

SECTION B — PERFORMING OPERATIONS; TRANSPORTING

B24 GRINDING; POLISHING

Note(s)

In this class, the following term is used with the meaning indicated:

- "grinding" is used in its most general sense to mean machining and covers, in particular, "corrective" operations.

B24B MACHINES, DEVICES, OR PROCESSES FOR GRINDING OR POLISHING (by electro-erosion B23H; abrasive or related blasting B24C; electrolytic etching or polishing C25F 3/00); **DRESSING OR CONDITIONING OF ABRADING SURFACES; FEEDING OF GRINDING, POLISHING, OR LAPPING AGENTS** [2]

Note(s) [4]

- In this subclass, the following term is used with the meaning indicated:
 - "polishing" means the smoothing of a surface, i.e. a surface improvement but no improvement of the dimensional accuracy as would occur in a "grinding" operation.
- Attention is drawn to Notes (1) and (2) following the title of subclass B23F.

Subclass index

GRINDING OR POLISHING PROCESSES NOT PARTICULAR TO SPECIFIC MACHINES, DEVICES OR WORK.....	1/00
GRINDING; GENERAL FEATURES OF GRINDING, POLISHING, OR FINISHING	
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Polishing, burnishing.....	29/00, 39/00
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Note(s) [4]

In groups B24B 1/00-B24B 27/00, in connection with glass the terms "grinding" and "polishing" are treated as being equivalent.

- 1/00 Processes of grinding or polishing; Use of auxiliary equipment in connection with such processes** (processes characterised by the use of special machines or devices, *see* the relevant places for those machines or devices) [1, 4, 2006.01]
- 1/04
- subjecting the grinding or polishing tools, the abrading or polishing medium or work to vibration, e.g. grinding with ultrasonic frequency (involving oscillating or vibrating containers B24B 31/06; superfinishing surfaces on work, e.g. by means of abrading blocks reciprocating with high frequency B24B 35/00) [1, 4, 2006.01]

- 3/00 Sharpening cutting edges, e.g. of tools; Accessories therefor, e.g. for holding the tools** (non-abrasive sharpening devices for scythes, sickles, or the like A01D 3/00; sharpening devices designed as components of machines with cutters, *see* the relevant places for the machines, e.g. A01D 75/08, B26D 7/12) [1, 2006.01]
- 3/02
- of milling cutters [1, 2006.01]
- 3/04
- • of plain milling cutters [1, 2006.01]
- 3/06
- • of face or end milling cutters or cutter heads, e.g. of shank type [1, 2006.01]
- 3/08
- • of profile milling cutters, e.g. of disc type [1, 2006.01]
- 3/10
- • of routers or engraving needles [1, 2006.01]
- 3/12
- • of hobs [1, 2006.01]
- 3/14
- • of mortise chain cutters [1, 2006.01]
- 3/16
- of broaches [1, 2006.01]
- 3/18
- of taps or reamers [1, 2006.01]
- 3/20
- • Tapering or chamfering taps or reamers [1, 2006.01]
- 3/22
- • Relief cutting of taps or reamers [1, 2006.01]

B24B

- 3/24 • of drills (by fluting the shank B24B 19/04) [1, 2006.01]
- 3/26 • • of the point of twist drills [1, 2006.01]
- 3/28 • • • by swivelling the drill around an axis angularly to the drill axis [1, 2006.01]
- 3/30 • • • • and rotating the drill about its own axis [1, 2006.01]
- 3/32 • • • for thinning the point [1, 2006.01]
- 3/33 • • of drills for stone [1, 2006.01]
- 3/34 • of turning or planing tools or tool bits, e.g. gear cutters (B24B 3/36 takes precedence) [1, 2006.01]
- 3/36 • of cutting blades (B24B 3/58 takes precedence) [1, 2006.01]
- 3/38 • • for planing wood, e.g. cutter blades [1, 2006.01]
- 3/40 • • Processes or apparatus specially adapted for sharpening curved edges [1, 2006.01]
- 3/42 • • helically bent, e.g. for lawn mowers [1, 2006.01]
- 3/44 • • of scythes or sickles [1, 2, 2006.01]
- 3/46 • • of disc blades [1, 2006.01]
- 3/48 • • of razor blades or razors (by an abrasive block without mechanisms B24D 15/06) [1, 2006.01]
- 3/50 • • • operated manually [1, 2006.01]
- 3/52 • • of shear blades or scissors [1, 2006.01]
- 3/54 • • of hand or table knives [1, 2006.01]
- 3/55 • of knife bars for harvesting machines [1, 2006.01]
- 3/56 • of slicing bands (B24B 3/58 takes precedence) [1, 2006.01]
- 3/58 • of tools having scalloped cutting edges [1, 2006.01]
- 3/60 • of tools not covered by the preceding subgroups [1, 2006.01]
- 5/26 • • for grinding peculiarly profiled surfaces, e.g. bulged [1, 2006.01]
- 5/28 • • for grinding outer surfaces concentrically to bores, involving additional centring means [1, 2006.01]
- 5/30 • • Regulating-wheels; Equipment therefor [1, 2006.01]
- 5/307 • • Means for supporting work [3, 2006.01]
- 5/313 • involving work-supporting means carrying several workpieces to be operated on in succession [3, 2006.01]
- 5/32 • • the work-supporting means being indexable [1, 3, 2006.01]
- 5/35 • Accessories [3, 2006.01]
- 5/36 • Single-purpose machines or devices [1, 2006.01]
- 5/37 • • for grinding rolls, e.g. barrel-shaped rolls [4, 2006.01]
- 5/38 • • for externally grinding travelling elongated stock, e.g. wire [1, 2006.01]
- 5/40 • • for grinding tubes internally [1, 2006.01]
- 5/42 • • for grinding crankshafts or crankpins [1, 2006.01]
- 5/44 • • for grinding rims of vehicle wheels, e.g. for bicycles [1, 2006.01]
- 5/46 • • for grinding railway car wheels [1, 2006.01]
- 5/48 • • for grinding walls of very fine holes, e.g. in drawing-dies [1, 2006.01]
- 5/50 • characterised by a special design with respect to properties of the material of non-metallic articles to be ground, e.g. strings [1, 2006.01]

