

This is a preview of "ISO 13041-3:2009". [Click here to purchase the full version from the ANSI store.](#)

First edition
2009-03-01

Test conditions for numerically controlled turning machines and turning centres —

Part 3:

Geometric tests for machines with inverted vertical workholding spindles

Conditions d'essai des tours à commande numérique et des centres de tournage —

Partie 3: Essais géométriques pour les machines à broches verticales inversées



Reference number
ISO 13041-3:2009(E)

© ISO 2009

This is a preview of "ISO 13041-3:2009". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2009

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 13041-3:2009". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Preliminary remarks	2
4.1 Measuring units	2
4.2 Reference to ISO 230-1 and ISO 230-7	3
4.3 Machine levelling	3
4.4 Testing sequence	3
4.5 Tests to be performed	3
4.6 Measuring instruments	3
4.7 Diagrams	3
4.8 Software compensation	3
4.9 Minimum tolerance	3
4.10 Machine classifications, descriptions, terminology and designation of axes	3
4.11 Turrets	8
4.12 Machine size categories	8
5 Geometric tests	9
5.1 Workholding spindle(s)	9
5.2 Relation between workholding spindle(s) and linear axes of motion	11
5.3 Angular deviations of linear axis motion	14
5.4 Turret and power-driven tools	20
5.5 Swivelling workholding spindle head	28
6 Tests for checking accuracy of axes of rotation	29
6.1 Rotational accuracy of workholding spindle	29
6.2 Rotational accuracy of tool spindle	31
Annex A (informative) Three-point measuring method	33
Bibliography	35

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 13041-3 was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 2, *Test conditions for metal cutting machine tools*.

ISO 13041 consists of the following parts, under the general title *Test conditions for numerically controlled turning machines and turning centres*:

- *Part 1: Geometric tests for machines with a horizontal workholding spindle*
- *Part 2: Geometric tests for machines with a vertical workholding spindle*
- *Part 3: Geometric tests for machines with inverted vertical workholding spindles*
- *Part 4: Accuracy and repeatability of positioning of linear and rotary axes*
- *Part 5: Accuracy of feeds, speeds and interpolations*
- *Part 6: Accuracy of a finished test piece*
- *Part 7: Evaluation of contouring performance in the coordinate planes*
- *Part 8: Evaluation of thermal distortions*