



SLOVENSKI STANDARD SIST EN ISO 6103:2000

01-december-2000

Bonded abrasive products - Permissible unbalances of grinding wheels as delivered - Testing (ISO 6103:1999)

Bonded abrasive products - Permissible unbalances of grinding wheels as delivered - Testing (ISO 6103:1999)

Schleifkörper aus gebundenem Schleifmittel - Statisches Auswuchten von Schleifscheiben - Prüfung (ISO 6103:1999)

Produits abrasifs agglomérés - Déséquilibre admissible des meules en état de livraison - Contrôle (ISO 6103:1999)

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Ta slovenski standard je istoveten z: EN ISO 6103:1999

ICS:

25.100.70 Brusiva Abrasives

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EUROPEAN STANDARD

EN ISO 6103

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1999

ICS 25.100.00

English version

Bonded abrasive products - Permissible unbalances of grinding wheels as delivered - Testing (ISO 6103:1999)

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This European Standard was approved by CEN on 17 September 1999.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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EN ISO 6103:1999

Foreword

The text of the International Standard ISO 6103:1999 has been prepared by Technical Committee ISO/TC 29 "Small tools" in collaboration with Technical Committee CEN/TC 143 "Machine tools - Safety", the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2000, and conflicting national standards shall be withdrawn at the latest by April 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

NOTE FROM CEN/CS: The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

iTeh STANDARD PREVIEW Endorsement notice (standards.iteh.ai)

The text of the International Standard ISO 6103:1999 was approved by CEN as a European Standard without any modification.

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INTERNATIONAL STANDARD

ISO 6103

Second edition
1999-10-15

Bonded abrasive products — Permissible unbalances of grinding wheels as delivered — Testing

*Produits abrasifs agglomérés — Déséquilibre admissible des meules en
état de livraison — Contrôle*

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Reference number
ISO 6103:1999(E)

ISO 6103:1999(E)**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 3.

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.

International Standard ISO 61033 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 5, *Grinding wheels and abrasives*.

This second edition cancels and replaces the first edition (ISO 6103:1986) which has been technically revised.

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Bonded abrasive products — Permissible unbalances of grinding wheels as delivered — Testing

1 Scope

This International Standard specifies the maximum permissible values of unbalance for various grinding wheels of ISO 603-1 to ISO 603-9 and ISO 603-12 to ISO 603-16 in the as-delivered condition, with outside diameter equal to or greater than 125 mm and with a maximum operating speed, v_s , equal to or greater than 16 m/s.

It also specifies the method for measuring the unbalance and the practical method for testing whether a grinding wheel is acceptable or not.

This International Standard applies to bonded abrasive grinding wheels in the as-delivered condition.

This International Standard does not apply to

- diamond, cubic boron nitride or natural stone grinding wheels,
- centreless control wheels, lapping and disc wheels, ball wheels or glass grinding wheels.

NOTE 1 The values given refer to the grinding wheel itself, independent of any unbalance which may exist in the balancing arbor or in the means of fastening it to this arbor. These various elements, together with the flanges or hub-flanges, are assumed to be balanced, homogeneous and free from geometrical defects.

NOTE 2 The effects of unbalance are basically

- additional stresses on the arbor, the machine and its mounting;
- excessive wear of the bearings;
- vibration prejudicial to the quality of machining and increased internal stresses in the grinding wheel;
- increased operator fatigue.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 603-1, *Bonded abrasive products — Dimensions — Part 1: Grinding wheels for external cylindrical grinding between centres.*

ISO 603-2, *Bonded abrasive products — Dimensions — Part 2: Grinding wheels for centreless external cylindrical grinding.*

ISO 603-3, *Bonded abrasive products — Dimensions — Part 3: Grinding wheels for internal cylindrical grinding.*

ISO 603-4, *Bonded abrasive products — Dimensions — Part 4: Grinding wheels for surface grinding/peripheral grinding.*

ISO 603-5, *Bonded abrasive products — Dimensions — Part 5: Grinding wheels for surface grinding/face grinding.*

ISO 603-6, *Bonded abrasive products — Dimensions — Part 6: Grinding wheels for tool and tool room grinding.*

ISO 603-7, *Bonded abrasive products — Dimensions — Part 7: Grinding wheels for manually guided grinding.*