Grinding surfaces of particular forms

- 5/00 **Machines or devices designed for grinding surfaces of revolution on work, including those which also grind adjacent plane surfaces; Accessories therefor** (B24B 11/00-B24B 21/00 take precedence; honing machines or devices using abrading blocks performing axial and rotary movements superimposed on one another B24B 33/00) [1, 2, 2006.01]
- 5/01 • for combined grinding of surfaces of revolution and of adjacent plane surfaces on work [4, 2006.01]
- 5/02 • involving centres or chucks for holding work [1, 2006.01]
- 5/04 • • for grinding cylindrical surfaces externally (grinding combined cylindrical and conical surfaces B24B 5/14) [1, 2006.01]
- 5/06 • • for grinding cylindrical surfaces internally (B24B 5/40 takes precedence) [1, 2006.01]
- 5/08 • • • involving a vertical tool spindle [1, 2006.01]
- 5/10 • • • involving a horizontal tool spindle [1, 2006.01]
- 5/12 • • for grinding cylindrical surfaces both externally and internally with several grinding wheels [1, 2006.01]
- 5/14 • • for grinding conical surfaces, e.g. of centres [1, 2006.01]
- 5/16 • • for grinding peculiarly profiled surfaces, e.g. bulged [1, 2006.01]
- 5/18 • involving centreless means for supporting, guiding, floating or rotating work [1, 2, 2006.01]
- 5/20 • • involving grooved abrading blocks [1, 2006.01]
- 5/22 • • for grinding cylindrical surfaces, e.g. on bolts [1, 2006.01]
- 5/24 • • for grinding conical surfaces [1, 2006.01]
- 7/00 **Machines or devices designed for grinding plane surfaces on work, including polishing plane glass surfaces; Accessories therefor** (B24B 21/00 takes precedence; honing of plane surfaces on work B24B 33/055) [1, 4, 2006.01]
- 7/02 • involving a reciprocatingly-moved work-table [1, 4, 2006.01]
- 7/04 • involving a rotary work-table [1, 2006.01]
- 7/06 • involving conveyor belts, a sequence of travelling work-tables or the like [1, 2006.01]
- 7/07 • involving a stationary work-table [4, 2006.01]
- 7/08 • • having an abrasive wheel built in [1, 2006.01]
- 7/10 • Single-purpose machines or devices [1, 2006.01]
- 7/12 • • for grinding travelling elongated stock, e.g. strip-shaped work [1, 4, 2006.01]
- 7/13 • • • grinding while stock moves from coil to coil [4, 2006.01]
- 7/14 • • for grinding slideways [1, 4, 2006.01]
- 7/16 • • for grinding end faces, e.g. of gauges, rollers, nuts or piston rings (for combined grinding of surfaces of revolution and of adjacent plane surfaces on work B24B 5/01) [1, 4, 2006.01]
- 7/17 • • • for simultaneously grinding opposite and parallel end faces, e.g. double disc grinders [4, 2006.01]
- 7/18 • • for grinding floorings, walls, ceilings or the like [1, 2006.01]
- 7/19 • • for grinding plane decorative patterns [4, 2006.01]
- 7/20 • characterised by a special design with respect to properties of the material of non-metallic articles to be ground [1, 2006.01]
- 7/22 • • for grinding inorganic material, e.g. stone, ceramics, porcelain [1, 2006.01]
- 7/24 • • • for grinding or polishing glass [1, 2006.01]
- 7/26 • • • • for simultaneously grinding or polishing opposite faces of continuously travelling sheets or bands of glass [1, 2006.01]
- 7/28 • • for grinding wood [1, 2006.01]

