

This is a preview of "ISO 3070-2:2016". [Click here to purchase the full version from the ANSI store.](#)

Fourth edition
2016-08-01

Corrected version
2016-12-15

Machine tools — Test conditions for testing the accuracy of boring and milling machines with horizontal spindle —

Part 2:

Machines with movable column along the X-axis (floor type)

Machines-outils — Conditions d'essai pour le contrôle de l'exactitude des machines à aléser et à fraiser à broche horizontale —

Partie 2: Machines à montant mobile le long de l'axe X (de type au sol)



Reference number
ISO 3070-2:2016(E)

© ISO 2016



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

This is a preview of "ISO 3070-2:2016". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Terminology and designation of axes	2
5 Special remarks concerning particular elements	3
5.1 Spindle heads.....	3
5.2 Tables.....	4
6 Preliminary remarks	5
6.1 Measurement units.....	5
6.2 Reference to ISO 230 series of standards.....	5
6.3 Testing sequence.....	5
6.4 Tests to be performed.....	5
6.5 Measuring instruments.....	5
6.6 Software compensation.....	6
6.7 Minimum tolerance.....	6
7 Geometric tests	7
7.1 Straightness and angular deviations of linear axes.....	7
7.2 Squareness and parallelism between linear axes.....	13
7.3 Fixed table independent of the machine.....	18
7.4 Boring spindle.....	22
7.5 Milling spindle.....	26
7.6 Rotary and movable table.....	28
7.7 Indexing or rotary tables.....	35
8 Checking accuracy and repeatability of positioning by numerical control	37
Annex A (informative) Geometric accuracy of axis of rotation	44
Annex B (normative) Tests of accessory facing heads [see Figure 2 b]	48
Annex C (informative) Nomenclature of machine tool components in other languages	52
Bibliography	53

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 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

The committee responsible for this document is ISO/TC 39 *Machine tools*, Subcommittee SC 2 *Test conditions for metal cutting machine tools*.

This fourth edition cancels and replaces the third edition (ISO 3070-2:2007), which has been technically revised.

This corrected version of ISO 3070-2:2016 incorporates the following corrections:

- the Persian language nomenclature given in [Table C.1](#) and [Table C.2](#) has been corrected.

ISO 3070 consists of the following parts under the general title *Machine tools — Test conditions for testing the accuracy of boring and milling machines with horizontal spindle*:

- *Part 1: Machines with fixed column and table movable on a cross slide*
- *Part 2: Machines with movable column along the X-axis (floor type)*
- *Part 3: Machines with movable column along the Z-axis (T-bed type)*

This is a preview of "ISO 3070-2:2016". [Click here to purchase the full version from the ANSI store.](#)

Introduction

Most horizontal spindle boring and milling machines fall into the following three categories characterized by their particular configuration:

- a) machines with fixed column and table movable on a cross slide;
- b) machines with movable column along the X-axis (floor type);
- c) machines with movable column along the Z-axis (T-bed type).

The object of ISO 3070 is to supply information as wide and comprehensive as possible on tests which can be carried out for comparison, acceptance, maintenance or any other purpose.

This revision of this part of ISO 3070 provides additional information on tests to be performed and specifies new tolerances to better reflect the current technology.

Machining tests have been excluded from this revision of this part of ISO 3070 considering that such tests can typically be the object of agreement between manufacturer/supplier and user, (possibly) including tests that are specified in ISO 10791-7.