

# INTERNATIONAL STANDARD

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## **Basic quantities in cutting and grinding —**

### **Part 5 :**

**Basic terminology for grinding processes using  
grinding wheels**

*Grandeurs de base en usinage et rectification —*

*Partie 5 : Terminologie de base propre au meulage*



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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3002-5 was prepared by Technical Committee ISO/TC 29, *Small tools*.

ISO 3002 will consist of the following parts, under the general title *Basic quantities in cutting and grinding*:

- *Part 1: Geometry of the active part of cutting tools — General terms, reference systems, tool and working angles, chip breakers*
- *Part 2: Geometry of the active part of cutting tools — General conversion formulae to relate tool and working angles*
- *Part 3: Geometric and kinematic quantities in cutting*
- *Part 4: Forces, energy, power*
- *Part 5: Basic terminology for grinding processes using grinding wheels*
- *Part 6: Quantity as a function of time*

Annex A of this part of ISO 3002 is for information only.

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# Basic quantities in cutting and grinding —

## Part 5 : Basic terminology for grinding processes using grinding wheels

### 1 Scope

The aim of this part of ISO 3002 is to apply the basic terminology defined in ISO 3002, parts 1 to 4, specifically to grinding operations and to define additional quantities specific to grinding.

NOTE — In addition to terms used in the three official ISO languages (English, French and Russian), this part of ISO 3002 gives the equivalent terms in the German, Italian and Dutch languages; these are published under the responsibility of the member bodies for Germany, F.R. (DIN), Italy (UNI), the Netherlands (NNI) and Belgium (BN). However, only the terms given in the official languages can be considered as ISO terms.

For the purposes of this part of ISO 3002 the meaning of the word grinding is considered in a limited sense as a material removal operation in which the tool is a grinding wheel.

The primary motion<sup>1)</sup> is the rotation of the grinding wheel which causes a considerable peripheral speed in the contact area with the workpiece.

A feed motion<sup>1)</sup> is applied to the tool or workpiece to obtain a continuation of the removal of workpiece material in the form of small chips by the action of individual cutting edges<sup>1)</sup>.

The feed motion may consist of several components. The machine surface is generated by the combined effect of the shape of the grinding wheel and the path of the motion components.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 3002. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 3002 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 841 : 1974, *Numerical control of machines — Axis and motion nomenclature.*

ISO 3002-1 : 1982, *Basic quantities in cutting and grinding — Part 1: Geometry of the active part of cutting tools — General terms, reference systems, tool and working angles, chip breakers.*

ISO 3002-2 : 1982, *Basic quantities in cutting and grinding — Part 2: Geometry of the active part of cutting tools — General conversion formulae to relate tool and working angles.*

ISO 3002-3 : 1984, *Basic quantities in cutting and grinding — Part 3: Geometric and kinematic quantities in cutting.*

ISO 3002-4 : 1984, *Basic quantities in cutting and grinding — Part 4: Forces, energy, power.*

### 3 General conventions

#### 3.1 Symbols and suffixes

Except when otherwise specified, the basic symbols defined in ISO 3002, parts 1 to 4, are used in grinding together with the following symbols:

- $A$  = surface;
- $l$  = length;
- $b$  = width.

Where appropriate, a suffix is added; among others,

- $s$  relates the quantity considered to the grinding wheel, e.g.  $v_s$  = peripheral speed of the grinding wheel;
- $w$  relates the quantity considered to the workpiece, e.g.  $v_w$  = peripheral speed of the workpiece;
- $m$  relates the quantity considered to the table or support of workpiece or grinding wheel (see 3.2);
- $d$  relates the quantity considered to the dressing or truing operation or truing tool;

1) See ISO 3002-1 : 1982, 3.6.1 and 3.6.2.