- 7/30 • • for grinding plastics [4, 2006.01]
- 9/00 Machines or devices designed for grinding edges or bevels on work or for removing burrs; Accessories therefor** (B24B 21/00 takes precedence; for sharpening cutting edges on tools B24B 3/00; removing burrs by loose abrasive material B24B 31/00) [1, 2006.01]
- 9/02 • characterised by a special design with respect to properties of materials specific to articles to be ground [1, 2006.01]
- 9/04 • • of metal, e.g. skate blades [1, 2006.01]
- 9/06 • • of non-metallic inorganic material, e.g. stone, ceramics, porcelain [1, 2006.01]
- 9/08 • • • of glass [1, 2006.01]
- 9/10 • • • • of plate glass [1, 2006.01]
- 9/12 • • • • of hollow glassware, e.g. drinking glasses, preserve jars, television picture tube viewing panels [1, 2006.01]
- 9/14 • • • • of optical work, e.g. lenses, prisms [1, 2006.01]
- 9/16 • • • of diamonds, of jewels or the like; Diamond grinders' dops; Dop holders or tongs (for grinding sharp pointed diamonds or sapphires B24B 19/16) [1, 4, 2006.01]
- 9/18 • • of wood [1, 2006.01]
- 9/20 • • of plastics [4, 2006.01]
- 11/00 Machines or devices designed for grinding spherical surfaces or parts of spherical surfaces on work; Accessories therefor** [1, 2006.01]
- 11/02 • for grinding balls [1, 2006.01]
- 11/04 • • involving grinding wheels [1, 2006.01]
- 11/06 • • • acting by the front faces, e.g. of plane, grooved, or bevelled shape [1, 2006.01]
- 11/08 • • • acting by the circumference [1, 2006.01]
- 11/10 • • • of cup type [1, 2006.01]
- 13/00 Machines or devices designed for grinding or polishing optical surfaces on lenses or surfaces of similar shape on other work; Accessories therefor** (edging optical work, e.g. lenses, prisms, B24B 9/14) [1, 2, 2006.01]
- 13/005 • Blocking means, chucks or the like; Alignment devices [4, 2006.01]
- 13/01 • Specific tools, e.g. bowl-like; Production, dressing or fastening of these tools [4, 2006.01]
- 13/015 • of television picture tube viewing panels, headlight reflectors or the like [4, 2006.01]
- 13/02 • by means of tools with abrading surfaces corresponding in shape with the lenses to be made [1, 2006.01]
- 13/04 • grinding of lenses involving grinding wheels controlled by gearing (B24B 13/06 takes precedence) [1, 4, 2006.01]
- 13/06 • grinding of lenses, the tool or work being controlled by information carrying means, e.g. patterns, punched tapes, magnetic tapes [4, 2006.01]
- 15/00 Machines or devices designed for grinding seat surfaces; Accessories therefor** [1, 2006.01]
- 15/02 • in valve housings [1, 2006.01]
- 15/03 • • using portable or mobile machines [4, 2006.01]
- 15/04 • on valve members [1, 2006.01]
- 15/06 • on openings of bottles; on bottle stoppers or the like [1, 4, 2006.01]
- 15/08 • for grinding co-operating seat surfaces by moving one over the other [1, 2006.01]
- 17/00 Special adaptations of machines or devices for grinding controlled by patterns, drawings, magnetic tapes or the like; Accessories therefor** [1, 4, 2006.01]
- 17/02 • involving mechanical transmission means only [1, 2006.01]
- 17/04 • involving optical auxiliary means, e.g. optical projection form grinding machines [1, 2006.01]
- 17/06 • • combined with electrical transmission means, e.g. controlled by photoelectric cells [1, 2006.01]
- 17/08 • involving fluid transmission means only [1, 2006.01]
- 17/10 • involving electrical transmission means only, e.g. controlled by magnetic tape [1, 2006.01]
- 19/00 Single purpose machines or devices for particular grinding operations not covered by any other main group** (grinding screw threads B23G 1/36) [1, 2006.01]
- 19/02 • for grinding grooves, e.g. on shafts, in casings, in tubes, homokinetic joint elements [1, 4, 2006.01]
- 19/03 • • for grinding grooves in glass workpieces, e.g. decorative grooves [4, 2006.01]
- 19/04 • • for fluting drill shanks [1, 2006.01]
- 19/06 • • for grinding races, e.g. roller races [1, 2006.01]
- 19/08 • for grinding non-circular cross-sections, e.g. shafts of elliptical or polygonal cross-section [1, 2006.01]
- 19/09 • • for grinding trochoidal surfaces, e.g. in rotor housings of Wankel engines [4, 2006.01]
- 19/10 • • for grinding pistons [1, 2006.01]
- 19/11 • • for grinding the circumferential surface of rings, e.g. piston rings [1, 4, 2006.01]
- 19/12 • • for grinding cams or camshafts [1, 2006.01]
- 19/14 • for grinding turbine blades, propeller blades or the like [1, 4, 2006.01]
- 19/16 • for grinding sharp-pointed workpieces, e.g. needles, pens, fish hooks, tweezers or record player styli (polishing of needles B24B 29/08) [1, 4, 2006.01]
- 19/18 • • for grinding carding equipment, e.g. card-clothings [1, 2006.01]
- 19/20 • for grinding dies [1, 2006.01]
- 19/22 • characterised by a special design with respect to properties of the material of non-metallic articles to be ground [1, 2006.01]
- 19/24 • • of wood, e.g. furniture [1, 2006.01]
- 19/26 • for grinding workpieces with arcuate surfaces, e.g. parts of car bodies, bumpers or magnetic recording heads [1, 4, 2006.01]
- 19/28 • • for grinding shoes or linings of drum brakes [4, 2006.01]
- 21/00 Machines or devices using grinding or polishing belts** (portable belt-grinding machines B24B 23/06); **Accessories therefor** [1, 4, 2006.01]
- 21/02 • for grinding rotationally symmetrical surfaces [1, 2006.01]
- 21/04 • for grinding plane surfaces [1, 2006.01]
- 21/06 • • involving members with limited contact area pressing the belt against the work, e.g. shoes sweeping across the whole area to be ground (B24B 21/12 takes precedence) [1, 2006.01]
- 21/08 • • • Pressure shoes; Backing belts [1, 2006.01]
- 21/10 • • involving a rigid member, e.g. pressure bar, table, pressing or supporting the belt over substantially its whole span [1, 2006.01]
- 21/12 • • involving a contact wheel or roller pressing the belt against the work [1, 2006.01]
- 21/14 • • • Contact wheels; Contact rollers; Belt supporting rolls [1, 4, 2006.01]

