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**Bonded abrasive products—
General requirements**

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Grinding Wheel Association (GIS)/ Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS R 6242**:2003 is replaced with this Standard.

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Bonded abrasive products— General requirements

Introduction

This Japanese Industrial Standard has been prepared based on the third edition of **ISO 525** published in 1999 with some modifications of the technical contents to meet the laws and regulations in Japan.

The portions given continuous sidelines or dotted underlines are the matters in which the contents of the original International Standard have been modified. A list of modifications with explanations is given in Annex JB.

1 Scope

This Standard specifies the general requirements for abrasive products of grinding wheels and segment grinding wheels, stones for honing and superfinishings, and hand finishing sticks (hereafter referred to as “bonded abrasive products”). However, abrasive tools using diamond or cubic boron (cBN) are excluded.

The following items are included in this Standard.

- designation of bonded abrasive products
- main type and designation of bonded abrasive products
- standard profiles of straight wheels
- range of outside diameter
- range of thickness
- range of bore diameter
- safety
- specifications
- marking

NOTE 1 This Standard specifies the general requirements of bonded abrasive products and is not singly intended to be used for performing the conformity assessment.

NOTE 2 The International Standard corresponding to this Standard is as follows.

ISO 525:1999 *Bonded abrasive products-General requirements* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS R 6001 *Bonded abrasive grain sizes*

NOTE : Corresponding International Standard: **ISO 8486-1** : 1996 *Bonded abrasives—Determination and designation of grain size distribution—Part 1: Macrogrits F4 to F220 (MOD)* and **ISO 8486-2** : 1996 *Bonded abrasives—Determination and designation of grain size distribution—Part 2: Microgrits F230 to F1200 (MOD)*

JIS R 6211-1 *Bonded abrasive products—Dimensions—Part 1: Grinding wheels for external cylindrical grinding between centres*

NOTE : Corresponding International Standard: **ISO 603-1** : 1999 *Bonded abrasive products—Dimensions—Part 1: Grinding wheels for external cylindrical grinding between centres (MOD)*

JIS R 6211-2 *Bonded abrasive products—Dimensions—Part 2: Grinding wheels for centerless external cylindrical grinding*

NOTE : Corresponding International Standard: **ISO 603-2** : 1999 *Bonded abrasive products—Dimensions—Part 2: Grinding wheels for centreless external cylindrical grinding (MOD)*

JIS R 6211-3 *Bonded abrasive products—Dimensions—Part 3: Grinding wheels for internal cylindrical grinding*

NOTE : Corresponding International Standard: **ISO 603-3** : 1999 *Bonded abrasive products—Dimensions—Part 3: Grinding wheels for internal cylindrical grinding (MOD)*

JIS R 6211-4 *Bonded abrasive products—Dimensions—Part 4: Grinding wheels for surface grinding/peripheral grinding*

NOTE : Corresponding International Standard: **ISO 603-4** : 1999 *Bonded abrasive products—Dimensions—Part 4: Grinding wheels for surface grinding/peripheral grinding (MOD)*

JIS R 6211-5 *Bonded abrasive products—Dimensions—Part 5: Grinding wheels for surface grinding/face grinding*

NOTE : Corresponding International Standard: **ISO 603-5** : 1999 *Bonded abrasive products—Dimensions—Part 5: Grinding wheels for surface grinding/face grinding (MOD)*

JIS R 6211-6 *Bonded abrasive products—Dimensions—Part 6: Grinding wheels for tool and tool room grinding*

NOTE : Corresponding International Standard: **ISO 603-6** : 1999 *Bonded abrasive products—Dimensions—Part 6: Grinding wheels for tool and tool room grinding (MOD)*

JIS R 6211-7 *Bonded abrasive products—Dimensions—Part 7: Grinding wheels for manually guided grinding*

NOTE : Corresponding International Standard: **ISO 603-7** : 1999 *Bonded abrasive products—Dimensions—Part 7: Grinding wheels for manually guided grinding (MOD)*

