

INTERNATIONAL
STANDARD

ISO
10791-1

Second edition
2015-02-01

Test conditions for machining centres —

Part 1: Geometric tests for machines with horizontal spindle (horizontal Z-axis)

Conditions d'essai pour centres d'usinage —

Partie 1: Essais géométriques des machines à broche horizontale (axe Z horizontal)



Reference number
ISO 10791-1:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015

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
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

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Preliminary remarks	2
3.1 Measurement units	2
3.2 Reference to ISO 230-1	2
3.3 Reference to ISO 10791-6	2
3.4 Testing sequence	2
3.5 Tests to be performed	2
3.6 Tolerances	3
3.7 Measuring instruments	3
3.8 Diagrams	3
3.9 Pallets	3
3.10 Software compensation	3
3.11 Machine configurations	3
3.12 Designation	4
3.13 Axes not under test	4
4 Geometric tests	6
4.1 Straightness errors of linear motions	6
4.2 Angular errors of linear motions	9
4.3 Squareness errors between linear motions	12
4.4 Spindle	15
Annex A (normative) Horizontal non-rotating tables	20
Annex B (normative) Tables rotating around a vertical B' axis	26
Annex C (normative) Tables rotating around a vertical B' axis and tilting around a horizontal A'axis	35
Annex D (normative) Tables rotating around a horizontal A' axis and swivelling around a vertical B'axis	50
Annex E (informative) Error motions of tool holding spindle and work holding rotary table axes	65
Annex F (informative) Error motions of axes of rotation of rotary and tilting tables (see Annex C)	69
Annex G (informative) Error motions of axes of rotation of rotary and swivelling tables (see Annex D)	77
Bibliography	85