B24B

- 21/16 • for grinding other surfaces of particular shape [1, 4, 2006.01]
- 21/18 • Accessories [1, 2006.01]
- 21/20 • • for controlling or adjusting the tracking or the tension of the grinding belt [4, 2006.01]
- 21/22 • • for producing a reciprocation of the grinding belt normal to its direction of movement [4, 2006.01]
- 23/00 Portable grinding machines, e.g. hand-guided; Accessories therefor** (B24B 7/18 takes precedence; dust extraction equipment B24B 55/10) [1, 4, 2006.01]
- 23/02 • with rotating grinding tools; Accessories therefor [1, 2006.01]
- 23/03 • • the tool being driven in a combined movement [4, 2006.01]
- 23/04 • with oscillating grinding tools; Accessories therefor [1, 4, 2006.01]
- 23/06 • with abrasive belts, e.g. with endless travelling belts; Accessories therefor [1, 4, 2006.01]
- 23/08 • Portable grinding machines designed for fastening on workpieces or other parts of particular section, e.g. for grinding commutators [1, 2006.01]
- 25/00 Grinding machines of universal type** [1, 2006.01]
- 27/00 Other grinding machines or devices** [1, 2006.01]
- 27/02 • Bench grinders [1, 4, 2006.01]
- 27/027 • having a flexible shaft [4, 2006.01]
- 27/033 • for grinding a surface for cleaning purposes, e.g. for descaling or for grinding off flaws in the surface [4, 2006.01]
- 27/04 • • Grinding machines or devices in which the grinding tool is supported on a swinging arm [1, 2006.01]
- 27/06 • Grinders for cutting-off [1, 2006.01]
- 27/08 • • being portable [4, 2006.01]

Polishing surfaces; Finishing surfaces

- 29/00 Machines or devices for polishing surfaces on work by means of tools made of soft or flexible material with or without the application of solid or liquid polishing agents** (for grinding or polishing using belts B24B 21/00) [1, 4, 2006.01]
- 29/02 • designed for particular workpieces [4, 2006.01]
- 29/04 • • for rotationally symmetrical workpieces, e.g. ball-, cylinder- or cone-shaped workpieces [4, 2006.01]
- 29/06 • • for elongated workpieces having uniform cross-section in one main direction [4, 2006.01]
- 29/08 • • • the cross-section being circular, e.g. tubes, wires, needles [4, 2006.01]
- 29/10 • • for table cutlery [4, 2006.01]
- 31/00 Machines or devices designed for polishing or abrading surfaces on work by means of tumbling apparatus or other apparatus in which the work or the abrasive material is loose; Accessories therefor** (abrasive blasting machines B24C 3/26) [1, 2006.01]
- 31/02 • involving rotary barrels [1, 2006.01]
- 31/023 • • with tiltable axis [4, 2006.01]
- 31/027 • • with additional oscillating movement [4, 2006.01]
- 31/03 • • the workpieces being continuously-travelling [4, 2006.01]
- 31/033 • • having several rotating or tumbling drums with parallel axes [4, 2006.01]
- 31/037 • • having several rotating or tumbling drums with non-parallel axes [4, 2006.01]