JIS R 6211-8 *Bonded abrasive products—Dimensions—Part 8: Grinding wheels for deburring and fettling/snagging*

NOTE : Corresponding International Standard: **ISO 603-8**:1999 *Bonded abrasive products—Dimensions—Part 8: Grinding wheels for deburring and fettling/snagging* (MOD)

JIS R 6211-9 *Bonded abrasive products—Dimensions—Part 9: Grinding wheels for high-pressure grinding*

NOTE : Corresponding International Standard: **ISO 603-9**:1999 *Bonded abrasive products—Dimensions—Part 9: Grinding wheels for high-pressure grinding* (MOD)

JIS R 6211-10 *Bonded abrasive products—Dimensions—Part 10: Stones for honing and superfinishings*

NOTE : Corresponding International Standard: **ISO 603-10**:1999 *Bonded abrasive products—Dimensions—Part 10: Stones for honing and superfinishings* (MOD)

JIS R 6211-11 *Bonded abrasive products—Dimensions—Part 11: Hand finishing sticks*

NOTE : Corresponding International Standard: **ISO 603-11**:1999 *Bonded abrasive products—Dimensions—Part 11: Hand finishing sticks* (IDT)

JIS R 6211-12 *Bonded abrasive products—Dimensions—Part 12: Grinding wheels for deburring and fettling on a straight grinder*

NOTE : Corresponding International Standard: **ISO 603-12**:1999 *Bonded abrasive products—Dimensions—Part 12: Grinding wheels for deburring and fettling on a straight grinder* (MOD)

JIS R 6211-13 *Bonded abrasive products—Dimensions—Part 13: Grinding wheels for deburring and fettling on a vertical grinder*

NOTE : Corresponding International Standard: **ISO 603-13**:1999 *Bonded abrasive products—Dimensions—Part 13: Grinding wheels for deburring and fettling on a vertical grinder* (MOD)

JIS R 6211-14 *Bonded abrasive products—Dimensions—Part 14: Grinding wheels for deburring and fettling/snagging on an angle grinder*

NOTE : Corresponding International Standard: **ISO 603-14**:1999 *Bonded abrasive products—Dimensions—Part 14: Grinding wheels for deburring and fettling/snagging on an angle grinder* (MOD)

JIS R 6211-15 *Bonded abrasive products—Dimensions—Part 15: Grinding wheels for cutting-off on stationary or mobile cutting-off machines*

NOTE : Corresponding International Standard: **ISO 603-15**:1999 *Bonded abrasive products—Dimensions—Part 15: Grinding wheels for cutting-off on stationary or mobile cutting-off machines* (MOD)

JIS R 6211-16 *Bonded abrasive products—Dimensions—Part 16: Grinding wheels for cutting-off on hand held power tools*

NOTE : Corresponding International Standard: **ISO 603-16**:1999 *Bonded abrasive products—Dimensions—Part 16: Grinding wheels for cutting-off on hand-held power tools* (MOD)

JIS R 6240 Testing methods of grinding wheels

JIS R 6241 Maximum operating speed of grinding wheels

JIS R 6243 Bonded abrasive products—Static balancing of grinding wheels—Testing

NOTE : Corresponding International Standard: **ISO 6103**:1999 *Bonded abrasive products—Permissible unbalances of grinding wheels as delivered—Testing* (IDT)

JIS R 6244 Bonded abrasive products—Limit deviations and run-out tolerances

NOTE : Corresponding International Standard: **ISO 13942**:2000 *Bonded abrasive products—Limit deviations and run-out tolerances* (MOD)

3 Relation between classification of bonds and related standards

The relation between the classification of bonds and the related standards shall be as given in table 1.

Table 1 Relation between classification of bonds and related standards

Classification of bonds	Related standards
Vitrified bond	JIS R 6210, JIS R 6217, JIS R 6218
Resinoid bond (including those with fibre reinforced)	JIS R 6212, JIS R 6213, JIS R 6214, JIS R 6216, JIS R 6217, JIS R 6218
Rubber bond (including those with fibre reinforced)	JIS R 6215, JIS R 6217
Magnesia bond	JIS R 6216, JIS R 6219

4 Symbols indicating dimensions

Symbols indicating dimensions of bonded abrasive products used in this Standard shall be as given in table 2.

