BS ISO 666:2012

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Machine tools — Mounting of grinding wheels by means of hub flanges

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National foreword

This British Standard is the UK implementation of ISO 666:2012. It supersedes BS ISO 666:1996 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/13, Grinding wheels, abrasive tools, paper and cloths, and powders.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Machine tools — Mounting of grinding wheels by means of hub flanges

Machines-outils — Montage des meules par moyeux-flasques

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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 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 666 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 5, *Grinding wheels and abrasives*.

This fourth edition cancels and replaces the third edition (ISO 666:2006), which has been technically revised.

The significant modifications are the following:

a) in 4.2, Figure 1, the tolerance class of the outer diameter, D_{H2}, of the fixed flange has been changed to f6; consequently, the tolerance class of the outer diameter, D_{H1}, of the loose flange has been changed to e7, in order to avoid possible safety problems, in particular, for bonded abrasive products in cases where the minimum permitted clearance between the hole, H, of the grinding wheel and the diameter, D_{H2}, of the flange is reached and can lead to tangential tensile stress in the wheel;

b) in 4.2, Figure 1, the tolerance for the concavity of the flange's part supporting the wheel has been reduced, in order to obtain a better distribution of the tightening forces on the wheel's contact surface.

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INTERNATIONAL STANDARD ISO 666:2012(E)

Machine tools — Mounting of grinding wheels by means of hub flanges

1 Scope

This International Standard specifies the essential requirements, especially the dimensions, for hub flanges for plain grinding wheels according to ISO 603-1, ISO 603-2, ISO 603-4, ISO 603-6, ISO 603-7 and ISO 603-8, with a ratio of the bore diameter to the outside diameter $H/D > 0{,}2$. It is also applicable to super abrasives with vitrified or metal core having the same diameters as the grinding wheels in accordance with the according to the aforementioned parts of ISO 603, independently from the material of the core. It applies to grinding wheels with peripheral speeds up to 50 m/s and driving powers of the wheel spindle up to 30 kW.

It is not applicable to mounting devices for cutting-off wheels.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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 603-4, *Bonded abrasive products — Dimensions — Part 4: Grinding wheels for surface grinding/peripheral 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 702-1, *Machine tools — Connecting dimensions of spindle noses and work holding chucks — Part 1: Conical connection*

ISO 1119, *Geometrical product specifications (GPS) — Series of conical tapers and taper angles*

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 4762, *Hexagon socket head cap screws*

ISO 6103, *Bonded abrasive products — Permissible unbalances of grinding wheels as delivered — Static testing*

ISO 12164-1, *Hollow taper interface with flange contact surface — Part 1: Shanks — Dimensions*

ISO 12164-2, *Hollow taper interface with flange contact surface — Part 2: Receivers — Dimensions*

ISO 13942, *Bonded abrasive products — Limit deviations and run-out tolerances*

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3 Terms and definitions

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

3.1
hub flange
system of fixed and loose flanges for a friction mounting of grinding wheels on a wheel spindle, where a securing system for frictional or positive connection with the wheel spindle is integrated into the fixed flange and the clamping force is applied via several screws arranged on a pitched circle

3.2
fixed flange
part of the hub flange, by means of which the frictional or positive connection to the wheel spindle is established

NOTE For CNC grinding machines, its contact area with the grinding wheel (annular surface) serves as the reference surface for the determination of the position of the grinding wheel on the spindle.

3.3
loose flange
counterflange
flange that represents the counterpart to the fixed flange and has to be removed for the mounting/demounting of the grinding wheel (on/from the wheel spindle or the hub flange)

3.4
flange socket
part of the fixed flange, by means of which the frictional or positive connection to the wheel spindle is established (interface with the wheel spindle)

3.5
spindle socket
part of the wheel spindle by means of which the frictional or positive connection to the hub flange is established (interface with the hub flange)

4 Requirements

4.1 General

The hub flanges in accordance with this International Standard are designed for the specified outside diameters, thicknesses and bores of the grinding wheels according to Table 1 for the transmission of the following driving powers of the wheel spindle:

— 3 kW for grinding wheel diameters D = 200 mm to D = 356 mm;

— 7 kW for grinding wheel diameters D = 400 mm to D = 508 mm;

— 15 kW for grinding wheel diameters D = 600 mm to D = 762 mm;

— 30 kW for grinding wheel diameters D = 800 mm to D = 1 250 mm.

4.2 Dimensions

For the dimensions of hub flanges, see Figure 1 and Table 1.

For the dimensions of flange sockets, see Figures 2 to 6 and Table 2.

Details not mentioned shall be chosen according to the intended use. This includes the position and geometry of the groove for the balancing weights, and the pitch diameter of the screw mounting system. The latter should be chosen as large as possible.

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