- 31/05 • involving a container formed as a conveyor belt [4, 2006.01]
- 31/06 • involving oscillating or vibrating containers [1, 2006.01]
- 31/067 • • involving a bowl formed as a straight trough [4, 2006.01]
- 31/073 • • involving a bowl being ring- or spiral-shaped [4, 2006.01]
- 31/10 • involving other means for tumbling of work [1, 4, 2006.01]
- 31/104 • • involving a rotating bowl, in which a ring zone of abrasive powder is formed by centrifugal force [4, 2006.01]
- 31/108 • • involving a sectioned bowl, one part of which, e.g. its wall, is stationary and the other part of which is moved, e.g. rotated [4, 2006.01]
- 31/112 • • using magnetically consolidated grinding powder, moved relatively to the workpiece under the influence of pressure [4, 2006.01]
- 31/116 • • using plastically deformable grinding compound, moved relatively to the workpiece under the influence of pressure [4, 2006.01]
- 31/12 • Accessories; Protective equipment or safety devices; Installations for exhaustion of dust or for sound absorption specially adapted for machines covered by group B24B 31/00 [1, 4, 2006.01]
- 31/14 • • Abrading-bodies specially designed for tumbling apparatus, e.g. abrading-balls [1, 2006.01]
- 31/16 • • Means for separating the workpiece from the abrasive medium at the end of operation [4, 2006.01]
- 33/00 Honing machines or devices; Accessories therefor** [1, 2006.01]
- 33/02 • designed for working internal surfaces of revolution, e.g. of cylindrical or conical shapes [1, 2006.01]
- 33/04 • designed for working external surfaces of revolution [1, 2006.01]
- 33/05 • designed for working grooves, e.g. in gun barrels [1, 2006.01]
- 33/055 • designed for working plane surfaces [4, 2006.01]
- 33/06 • with controlling or gauging equipment [1, 2006.01]
- 33/08 • Honing tools [1, 2006.01]
- 33/10 • Accessories [1, 2006.01]
- 35/00 Machines or devices designed for superfinishing surfaces on work, i.e. by means of abrading blocks reciprocating with high frequency** (B24B 3/00 takes precedence) [1, 2006.01]
- 37/00 Lapping machines or devices; Accessories** (B24B 3/00 takes precedence) [1, 2006.01, 2012.01]
- 37/005 • Control means for lapping machines or devices [2012.01]
- 37/013 • • Devices or means for detecting lapping completion [2012.01]
- 37/015 • • Temperature control [2012.01]
- 37/02 • designed for working surfaces of revolution [1, 2006.01, 2012.01]
- 37/025 • • designed for working spherical surfaces [2012.01]
- 37/04 • designed for working plane surfaces [1, 2006.01, 2012.01]
- 37/07 • • characterised by the movement of the work or lapping tool [2012.01]
- 37/08 • • • for double side lapping [2012.01]
- 37/10 • • • for single side lapping [2012.01]
- 37/11 • Lapping tools [2012.01]

- 37/12 • • Lapping plates for working plane surfaces [2012.01]
- 37/14 • • • characterised by the composition or properties of the plate materials [2012.01]
- 37/16 • • • characterised by the shape of the lapping plate surface, e.g. grooved [2012.01]
- 37/20 • • Lapping pads for working plane surfaces [2012.01]
- 37/22 • • • characterised by a multi-layered structure [2012.01]
- 37/24 • • • characterised by the composition or properties of the pad materials [2012.01]
- 37/26 • • • characterised by the shape of the lapping pad surface, e.g. grooved [2012.01]
- 37/27 • Work carriers [2012.01]
- 37/28 • • for double side lapping of plane surfaces [2012.01]
- 37/30 • • for single side lapping of plane surfaces [2012.01]
- 37/32 • • • Retaining rings [2012.01]
- 37/34 • Accessories [2012.01]
- 39/00 Burnishing machines or devices, i.e. requiring pressure members for compacting the surface zone; Accessories therefor (B24B 3/00 takes precedence) [1, 2006.01]**
- 39/02 • designed for working internal surfaces of revolution [1, 2006.01]
- 39/04 • designed for working external surfaces of revolution [1, 2006.01]
- 39/06 • designed for working plane surfaces [4, 2006.01]

Component parts of general applicability for grinding machines or devices

- 41/00 Component parts of grinding machines or devices, such as frames, beds, carriages or headstocks [1, 2006.01]**
- 41/02 • Frames; Beds; Carriages [1, 2006.01]
- 41/04 • Headstocks; Working-spindles; Features relating thereto [1, 2006.01]
- 41/047 • • Grinding heads for working on plane surfaces [4, 2006.01]
- 41/053 • • • for grinding or polishing glass [4, 2006.01]
- 41/06 • Work supports, e.g. adjustable steadies (B24B 37/27 takes precedence) [1, 2006.01, 2012.01]
- 45/00 Means for securing grinding wheels on rotary arbors [1, 2006.01]**
- 47/00 Drives or gearings for grinding machines or devices; Equipment therefor [1, 2006.01]**
- 47/02 • for performing a reciprocating movement of carriages or work-tables [1, 2006.01]
- 47/04 • • by mechanical gearing only [1, 2006.01]
- 47/06 • • by liquid or gas pressure only [1, 2006.01]
- 47/08 • • by mechanical gearing combined with fluid systems [1, 2006.01]
- 47/10 • for rotating or reciprocating working-spindles carrying grinding wheels or workpieces [1, 2006.01]
- 47/12 • • by mechanical gearing or electric power (B24B 47/16 takes precedence) [1, 2006.01]
- 47/14 • • by liquid or gas pressure (B24B 47/16 takes precedence) [1, 2006.01]
- 47/16 • • performing a reciprocating movement, e.g. during which the sense of rotation of the working-spindle is reversed [1, 2006.01]

- 47/18 • • for rotating the spindle at a speed adaptable to wear of the grinding wheel [1, 2006.01]
- 47/20 • relating to feed movement [1, 2006.01]
- 47/22 • Equipment for exact control of the position of the grinding tool or work at the start of the grinding operation [1, 2006.01]
- 47/25 • for compensating grinding wheel abrasion resulting from dressing [4, 2006.01]
- 47/26 • Accessories, e.g. stops [1, 2006.01]
- 47/28 • Equipment for preventing backlash [1, 2006.01]

