

**CPC****COOPERATIVE PATENT CLASSIFICATION****B24D**

**TOOLS FOR GRINDING, BUFFING, OR SHARPENING** (tools for grinding or polishing optical surfaces on lenses or surfaces of similar shape [B24B 13/01](#); grinding heads [B24B 41/00](#); manufacture of abrasive or friction articles or shaped materials containing macromolecular substances [C08J5/14](#); polishing compositions [C09G 1/00](#); abrasives [C09K 3/14](#))

**NOTE**

1. This subclass covers grinding tools for working on any material
2. Tools for grinding, buffing or sharpening, specially designed for a particular purpose, which purpose is provided for in a single other place, are classified in that place, e.g. [B23F 21/02](#)

**B24D 3/00**

**Physical features of abrasive bodies, or sheets, e.g. abrasive surfaces of special nature; Abrasive bodies or sheets characterised by their constituents** (composition of friction linings [F16D 69/02](#))

- B24D 3/001 . {the constituent being used as supporting member}
- B24D 3/002 .. {Flexible supporting members, e.g. paper, woven, plastic materials}
- B24D 3/004 ... {with special coatings}
- B24D 3/005 . {the constituent being used during pre- or after-treatment ([B24D 3/348](#) takes precedence)}
- B24D 3/007 . {the constituent being used as bonding agent between different parts of an abrasive tool}
- B24D 3/008 . {Abrasive bodies without external bonding agent}
- B24D 3/02 . the constituent being used as bonding agent
- B24D 3/04 .. and being essentially inorganic
- B24D 3/06 ... metallic {or mixture of metals with ceramic materials, e.g. hard metals, "cermets", cements}
- B24D 3/08 .... for close-grained structure, e.g. using metal with low melting point
- B24D 3/10 .... for porous or cellular structure, e.g. for use with diamonds as abrasives
- B24D 3/12 ... water-setting, e.g. concrete
- B24D 3/14 ... ceramic, i.e. vitrified bondings {(mixture with metals [B24D 3/06](#))}
- B24D 3/16 .... for close-grained structure, i.e. of high density
- B24D 3/18 .... for porous or cellular structure
- B24D 3/20 .. and being essentially organic
- B24D 3/22 ... Rubbers {synthetic or natural}
- B24D 3/24 .... for close-grained structure {([B24D 3/002](#) takes precedence)}
- B24D 3/26 .... for porous or cellular structure
- B24D 3/28 ... Resins {or natural or synthetic macromolecular compounds ([B24D 3/22](#) takes precedence)}
- B24D 3/285 .... {Reaction products obtained from aldehydes or ketones}

- B24D 3/30 . . . . for close-grained structure
- B24D 3/32 . . . . for porous or cellular structure
- B24D 3/34 . characterised by additives enhancing special physical properties, e.g. wear resistance, electric conductivity, self-cleaning properties
- B24D 3/342 . . {incorporated in the bonding agent}
- B24D 3/344 . . . {the bonding agent being organic}
- B24D 3/346 . . {utilised during polishing, or grinding operation}
- B24D 3/348 . . {utilised as impregnating agent for porous abrasive bodies (after-treatments in general [B24D 3/005](#))}

### **Bonded abrasive wheels**

#### **B24D 5/00 Bonded abrasive wheels, or wheels with inserted abrasive blocks, designed for acting only by their periphery; Bushings or mountings therefor**

- B24D 5/02 . Wheels in one piece
- B24D 5/04 . . with reinforcing means
- B24D 5/06 . with inserted abrasive blocks, e.g. segmental ([zonally graded B24D 5/14](#))
- B24D 5/063 . . {with segments embedded in a matrix which is rubbed away during the grinding process}
- B24D 5/066 . . {with segments mounted axially one against the other}
- B24D 5/08 . . with reinforcing means
- B24D 5/10 . with cooling provisions, e.g. with radial slots
- B24D 5/12 . Cut-off wheels
- B24D 5/123 . . {having different cutting segments}
- B24D 5/126 . . {having an internal cutting edge}
- B24D 5/14 . Zonally-graded wheels; Composite wheels comprising different abrasives
- B24D 5/16 . Bushings; Mountings
- B24D 5/165 . . {Balancing means}

#### **B24D 7/00 Bonded abrasive wheels, or wheels with inserted abrasive blocks, designed for acting otherwise than only by their periphery, e.g. by the front face; Bushings or mountings therefor**

- B24D 7/005 . {for cutting spherical surfaces}
- B24D 7/02 . Wheels in one piece
- B24D 7/04 . . with reinforcing means
- B24D 7/06 . with inserted abrasive blocks, e.g. segmental ([zonally-graded B24D 7/14](#))
- B24D 7/063 . . {with segments embedded in a matrix which is rubbed away during the grinding process}
- B24D 7/066 . . {Grinding blocks; their mountings or supports}
- B24D 7/08 . . with reinforcing means
- B24D 7/10 . with cooling provisions
- B24D 7/12 . with apertures for inspecting the surface to be abraded
- B24D 7/14 . Zonally-graded wheels; Composite wheels comprising different abrasives

- B24D 7/16 . Bushings; Mountings
- B24D 7/18 . Wheels of special form (if specially designed for a particular purpose provided for in a single other class, that class takes precedence; {saw cylinders having their cutting rim equipped with abrasive particles for working stone or glass [B28D 1/041](#)})
  