ISO 603-8, *Bonded abrasive products — Dimensions — Part 8: Grinding wheels for deburring and fettling/snagging.*

ISO 603-9, *Bonded abrasive products — Dimensions — Part 9: Grinding wheels for high pressure grinding.*

ISO 603-12, *Bonded abrasive products — Dimensions — Part 12: Grinding wheels for deburring and fettling on straight grinder.*

ISO 603-13, *Bonded abrasive products — Dimensions — Part 13: Grinding wheels for deburring and fettling on a vertical grinder.*

ISO 603-14, *Bonded abrasive products — Dimensions — Part 14: Grinding wheels for deburring and fettling/snagging on an angle grinder.*

ISO 603-15, *Bonded abrasive products — Dimensions — Part 15: Grinding wheels for cutting-off on stationary and mobile cutting-off machines.*

ISO 603-16, *Bonded abrasive products — Dimensions — Part 16: Grinding wheels for cutting-off on hand held power tools.*

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3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

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3.1 unbalance

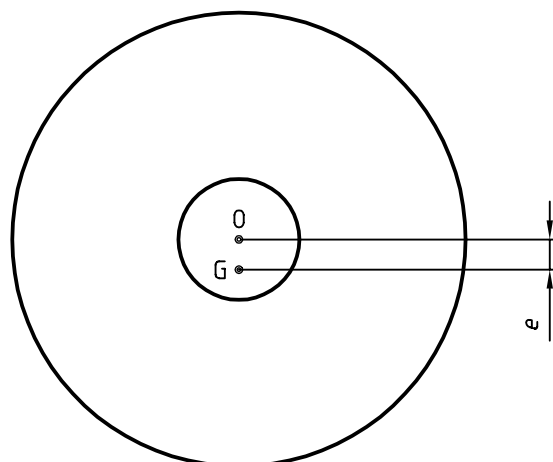
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the product of the radius, in millimetres, and mass, in grams expressed in grams multiplied by millimetres

3.2 intrinsic unbalance of a grinding wheel

U_i

the product of the mass m_1 of the grinding wheel and the distance e between its centre of mass G (centre of gravity) and the axis O of its bore (see Figure 1)



$$U_i = m_1 \cdot e$$

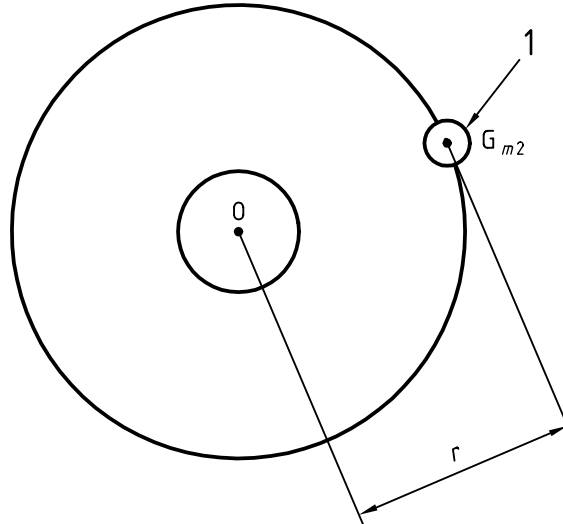
Figure 1

3.3 measured unbalance

U_c

the product of a mass m_2 , affixed to the grinding wheel to balance it and the distance between the centre of mass (G_{m2}) (centre of gravity) of the mass m_2 and the axis O of the grinding wheel bore (see Figure 2)

NOTE In practice, this distance is equal to the radius r of the grinding wheel.



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 $U_c = m_2 \cdot r$
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Key

1 Mass m_2

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Figure 2

4 Permissible unbalance, U_a

On the basis of experience, the maximum permissible unbalance U_a is determined using a mass $m_a = U_a/r$, such that

$$m_a = k\sqrt{m_1} \quad (1)$$

where

r is the radius of the grinding wheels, in millimetres;

m_a is the mass whose centre is located on the circumference of the grinding wheel, in grams;

m_1 is the mass of the grinding wheel, in grams;

k is a coefficient which depends on the nature and usage of the grinding wheel.

The values of k are given in Table 1 and the values of m_a , as a function of m_1 and k , are shown in Figure 5.

The values of k have been selected on the basis of experience so that the resulting unbalance allows for normal usage of the grinding wheel.