Measuring; Indicating; Controlling

- 49/00 Measuring or gauging equipment for controlling the feed movement of the grinding tool or work; Arrangements of indicating or measuring equipment, e.g. for indicating the start of the grinding operation (B24B 33/06, B24B 37/005 take precedence; if applicable to other machine tools, B23Q 15/00-B23Q 17/00 take precedence) [1, 2006.01, 2012.01]**
- 49/02 • according to the instantaneous size and required size of the workpiece acted upon, the measuring or gauging being continuous or intermittent (B24B 49/12 takes precedence) [1, 4, 2006.01]
- 49/03 • • according to the final size of the previously ground workpiece [4, 2006.01]
- 49/04 • • involving measurement of the workpiece at the place of grinding during grinding operation [1, 4, 2006.01]
- 49/05 • • • including the measurement of a first workpiece already machined and of another workpiece being machined and to be matched with the first one [4, 2006.01]
- 49/06 • • requiring comparison of the workpiece with standard gauging plugs, rings or the like [1, 2006.01]
- 49/08 • involving liquid or pneumatic means [1, 2006.01]
- 49/10 • involving electrical means (B24B 49/02, B24B 49/08 take precedence) [1, 2006.01]
- 49/12 • involving optical means [1, 2006.01]
- 49/14 • taking regard of the temperature during grinding [1, 2006.01]
- 49/16 • taking regard of the load [1, 2006.01]
- 49/18 • taking regard of the presence of dressing tools [1, 2006.01]
- 51/00 Arrangements for automatic control of a series of individual steps in grinding a workpiece [1, 2006.01]**

- 53/00 Devices or means for dressing or conditioning abrasive surfaces [1, 4, 2006.01]**
- 53/007 • Cleaning of grinding wheels [4, 2006.01]
- 53/013 • Application of loose grinding agent as auxiliary tool during truing operation [4, 2006.01]
- 53/017 • Devices or means for dressing, cleaning or otherwise conditioning lapping tools [2012.01]
- 53/02 • of plane surfaces on abrasive tools (B24B 53/017 takes precedence) [1, 2006.01, 2012.01]
- 53/04 • of cylindrical or conical surfaces on abrasive tools or wheels (B24B 53/017 takes precedence) [1, 4, 2006.01, 2012.01]
- 53/047 • • equipped with one or more diamonds [4, 2006.01]
- 53/053 • • using a rotary dressing tool [4, 2006.01]

B24B

- 53/06 • of profiled abrasive wheels [1, 2006.01]
- 53/065 • • having other than straight profiles, e.g. crowned (B24B 53/07 takes precedence) [4, 2006.01]
- 53/07 • • by means of forming tools having a shape complementary to that to be produced, e.g. blocks, profile rolls [4, 2006.01]
- 53/075 • • for workpieces having a grooved profile, e.g. gears, splined shafts, threads, worms (B24B 53/07 takes precedence) [4, 2006.01]
- 53/08 • • controlled by information means, e.g. patterns, templets, punched tapes or the like [1, 2006.01]
- 53/085 • • • for workpieces having a grooved profile, e.g. gears, splined shafts, threads, worms (B24B 53/09 takes precedence) [4, 2006.01]
- 53/09 • • • having transfer elements formed as pantograph mechanism [4, 2006.01]
- 53/095 • Cooling or lubricating during dressing operation [4, 2006.01]
- 53/10 • of travelling flexible backings coated with abrasives; Cleaning of abrasive belts [1, 4, 2006.01]
- 53/12 • Dressing tools; Holders therefor [1, 4, 2006.01]
- 53/14 • • Dressing tools equipped with rotary rollers or cutters; Holders therefor [1, 4, 2006.01]
- 55/00 **Safety devices for grinding or polishing machines; Accessories fitted to grinding or polishing machines for keeping tools or parts of the machine in good working condition [1, 2006.01]**
- 55/02 • Equipment for cooling the grinding surfaces, e.g. devices for feeding coolant (incorporated in grinding wheels B24D) [1, 4, 2006.01]
- 55/03 • • designed as a complete equipment for feeding or clarifying coolant [4, 2006.01]
- 55/04 • Protective covers for the grinding wheel [1, 2006.01]
- 55/05 • • specially designed for portable grinding machines [4, 2006.01]
- 55/06 • Dust extraction equipment on grinding or polishing machines (B24B 31/12 takes precedence) [1, 2006.01]
- 55/08 • • specially designed for belt grinding machines [4, 2006.01]
- 55/10 • • specially designed for portable grinding machines, e.g. hand-guided [4, 2006.01]
- 55/12 • Devices for exhausting mist of oil or coolant; Devices for collecting or recovering materials resulting from grinding or polishing, e.g. of precious metals, precious stones, diamonds or the like [4, 2006.01]
- 57/00 **Devices for feeding, applying, grading or recovering grinding, polishing or lapping agents (for abrasive blasting B24C 1/00, B24C 7/00) [1, 4, 2006.01]**
- 57/02 • for feeding of fluid, sprayed, pulverised, or liquefied grinding, polishing or lapping agents [4, 2006.01]
- 57/04 • for feeding of solid grinding, polishing or lapping agents [4, 2006.01]

B24C ABRASIVE OR RELATED BLASTING WITH PARTICULATE MATERIAL

Note(s)

1. This subclass covers:
 - the use of a blast of any particles or pellets dispersed in air, gas, or liquid for the treatment of surfaces or cutting of materials, the particles usually being of abrasive material;
 - the equivalent use of a jet of particles or pellets projected or energised by means other than a stream of air.
2. In this subclass, the following terms are used with the meanings indicated:
 - "abrasive" covers any material used in the manner mentioned in Note (1) above;
 - "blast" covers any equivalent jet of material mentioned in Note (1) above.

