

Accuracy of machine tools and methods of test —

Part 24: Specification for cylindrical external centreless grinding machines

UDC 621.924.56.08

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents

AVA

Document Sharing Hub

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Machine, Engineers and Hand Tools Standards Policy Committee (MTE/-) to Technical Committee MTE/1, upon which the following bodies were represented:

- Advanced Manufacturing Technology Research Institute
- Cranfield Institute of Technology
- Health and Safety Executive
- Machine Tool Technologies Association
- Ministry of Defence
- Coopted members

This British Standard, having been prepared under the direction of the Machine, Engineers and Hand Tools Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 May 1993

© BSI 09-1999

First published October 1980
Second edition May 1993

The following BSI references relate to the work on this standard:
Committee reference MTE/1
Draft for comment 87/78302 DC

ISBN 0 580 21782 5

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
1 Scope	1
2 Normative references	1
3 Preliminary remarks	1
4 Nomenclature	1
5 Acceptance conditions and permissible deviations	4
Figure 1	2
Table 1 — Designation	3
List of references	Inside back cover

National foreword

This Part of BS 4656 has been prepared under the direction of the Machine, Engineers and Hand Tools Standards Policy Committee and implements agreements of the International Organization for Standardization (ISO). It is identical with ISO 3875:1990 *Acceptance conditions for external cylindrical centreless grinding machines — Testing of the accuracy* prepared by ISO/TC 39, Machine tools.

This edition of Part 24 supersedes BS 4656-24:1980 which is withdrawn.

Inch dimensions. In accordance with the UK policy of metrication, inch dimensions given in this standard are not valid and are included for information purposes only.

Diagrams. For reasons of simplicity the diagrams in this standard illustrate only one type of machine.

Cross-references. The Technical Committee has reviewed the provisions of ISO 230-1:1986 and ISO 1101:1983, to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

A related standard to ISO 230-1:1986 is BS 3800-1:1990 and a related standard to ISO 1101:1983 is BS 308-3:1990.

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 16, 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.

1 Scope

This International Standard describes, with reference to ISO 230-1, both geometrical and practical tests on general purpose and normal accuracy external cylindrical centreless grinding machines and gives the corresponding permissible deviations which apply.

It deals only with the verification of accuracy of the machine. It does not apply to the testing of the running of the machine (vibrations, abnormal noises, stick-slip motion of components etc.), or to its characteristics (speeds, feeds etc.) which should generally be checked before the accuracy is tested.

This International Standard also gives the nomenclature used for the principal parts of the machine.

NOTE In addition to terms used in the three official ISO languages (English, French and Russian), this International Standard gives the equivalent terms in the German language; these are published under the responsibility of the member body for Germany, F.R. (DIN). However, only the terms given in the official languages can be considered as ISO terms.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 230-1:1986, *Acceptance code for machine tools — Part 1: Geometric accuracy of machines operating under no-load or finishing conditions*.

ISO 1101:1983, *Technical drawings — Geometrical tolerancing — Tolerancing of form, orientation, location and run-out — Generalities, definitions, symbols, indications on drawings*.

3 Preliminary remarks

3.1 In this International Standard, all the dimensions and permissible deviations are expressed in millimetres and in inches.

3.2 To apply this International Standard, reference should be made to ISO 230-1 especially for the installation of the machine before testing, the warming up of spindles and other moving parts, the description of measuring methods and the recommended accuracy of testing equipment.

3.3 The sequence in which the geometrical tests are given is related to the sub-assemblies of the machine, and this in no way defines the practical order of testing. In order to make the mounting of instruments or gauging easier, tests may be applied in any order.

3.4 When inspecting a machine, it is not always necessary to carry out all the tests described in this International Standard. It is up to the user to choose, in agreement with the manufacturer, those relating to the properties which are of interest, but these tests are to be clearly stated when ordering a machine.

3.5 Practical tests shall be made with finishing cuts and not with roughing cuts which are liable to generate appreciable cutting forces.

3.6 When the tolerance is established for a measuring range different from that given in this International Standard (see ISO 230-1:1986, 2.311) it should be taken into consideration that the minimum value of tolerance is 0,002 mm (0,000 08 in).

4 Nomenclature

See Figure 1 and Table 1.

