

Technical drawings — Indication of dimensions and tolerances —

Part 1: General principles

ICS 01.100.01

National foreword

This British Standard reproduces verbatim ISO 129-1:2004 and implements it as the UK national standard. It supersedes BS ISO 129:1985 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TDW/4, Technical product specification, methodology, presentation and verification, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

Cross-references

The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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 does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to iv, pages 1 to 33 and a back cover.

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

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 25 November 2004

© BSI 25 November 2004

INTERNATIONAL
STANDARD

ISO
129-1

First edition
2004-09-15

**Technical drawings — Indication of
dimensions and tolerances —**

Part 1:
General principles

*Dessins techniques — Indication des cotes et tolérances —
Partie 1: Principes généraux*



Reference number
ISO 129-1:2004(E)

Contents

Page

Foreword.....	iv
1 Scope.....	1
2 Normative references	1
3 Terms and definitions.....	2
3.1 Features	2
3.2 Lines of dimensioning.....	2
3.3 Dimensions.....	3
3.4 Arrangement of dimensions	3
4 Principles of dimensioning and of indication of tolerances.....	4
4.1 General principles.....	4
4.2 Positioning of dimensions	4
4.3 Units of dimensions.....	5
5 Elements of dimensioning	6
5.1 General.....	6
5.2 Dimension line.....	6
5.3 Terminators and origin indication.....	9
5.4 Extension line.....	9
5.5 Leader line	11
5.6 Dimensional values (basic dimensions).....	11
5.7 Letters representing dimensions	14
5.8 Tabular dimensioning.....	14
6 Elements of indication of tolerances	15
6.1 General rules	15
6.2 Limit deviations.....	15
6.3 Limits of dimension	16
7 Indications of special dimensions	16
7.1 Arrangement of graphical and letter symbols with dimensional values.....	16
7.2 Diameters	17
7.3 Radii.....	18
7.4 Spheres	18
7.5 Arcs, chords and angles	18
7.6 Squares	20
7.7 Equally spaced and repeated features	20
7.8 Symmetrical parts.....	24
7.9 Indication of levels.....	25
7.10 Dimensions of out-of-scale represented features	25
7.11 Auxiliary dimensions.....	25
8 Arrangements of dimensions	25
8.1 General.....	25
8.2 Parallel dimensioning.....	25
8.3 Running dimensioning	26
8.4 Chain dimensioning.....	27
8.5 Coordinate dimensioning.....	28
8.6 Combined dimensioning	30
Annex A (normative) Relations and dimensions of graphical symbols	31
Bibliography	33

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 129-1 was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 1, *Basic conventions*.

This part of ISO 129, together with ISO 129-2, cancels and replaces ISO 129:1985 and ISO 406:1987 of which it constitutes a technical revision.

ISO 129 consists of the following parts, under the general title *Technical drawings — Indication of dimensions and tolerances*:

- *Part 1: General principles*
- *Part 2: Mechanical engineering*

Technical drawings — Indication of dimensions and tolerances —

Part 1: General principles

1 Scope

This part of ISO 129 establishes the general principles of dimensioning applicable for all types of technical drawings.

NOTE The figures in this part of ISO 129 merely illustrate the text and are not intended to reflect actual usage. Consequently, they have been simplified to indicate only the relevant general principles applicable in any technical area.

Additional and more specific rules and details about the use of dimensioning for construction engineering are given in ISO 6284. For mechanical engineering, they will be given in the future ISO 129-2.

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 128-20:1996, *Technical drawings — General principles of presentation — Part 20: Basic conventions for lines*

ISO 128-22:1999, *Technical drawings — General principles of presentation — Part 22: Basic conventions and applications for leader lines and reference lines*

ISO 128-30:2001, *Technical drawings — General principles of presentation — Part 30: Basic conventions for views*

ISO 1000:1992, *SI units and recommendations for the use of their multiples and of certain other units*

ISO 3098-0:1997, *Technical product documentation — Lettering — Part 0: General requirements*

ISO 3098-5:1997, *Technical product documentation — Lettering — Part 5: CAD lettering of the Latin alphabet, numerals and marks*

ISO 6284:1996, *Construction drawings — Indication of limit deviations*

ISO 6412-2:1989, *Technical drawings — Simplified representation of pipelines — Part 2: Isometric projection*

ISO 6428:1982, *Technical drawings — Requirements for microcopying*

ISO 10209-2:1993, *Technical product documentation — Vocabulary — Part 2: Terms relating to projection methods*

ISO/IEC 81714-1, *Design of graphical symbols for use in the technical documentation of products — Part 1: Basic rules*