- 1/00 **Methods for use of abrasive blasting for producing particular effects; Use of auxiliary equipment in connection with such methods [1, 2006.01]**
- 1/02 • for sharpening or cleaning cutting tools, e.g. files [1, 2006.01]
- 1/04 • for treating only selected parts of a surface, e.g. for carving stone or glass [1, 2006.01]
- 1/06 • for producing matt surfaces, e.g. on plastic materials, on glass [1, 2006.01]
- 1/08 • for polishing surfaces, e.g. by making use of liquid-borne abrasives [1, 2006.01]
- 1/10 • for compacting surfaces, e.g. shot-peening (for deforming sheet metal, tubes or profiles B21D 31/06; as a metallurgical treatment C21D 7/00, C22F 1/00) [1, 2006.01]
- 3/00 **Abrasive blasting machines or devices; Plants [1, 2006.01]**
- 3/02 • characterised by the arrangement of the component assemblies with respect to each other (B24C 3/08, B24C 3/18 take precedence) [1, 2006.01]
- 3/04 • • stationary [1, 2006.01]
- 3/06 • • movable; portable [1, 2006.01]
- 3/08 • essentially adapted for abrasive blasting of travelling stock or travelling workpieces [1, 2006.01]
- 3/10 • • for treating external surfaces [1, 2006.01]
- 3/12 • • • Apparatus using nozzles [1, 2006.01]
- 3/14 • • • Apparatus using impellers [1, 2006.01]
- 3/16 • • for treating internal surfaces [1, 2006.01]
- 3/18 • essentially provided with means for moving workpieces into different working positions (B24C 3/08 takes precedence) [1, 2006.01]
- 3/20 • • the work being supported by turntables [1, 2006.01]
- 3/22 • • • Apparatus using nozzles [1, 2006.01]
- 3/24 • • • Apparatus using impellers [1, 2006.01]
- 3/26 • • the work being supported by barrel cages, i.e. tumblers; Gimbal mountings therefor [1, 2006.01]
- 3/28 • • • Apparatus using nozzles [1, 2006.01]
- 3/30 • • • Apparatus using impellers [1, 2006.01]
- 3/32 • designed for abrasive blasting of particular work, e.g. the internal surfaces of cylinder blocks (B24C 3/08, B24C 3/18 take precedence) [1, 2006.01]
- 3/34 • • for cleaning sparking plugs [1, 2006.01]

Accessories or equipment for abrasive blasting machines or devices

- 5/00 **Devices or accessories for generating abrasive blasts [1, 2006.01]**
- 5/02 • Blast guns, e.g. for generating high velocity abrasive fluid jets for cutting materials [1, 5, 2006.01]
- 5/04 • • Nozzles therefor (nozzles in general B05B) [1, 2006.01]
- 5/06 • Impeller wheels; Rotor blades therefor [1, 2006.01]
- 5/08 • Devices for generating abrasive blasts non-mechanically, e.g. of metallic abrasives by means of a magnetic field [1, 2006.01]

- 7/00 **Equipment for feeding abrasive material; Controlling the flowability, constitution, or other physical characteristics of abrasive blasts [1, 2006.01]**
- 9/00 **Appurtenances of abrasive blasting machines or devices, e.g. working chambers, arrangements for handling used abrasive material [1, 2006.01]**
- 11/00 **Selection of abrasive materials for abrasive blasts (polishing compositions C09G) [1, 2006.01]**

B24D TOOLS FOR GRINDING, BUFFING OR SHARPENING (abrading-bodies specially designed for tumbling apparatus, e.g. abrading-balls B24B 31/14; honing tools B24B 33/08; lapping tools B24B 37/11)

Note(s) [4]

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.

Subclass index

PHYSICAL FEATURES OR CONSTITUENTS OF ABRASIVE BODIES OR SHEETS.....	3/00
ABRASIVE WHEELS.....	5/00, 7/00, 9/00, 13/00
FLEXIBLE ABRASIVE MATERIALS.....	11/00
HAND TOOLS.....	15/00
MANUFACTURE.....	18/00
OTHER TOOLS.....	99/00