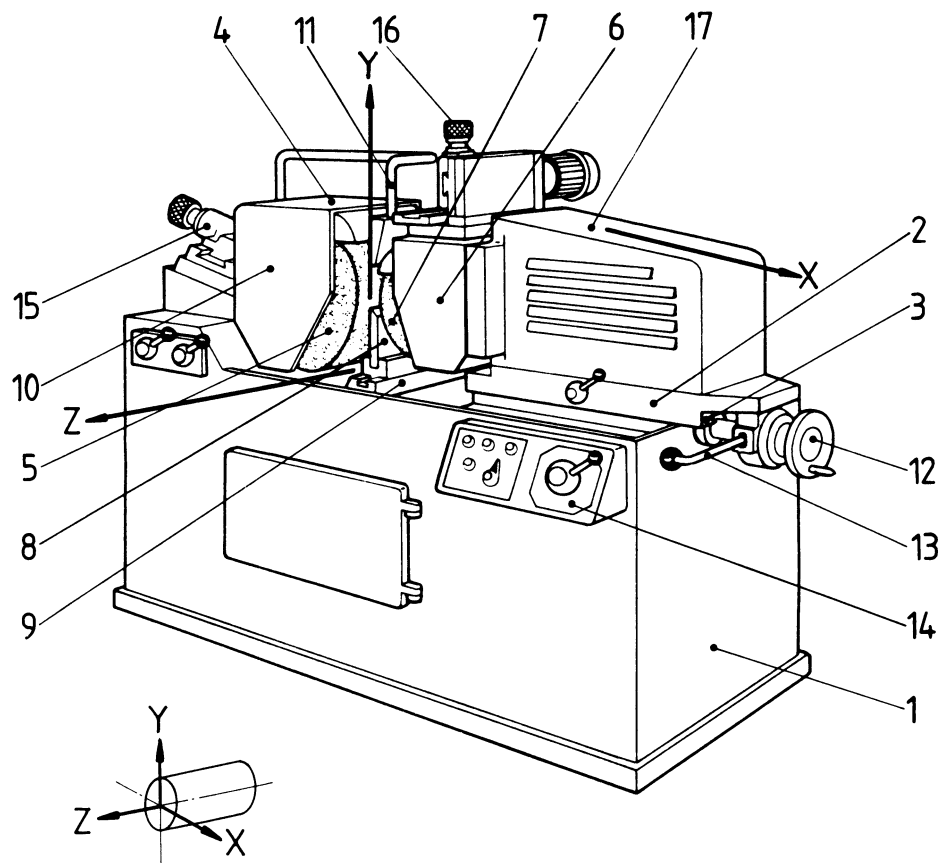


Figure 1

Table 1

Reference	Designation			
	English	French	Russian	German
1	Bed	Banc	Станина	Bett
2	Saddle, slide	Chariot	Салазки	Schlitten
3	Saddle guideway	Guidage de chariot	Направляющие салазок	Schlittenführung
4	Grinding spindle head	Poupée porte-meule de travail	Шлифовальная бабка	Schleifspindelstock
5	Grinding wheel	Meule de travail	Шлифовальный круг	Schleifscheibe
6	Regulating wheel spindle head	Poupée porte-meule d'entraînement	Бабка ведущего круга	Regelscheibenspindelstock
7	Regulating wheel	Meule d'entraînement	Ведущий круг	Regelscheibe
8	Work rest	Appui porte-pièce	Опорный нож	Werkstückauflage
9	Work rest support	Support d'appui porte-pièce	Стойка опорного ножа	Werkstückauflagehalterung
10	Wheel guard	Capot de sécurité	Защитный кожух шлифовального круга	Sicherheitsschutzhaube
11	Coolant pipe	Tuyau de réfrigérant	Трубопровод охлаждающей жидкости	Kühlmittelleitung
12	Infeed handwheel	Volant d'approche	Маховичок врезной подачи	Zustellhandrad
13	Adjusting lever	Levier de déplacement	Установочный рычаг	Versteilhebel
14	Control panel	Tableau de commande	Пульт управления	Steuertafel
15	Dressing attachment for grinding wheel	Dispositif de dressage pour meule de travail	Прибор правки шлифовального круга	Abrichtgerät für Schleifscheibe
16	Dressing attachment for regulating wheel	Dispositif de dressage pour meule d'entraînement	Прибор правки ведущего круга	Abrichtgerät für Regelscheibe
17	Angular housing = Bearing angle	Capot de chariot	Поворотный корпус (для регулирования подачи)	Winkelgehäuse = Lagerwinkel