Table 2 Symbols and their meaning

Symbol	Meaning of symbol
<i>A</i>	Smallest width of a trapezoidal segment
<i>B</i>	Width of a segment grinding wheel, stones for honing and superfinishings, and hand finishing stick
<i>C</i>	Thickness of a segment grinding wheel, stones for honing and superfinishings, and hand finishing stick
<i>D</i>	Outside diameter of grinding wheels
<i>D</i> ₁ ^{a)}	Pitch circle diameter of inserted nut wheels
<i>D</i> ₂ ^{a)}	Nominal dimension of screw
<i>E</i>	Thickness at bore of cup, dish, recessed and relieved wheels
<i>F</i>	Depth of the 1st recess
<i>G</i>	Depth of the 2nd recess
<i>H</i>	— Grinding wheel bore diameter — Thread diameter of wheels with threaded insert
<i>H</i> ₁ ^{a)}	Counter boring dimension of nut
<i>J</i>	Smallest diameter of tapered cup, dish, tapered and hubbed wheels
<i>K</i>	— Internal diameter of recess of tapered cup and dish wheels — Internal diameter of relief of relieved wheel — Internal diameter of bore of depressed centre wheel
<i>L</i>	— Length of segment wheel, stick or stone — Length of thread of wheels with threaded insert
<i>L</i> ₀	Overhang length of mounted wheels and points
<i>L</i> ₁	Total length of mounted wheels and points
<i>L</i> ₂	Length of the spindle of mounted wheels and points
<i>L</i> ₃	Clamping length of the spindle of mounted wheels and points
<i>N</i>	Depth of the relief
<i>P</i>	Recessed diameter
<i>R</i>	Radius of recessed grinding wheels, grinding segments, cones and plugs and mounted wheels and points
<i>S</i>	Diameter of spindle of mounted wheels and points
<i>T</i>	Overall thickness
<i>U</i>	Smallest thickness of tapered, hubbed and depressed centre wheels
<i>V</i>	Profile angle ^{b)}
<i>W</i>	Profile width of cups, cylinders and dishes
<i>X</i>	Other profile element ^{b)}
↓	Symbolizes the grinding face of grinding wheels.
Notes ^{a)} <i>D</i> ₁ , <i>D</i> ₂ and <i>H</i> ₁ are not specified in the corresponding International Standard, however specified here because these symbols are used in figures of table 3.	
^{b)} See 6.1 for wheel profiles.	

5 Types and designations thereof

Types and designations thereof shall be as given in table 3.

Table 3 Types and designations thereof

Type and designation thereof	Sketch	Expression	Corresponding JIS
1 Straight grinding wheel		Type 1 – Profile ^{a)} – $D \times T \times H$	JIS R 6211-1 JIS R 6211-2 JIS R 6211-3 JIS R 6211-4 JIS R 6211-6 JIS R 6211-7 JIS R 6211-8 JIS R 6211-9 JIS R 6211-12
2 Cylinder wheel, cemented or clamped		Type 2 – $D \times T - W$	JIS R 6211-5
3 Tapered wheel		Type 3 – $D/J \times T \times H$	JIS R 6211-6
4 Wheel, tapered on both sides		Type 4 – $D \times T \times H$	JIS R 6211-12
5 Wheel, recessed one side		Type 5 – Profile ^{a)} – $D \times T \times H - P \times F$	JIS R 6211-1 JIS R 6211-2 JIS R 6211-3 JIS R 6211-4 JIS R 6211-6 JIS R 6211-7
6 Straight cup wheel		Type 6 – $D \times T \times H - W \times E$	JIS R 6211-5 JIS R 6211-6 JIS R 6211-7 JIS R 6211-13 JIS R 6211-14