- 3/00 **Physical features of abrasive bodies, or sheets, e.g. abrasive surfaces of special nature; Abrasive bodies or sheets characterised by their constituents [1, 2006.01]**
- 3/02 • the constituent being used as bonding agent [1, 2006.01]
- 3/04 • • and being essentially inorganic [1, 2006.01]
- 3/06 • • • metallic [1, 2006.01]
- 3/08 • • • • for close-grained structure, e.g. using metal with low melting point [1, 2006.01]
- 3/10 • • • • for porous or cellular structure, e.g. for use with diamonds as abrasives [1, 2006.01]
- 3/12 • • • water-setting, e.g. concrete [1, 2006.01]
- 3/14 • • • ceramic, i.e. vitrified bondings [1, 2006.01]
- 3/16 • • • • for close grained structure, i.e. of high density [1, 2006.01]
- 3/18 • • • • for porous or cellular structure [1, 2006.01]
- 3/20 • • and being essentially organic [1, 2006.01]
- 3/22 • • • Rubbers [1, 2006.01]
- 3/24 • • • • for close-grained structure [1, 2006.01]
- 3/26 • • • • for porous or cellular structure [1, 2006.01]
- 3/28 • • • Resins [1, 2006.01]
- 3/30 • • • • for close-grained structure [1, 2006.01]
- 3/32 • • • • for porous or cellular structure [1, 2006.01]
- 3/34 • characterised by additives enhancing special physical properties, e.g. wear resistance, electric conductivity, self-cleaning properties [1, 2006.01]

Bonded abrasive wheels

- 5/00 **Bonded abrasive wheels, or wheels with inserted abrasive blocks, designed for acting only by their periphery; Bushings or mountings therefor [1, 2006.01]**
- 5/02 • Wheels in one piece [1, 2006.01]
- 5/04 • • with reinforcing means [1, 2006.01]
- 5/06 • with inserted abrasive blocks, e.g. segmental [1, 2006.01]
- 5/08 • • with reinforcing means [1, 2006.01]
- 5/10 • with cooling provisions, e.g. with radial slots [1, 2006.01]
- 5/12 • Cut-off wheels [1, 2006.01]
- 5/14 • Zonally-graded wheels; Composite wheels comprising different abrasives [1, 2006.01]
- 5/16 • Bushings; Mountings [1, 2006.01]
- 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 [1, 2006.01]**
- 7/02 • Wheels in one piece [1, 2006.01]
- 7/04 • • with reinforcing means [1, 2006.01]
- 7/06 • with inserted abrasive blocks, e.g. segmental [1, 2006.01]
- 7/08 • • with reinforcing means [1, 2006.01]
- 7/10 • with cooling provisions [1, 2006.01]
- 7/12 • with apertures for inspecting the surface to be abraded [1, 2006.01]
- 7/14 • Zonally-graded wheels; Composite wheels comprising different abrasives [1, 2006.01]

B24D

- 7/16 • Bushings; Mountings [1, 2006.01]
 - 7/18 • Wheels of special form [1, 2006.01]
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9/00 Wheels or drums supporting in exchangeable arrangement a layer of flexible abrasive material, e.g. sandpaper [1, 2006.01]

- 9/02 • Expansible drums for carrying flexible material in tubular form, e.g. expanded by centrifugal force [1, 2006.01]
 - 9/04 • Rigid drums for carrying flexible material [1, 2006.01]
 - 9/06 • • able to be stripped-off from a built-in delivery spool [1, 2006.01]
 - 9/08 • Circular back-plates for carrying flexible material [1, 2006.01]
 - 9/10 • • with suction means for securing the material [1, 2006.01]
- 11/00 Constructional features of flexible abrasive materials; Special features in the manufacture of such materials [1, 2006.01]**
- 11/02 • Backings, e.g. foils, webs, mesh fabrics [1, 2006.01]
 - 11/04 • Zonally-graded surfaces [1, 2006.01]
 - 11/06 • Connecting the ends of materials, e.g. for making abrasive belts [1, 2006.01]
 - 11/08 • Equipment for after-treatment of the coated backings, e.g. for flexing the coating [1, 2006.01]
- 13/00 Wheels having flexibly-acting working parts, e.g. buffing wheels; Mountings therefor [1, 2006.01]**
- 13/02 • acting by their periphery [1, 2006.01]

- 13/04 • • comprising a plurality of flaps or strips arranged around the axis [1, 2006.01]
 - 13/06 • • the flaps or strips being individually attached [1, 2006.01]
 - 13/08 • • comprising annular or circular sheets packed side by side [1, 2006.01]
 - 13/10 • • comprising assemblies of brushes [1, 2006.01]
 - 13/12 • • comprising assemblies of felted or spongy material, e.g. felt, steel wool, foamed latex [1, 2006.01]
 - 13/14 • acting by the front face [1, 2006.01]
 - 13/16 • • comprising pleated flaps or strips [1, 2006.01]
 - 13/18 • with cooling provisions [1, 2006.01]
 - 13/20 • Mountings for the wheels [1, 2006.01]
- 15/00 Hand tools or other devices for non-rotary grinding, polishing, or stropping [1, 2006.01]**
- 15/02 • rigid; with rigidly-supported operative surface [1, 2006.01]
 - 15/04 • resilient; with resiliently-mounted operative surface [1, 2006.01]
 - 15/06 • specially designed for sharpening cutting edges [1, 2006.01]
 - 15/08 • • of knives; of razors [1, 2006.01]
 - 15/10 • • of safety-razor blades (devices with mechanically-operated parts B24B 3/50) [1, 2006.01]
- 18/00 Manufacture of grinding tools, e.g. wheels, not otherwise provided for [4, 2006.01]**
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- 99/00 Subject matter not provided for in other groups of this subclass [2010.01]**