

Bonded abrasive products —

Part 1: Specification for general features of abrasive wheels, segments, bricks and sticks

[ISO title: Bonded abrasive products — General — Designation,
marking, range of outside diameters and tolerances]

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Machine, Engineers and Hand Tools Standards Committee (MTE/-) to Technical Committee MTE/13 upon which the following bodies were represented:

- Abrasive Industries' Association
- Advanced Manufacturing Technology Research Institute
- British Abrasive Federation
- British Compressed Air Society
- Gauge and Tool Makers' Association
- Health and Safety Executive
- Hire Association Europe
- Trades Union Congress

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National foreword

This revision of this Part of BS 4481 has been prepared under the direction of the Machine, Engineers and Hand Tools Standards Committee and is identical with ISO 525:1986 “*Bonded abrasive products — General — Designation, marking, range of outside diameters and tolerances*” published by the International Organization for Standardization (ISO). This revision supersedes BS 4481-1:1981 which is withdrawn.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “International Standard” appear, referring to this standard, they should be read as “Part of BS 4481”.

Cross-references

International Standard	Corresponding British Standard
ISO/R 286:1962	BS 4500 <i>ISO limits and fits</i> Part 1:1969 <i>General, tolerances and deviations</i> (Technically equivalent) BS 4481 <i>Bonded abrasive products</i>
ISO/R 603:1967	Part 2:1983 <i>Specification for dimensions of grinding wheels and segments</i> (Technically equivalent)
ISO 6103:1986	Part 3:1988 <i>Method for assessment of static balancing of abrasive wheels</i> (Identical)

The Technical Committee has reviewed the provisions of ISO/R 1938:1971 and ISO 8486:1986, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

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 14, 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 and field of application

This International Standard covers bonded abrasive products in general (grinding wheels, segments, sticks and bricks) excluding diamond, cubic boron nitride or boron carbide abrasive products.

It gives

- the designation;
- the marking;
- the main form and denomination of grinding wheels;
- the main profile of straight wheels;
- the range of nominal outside diameters;
- the tolerances on hole size.

This International Standard is general and will be completed by ISO 603.

2 References

ISO 286, *ISO system of limits and fits*¹⁾.

ISO 603, *Bonded abrasive products — Dimensions*²⁾.

ISO/R 1938, *ISO system of limits and fits — Part 2: Inspection of plain workpieces*.

ISO 6103, *Bonded abrasive products — Static balancing of grinding wheels*³⁾.

ISO 8486, *Bonded abrasive products — Grain size analysis — Designation — Testing of grain size distribution of macrogrits from F4 to F220*.

3 Designation

The complete designation of a bonded abrasive product consists, in order, of

- the shape;
- dimensions;
- specifications of internal nature;
- the maximum peripheral speed or rotation frequency.

The indication of shape is given by the type (see 3.1.2) completed, if necessary, by the profile (see 3.1.3).

In the designation the main dimensions shall be separated from secondary dimensions by a dash. Symbol letters other than D, T and H (D, U and H for types 27 and 28) shall appear before their numerical values in millimetres, separated by a comma (except H for threaded inserts types 16 to 19).

If the wheel includes threaded inserts, the indication of dimensions shall be completed with the thread specification (see 3.1.4).

The specifications of the constituents of the bonded abrasive product are as given in 3.2.

The maximum peripheral speed shall be expressed in metres per second (m/s), and rotational frequency in revolutions per minute (r/min).

Example:

A straight grinding wheel, outside diameter 300 mm, thickness 50 mm, hole 76,2 mm, abrasive aluminium oxide, grain size 36, grade L, structure 5, vitrified, maximum peripheral speed 35 m/s is designated:

Wheel type 1 — 300 × 50 × 76,2 — A 36 L 5 V — 35 m/s

¹⁾ At present at the stage of draft. (Revision of ISO/R 286:1962.)

²⁾ At present at the stage of draft. (Revision of ISO/R 603, ISO/R 603-2, ISO 1117, ISO 2220, ISO 2933, ISO 3920 and ISO 3921, which all remain in force until the publication of ISO 603.)

³⁾ At present at the stage of draft.

3.1 Dimensions and symbolized types

3.1.1 Symbolization of dimensions

Symbol	Designation	Type of wheels concerned
<i>A</i>	Small base of trapezoidal segment	31
<i>B</i>	Width of segment, stick or brick Length of threaded insert	31 - 54 - 90 16 to 19
<i>C</i>	Thickness of segment, stick or brick	31 - 54 - 90
<i>D</i>	Outside diameter	All types of wheels
<i>E</i>	Back thickness of cup and dish wheels or thickness at hole of relieved wheels with recesses	6 - 9 - 11 - 12 - 13 (20 to 28)
<i>F</i>	Depth of first recess	5 - 7 - 22 to 26
<i>G</i>	Depth of second recess	7 - 24 - 26
<i>H</i>	Diameter of insert thread	All types of wheels without 2 - 37 - 52
<i>J</i>	Small outside diameter of tapered wheel, of taper-cup of dish and saucer wheels, outside diameter of hub	3 - 11 - 12 - 13 - 38 - 39
<i>K</i>	Back diameter of taper-cup, of dish and saucer wheels, inner diameter of relief	11 - 12 - 13 - 20 - 21 - 22 - 25
<i>L</i>	Spindle length of mounted wheels Length of segments, sticks or bricks	31 - 52 - 54 - 90
<i>N</i>	Depth of first relief	22 to 26
<i>O</i>	Depth of second relief	21 - 25 - 26
<i>P</i>	Recess diameter	5 - 7 - 22 to 26
<i>T</i>	Overall thickness	All types of wheels without 27 - 28 - 52
<i>U</i>	Thickness of grinding face when smaller than <i>T</i> for wheels used on their periphery	3 - 12 - 13 - 27 - 28 - 38 - 39
<i>W</i>	Width of grinding face for wheels used laterally	2 - 6 - 9 - 11 - 12 - 37
Profile elements: <i>U</i> no grinding face <i>V</i> profile angle <i>X</i> other profile element		
 Symbolizes the grinding face of bonded abrasive products		