

CONFIRMED
DECEMBER 2007

Specification for

The accuracy of machine tools and methods of test —

**Part 5: Milling machines, knee and
column type, horizontal spindle,
universal**

UDC 621.9.01 – 187.001.4:621.914.31

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Cooperating organizations

The Mechanical Engineering Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Associated Offices Technical Committee	Department of Trade (Marine Division)
Association of Consulting Engineers	Electricity Supply Industry in England and Wales
Association of Hydraulic Equipment Manufacturers	Engineering Equipment Users' Association
Association of Mining Electrical and Mechanical Engineers	Federation of Manufacturers of Construction Equipment and Cranes
British Compressed Air Society	Health and Safety Executive
British Electrical and Allied Manufacturers' Association (BEAMA)	Institution of Gas Engineers
British Gas Corporation	Institution of Mechanical Engineers*
British Gear Manufacturers' Association	Institution of Plant Engineers
British Internal Combustion Engine Manufacturers' Association	Institution of Production Engineers*
British Pump Manufacturers' Association	Lloyd's Register of Shipping
British Steel Corporation	London Transport Executive
British Steel Industry	Machine Tool Industry Research Association*
British Valve Manufacturers' Association	Ministry of Defence*
Chartered Institution of Building Services	National Coal Board
Crown Agents for Oversea Governments and Administrations	Oil Companies Materials Association
Department of the Environment	Process Plant Association
Department of Industry (Mechanical Engineering)*	Railway Industry Association of Great Britain
Department of Industry (National Engineering Laboratory)	Society of Motor Manufacturers and Traders Limited
	Telecommunication Engineering and Manufacturing Association (TEMA)
	Water-tube Boilermakers' Association

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Ball and Roller Bearing Manufacturers' Association	University of Aston in Birmingham
Department of the Environment (PSA)	University of Manchester, Institute of Science and Technology
Federation of British Engineers' Tool Manufacturers	

This British Standard, having been prepared under the direction of the Mechanical Engineering Standards Committee, was published under the authority of the Executive Board and comes into effect on 31 October 1979

© BSI 11-1999

First published September 1973
First revision October 1979

The following BSI references relate to the work on this standard:
Committee reference MEE/6
Draft for comment 76/73681 DC

ISBN 0 580 10932 1

Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

	Page
Cooperating organizations	Inside front cover
Foreword	ii
1 Scope	1
2 References	1
3 Application of test methods	1
4 Abbreviations	1
5 Diagrams	1
Table 1 — Geometrical tests and accuracy requirements for milling machines, knee and column type, horizontal spindle, universal	2
Publications referred to	Inside back cover

Foreword

This Part of this British Standard has been prepared under the direction of the Mechanical Engineering Standards Committee and implements agreements of the International Organization for Standardization (ISO). This edition supersedes the 1973 edition of BS 4656-5 which will be withdrawn on publication of this revised edition.

This Part of BS 4656 is generally in accordance with ISO 1701 “*Test conditions for milling machines with table of variable height, with horizontal or vertical spindle Addendum 1 Annex — Universal milling machines with a swivelling table*”.

This Part of this British Standard varies from ISO 1701 Addendum 1 in the following respects.

Clauses. Clauses 1, 3 and 5 contain the same information that is given in ISO 1701 Addendum 1 but they are expressed in accordance with an accepted format that has been adopted for the BS 4656 series of standards. Clause 4 has been added.

Inch dimensions. In accordance with the United Kingdom policy of metrication, inch dimensions given in ISO 1701 Addendum 1 have not been included in this British Standard.

Tables and tests. In column 6 of Table 1, a reference to ISO/R 230 “*Machine tool test code*”, has been replaced by reference to BS 3800.

Test G0, column 2 and column 5. Reference to precision level has been excluded because camming cannot be checked by such a means.

Test G0, column 5. Reference to test mandrel and slip gauges has been deleted because this is not a particularly convenient method of checking. Reference to dial gauge has been added of necessity.

Test G0, column 6. Paragraph 2 has been added.

Test G2, column 2. In diagram b) the drawing has been corrected to show only the one particular dial gauge position concerned.

Test G2, column 6. A statement has been added, viz.: “The angle rotated through shall be either 90° or 120°. It is important that the amount of movement is the same each side of the centreline.”

Test G3, column 5. Reference to the length bar, angle plate has been substituted for reference to gauge blocks.

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, pages 1 to 6, an inside back cover 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.