to be given on the certificate of calibration is also listed.

Annex A provides diagrams of the application of torque, and examples for the calibration of torque measuring devices. Annex B indicates how to determine uncertainty of the calibration results of the torque measuring device.

## 2 Terms, definitions, abbreviations and symbols

For the purposes of this British Standard, the following terms, definitions, abbreviations and symbols apply.

*NOTE Where applicable, this British Standard has been prepared using JCGM 200.*

### 2.1 calibration torque $T$

torque with traceability derived from national standards of mass, length and time, and of specified expanded uncertainty of measurement ($U_T$), which can be applied to the torque measuring device

### 2.2 deflection $d$

algebraic difference between the indicator reading prior to the application of a torque and the indicator reading for each applied torque in a given measurement series

*NOTE The deflection can be derived from either digital data output or visual data output.*

### 2.3 data acquisition system

electronic module that has the ability to acquire signals from a torque measuring device and transmit data based on those signals for analysis

*NOTE Where analogue signals are acquired by the torque measuring device, and these are converted into a digital data stream using an analogue to digital converter, the stream of data can be digitally filtered, re-sampled and stored, or logged ready for analysis.*

### 2.4 loading direction

direction of applied torque, either clockwise or anti-clockwise about the axis of rotation, when viewed from the end of the torque measuring device to which the calibration torque is applied

### 2.5 lower limit of calibration $T_{min}$

lower value of torque at which a torque measuring device of a given class can be calibrated

### 2.6 reference standard

equipment used to generate or to measure the reference torque applied to the torque measuring device that is being calibrated

*NOTE Torques can be generated by a power source monitored by the reference standard.*

 