

Implementation of
ISO 230-4:1996

Test code for machine tools —

Part 4: Circular tests for numerically
controlled machine tools

ICS 25.040.20

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee MTE/1, Machine tools, upon which the following bodies were represented:

- Advanced Manufacturing Technology Research Institute
- British Engineers Cutting Tools Association
- Cranfield University
- Engineering Employers' Federation
- Gauge and Tool Makers' Association
- Health and Safety Executive
- Institution of Electrical Engineers
- Machine Tool Technologies Association
- Co-opted members

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 March 1997

© BSI 11-1998

The following BSI references relate to the work on this standard:
Committee reference MTE/1
Draft for comment 94/701555 DC

ISBN 0 580 27042 4

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
National foreword	i
Foreword	ii
Text of BS ISO 230-4	1

National foreword

This Part of BS ISO 230 reproduces verbatim ISO 230-4:1996 and implements it as the UK national standard.

This British Standard is published under the direction of the Engineering Sector Board whose Technical Committee MTE/1 has the responsibility to:

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

NOTE International and European Standards, as well as overseas standards, are available from Customer Services, BSI, 389 Chiswick High Road, London W4 4AL.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their 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, pages i and ii, the ISO title page, pages ii to iv, pages 1 to 14 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

INTERNATIONAL STANDARD

**ISO
230-4**

First edition
1996-08-01

Test code for machine tools —

Part 4:

Circular tests for numerically controlled machine tools

Code d'essai des machines-outils —

Partie 4: Essais de circularité des machines-outils à commande numérique



Reference number
ISO 230-4:1996(E)

Contents

	Page
Foreword	iii
1 Scope	1
2 Normative references	1
3 Definitions	1
4 Test conditions	3
5 Test procedure	3
6 Presentation of results	4
7 Points to be agreed between supplier/manufacturer and user	4
Annex A (informative) Differences between circular deviation G and radial deviation	8
Annex B (informative) Influences of typical machine deviations on circular paths	9
Annex C (informative) Adjustment of diameter and contouring feed	13
Annex D (informative) Bibliography	14
Figure 1 — Evaluation of circular hysteresis H	2
Figure 2 — Evaluation of circular deviation G	2
Figure 3 — Evaluation of radial deviation F	3
Figure 4 — Example of data presentation for circular hysteresis H	5
Figure 5 — Example of data presentation for circular deviation G	6
Figure 6 — Example of data presentation for radial deviation F	7
Figure B.1 — Influence of short and long movements of an axis on circular paths	9
Figure B.2 — Influence of non-perpendicularity of axes on circular paths	10
Figure B.3 — Influence of periodic deviations of Z	10
Figure B.4 — Non-Compensated reversal error	11
Figure B.5 — Compensated reversal error	11
Figure B.6 — Influence of acceleration of axes	12
Figure B.7 — Influence of different following errors	12
Table A.1	8

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 voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 230-4 was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 2, *Test conditions for metal cutting machine tools*.

ISO 230 consists of the following parts, under the general title *Test code for machine tools*:

- *Part 1: Geometric accuracy of machines operating under no-load or finishing conditions;*
- *Part 2: Determination of accuracy and repeatability of positioning of numerically controlled machine tools;*
- *Part 3: Evaluation of thermal effects;*
- *Part 4: Circular tests for numerically controlled machine tools;*
- *Part 5: Noise emissions.*

Annexes A to D of this part of ISO 230 are for information only.