- B24D 9/00** **Wheels or drums supporting in exchangeable arrangement a layer of flexible abrasive material, e.g. sandpaper (wheels or drums as machine elements [F16](#))**
  - B24D 9/003 . {Wheels having flaps of flexible abrasive material supported by a flexible material}
  - B24D 9/006 . {Tools consisting of a rolled strip of flexible material}
  - B24D 9/02 . Expansible drums for carrying flexible material in tubular form, e.g. expanded by centrifugal force
  - B24D 9/04 . Rigid drums for carrying flexible material
  - B24D 9/06 . . . able to be stripped-off from a built-in delivery spool
  - B24D 9/08 . Circular back-plates for carrying flexible material
  - B24D 9/085 . . . {Devices for mounting sheets on a backing plate}
  - B24D 9/10 . . . with suction means for securing the material
  
- B24D 11/00** **Constructional features of flexible abrasive materials; Special features in the manufacture of such materials**
  - B24D 11/001 . {Manufacture of flexible abrasive materials}
  - B24D 11/003 . . . {without embedded abrasive particles ([B24D 11/005](#) takes precedence)}
  - B24D 11/005 . . . {Making abrasive webs}
  - B24D 11/006 . . . . {without embedded abrasive particles}
  - B24D 11/008 . {Finishing manufactured abrasive sheets, e.g. cutting, deforming}
  - B24D 11/02 . Backings, e.g. foils, webs, mesh fabrics
  - B24D 11/04 . Zonally-graded surfaces
  - B24D 11/06 . Connecting the ends of materials, e.g. for making abrasive belts
  - B24D 11/065 . . . {Treatment of the ends of flexible abrasive materials before connecting them}
  - B24D 11/08 . Equipment for after-treatment of the coated backings, e.g. for flexing the coating
  
- B24D 13/00** **Wheels having flexibly-acting working parts, e.g. buffing wheels; Mountings therefor**
  - B24D 13/02 . acting by their periphery
  - B24D 13/04 . . . comprising a plurality of flaps or strips arranged around the axis
  - B24D 13/045 . . . . {comprising flaps not covering the entire periphery of the wheel}
  - B24D 13/06 . . . the flaps or strips being individually attached
  - B24D 13/08 . . . comprising annular or circular sheets packed side by side
  - B24D 13/085 . . . . {comprising flaps with a circular sheet on each side}
  - B24D 13/10 . . . comprising assemblies of brushes
  - B24D 13/12 . . . comprising assemblies of felted or spongy material, e.g. felt, steel wool, foamed latex
  - B24D 13/14 . acting by the front face
  - B24D 13/142 . . . {Wheels of special form}

- B24D 13/145 . . {having a brush-like working surface}
- B24D 13/147 . . {comprising assemblies of felted or spongy material; comprising pads surrounded by a flexible material}
- B24D 13/16 . . comprising pleated flaps or strips
- B24D 13/18 . with cooling provisions
- B24D 13/20 . Mountings for the wheels

**B24D 15/00****Hand tools or other devices for non-rotary grinding, polishing, or stropping**

- B24D 15/02 . rigid; with rigidly-supported operative surface
- B24D 15/023 . . {using in exchangeable arrangement a layer of flexible material}
- B24D 15/026 . . . {able to be stripped-off from a built-in delivery spool}
- B24D 15/04 . resilient; with resiliently-mounted operative surface
- B24D 15/045 . . {Glove-shaped abrasive devices}
- B24D 15/06 . specially designed for sharpening cutting edges
- B24D 15/061 . . {for electric shaving blades}
- B24D 15/063 . . {for grinding shears, scissors}
- B24D 15/065 . . {for sharpening both knives and scissors}
- B24D 15/066 . . {for sharpening skate blades, i.e. blades having two sharp edges defined by three surfaces intersecting in pairs at an angle of substantially 90°}
- B24D 15/068 . . {for sharpening ski edges, i.e. sharp edges defined by two surfaces intersecting at an angle of substantially 90°}
- B24D 15/08 . . of knives; of razors
- B24D 15/081 . . . {with sharpening elements in interengaging or in mutual contact}
- B24D 15/082 . . . . {the elements being rotatable}
- B24D 15/084 . . . {the sharpening elements being fitted to knife sheaths, holders or handles}
- B24D 15/085 . . . {with reciprocating whetstones}
- B24D 15/087 . . . . {having a crank handle}
- B24D 15/088 . . . {with whetting leather}
- B24D 15/10 . . of safety-razor blades (devices with mechanically-operated parts [B24B 3/50](#))
- B24D 15/105 . . . {Holders therefor}

**B24D 18/00****Manufacture of grinding tools {or other grinding devices}, e.g. wheels, not otherwise provided for**

- B24D 18/0009 . {using moulds or presses}
- B24D 18/0018 . {by electrolytic deposition}
- B24D 18/0027 . {by impregnation}
- B24D 18/0036 . {by winding up abrasive bands}
- B24D 18/0045 . {by stacking sheets of abrasive material}
- B24D 18/0054 . {by impressing abrasive powder in a matrix}
- B24D 18/0063 . {by extrusion}
- B24D 18/0072 . {using adhesives for bonding abrasive particles or grinding elements to a support, e.g. by gluing}

B24D 18/0081	. {of wire-reinforced grinding tools}
B24D 18/009	. {Tools not otherwise provided for}
<b>B24D 99/00</b>	<b>Subject matter not provided for in other groups of this subclass {(B28D 1/124 takes precedence)}</b>
B24D 99/005	. {Segments of abrasive wheels}

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<b>B24D 2201/00</b>	<b>Bushings or mountings integral with the grinding wheel</b>
<b>B24D 2203/00</b>	<b>Tool surfaces formed with a pattern</b>
<b>B24D 2205/00</b>	<b>Grinding tools with incorporated marking device</b>