B24B  MACHINES, DEVICES, OR PROCESSES FOR GRINDING OR POLISHING
(grinding of gear teeth B23F; of screw-threads B23G 1/36; by electro-erosion B23H; abrasive or related blasting B24C; tools for grinding, buffing or sharpening B24D; polishing B24F; polishing, buffing or sharpening C25F 3/00; grinding arrangements for use on assembled railway tracks E01B 31/17; DRESSING OR CONDITIONING OF ABRADING SURFACES; FEEDING OF GRINDING, POLISHING, OR LAPPING AGENTS)

NOTES

1. 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.
2. Attention is drawn to Notes (1) and (2) following the title of subclass B23F.
3. In groups B24B 1/00 - B24B 27/00, in connection with glass the terms “grinding” and “polishing” are treated as being equivalent.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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)

1/002 . [using electric current (B24B 37/046 and B23H 5/08 take precedence)]

1/005 . [using a magnetic polishing agent]

1/007 . [abrasive treatment to obtain an aged or worn-out appearance]

1/04 . subjecting the grinding or polishing tools, the abrading or polishing medium or work to vibration, e.g. grinding with ultrasonic frequency (polishing or abrading surfaces on work by means of tumbling apparatus B24B 31/00; 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)

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, B23F 23/1225, B26D 7/12; sharpening of saw teeth B23D 63/12; sharpening of files or rasps B23D 73/00; grinding of die-stocks or chasers B23G 1/36)

3/003 . [for skate blades]
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)

5/01  for combined grinding of surfaces of revolution and of adjacent plane surfaces on work

5/02  involving centres or chucks for holding work

5/04  for grinding cylindrical surfaces externally (grinding combined cylindrical and conical surfaces B24B 5/14)

5/042  for grinding several workpieces at once using one grinding wheel

5/045  (with the grinding wheel axis perpendicular to the workpiece axis)

5/047  of workpieces turning about a vertical axis

5/06  for grinding cylindrical surfaces internally (B24B 5/40 takes precedence)

5/065  for brake drums

5/08  involving a vertical tool spindle

5/10  involving a horizontal tool spindle

5/12  for grinding cylindrical surfaces both externally and internally with several grinding wheels

5/14  for grinding conical surfaces, e.g. of centres

5/16  for grinding peculiarly surfaces, e.g. bulged

5/162  controlled by a template (B24B 5/167 takes precedence)

5/165  controlled by gearing (B24B 5/167 takes precedence)

5/167  for rolls with large curvature radius, e.g. mill rolls

5/18  involving centreless means for supporting, guiding, floating or rotating work (centreless turning B23B 5/08; centreless grinding of threads B23G 1/42)

5/185  for internal surfaces

5/20  involving grooved abrading blocks

5/22  for grinding cylindrical surfaces, e.g. on bolts

5/225  for mass articles

5/24  for grinding conical surfaces

5/245  for mass articles

5/26  for grinding peculiarly profiled surfaces, e.g. bulged

5/28  for grinding outer surfaces concentrically to bores, involving additional centering means

5/30  Regulating-wheels; Equipment therefor

5/307  Means for supporting work

5/313  involving work-supporting means carrying several workpieces to be operated on in succession

5/32  the work-supporting means being indexable

5/35  Accessories

5/355  [Feeding means]

5/36  Single-purpose machines or devices

5/363  for grinding surfaces of revolution in situ

5/366  for grinding tyres

5/37  for grinding rolls, e.g. barrel-shaped rolls

5/38  for externally grinding travelling elongated stock, e.g. wire

5/40  for grinding tubes internally

5/42  for grinding crankshafts or crankpins

5/421  [Supports therefor]

5/423  having a grinding wheel turning around the workpiece

5/425  in situ

5/426  Portable devices therefor

5/428  [Balancing means]

5/44  for grinding rims of vehicle wheels, e.g. for bicycles
Grinding surfaces of particular forms

7/00 Machines or devices designed for grinding plane glass surfaces on work, including polishing plane glass surfaces; Accessories therefor (B24B 21/00 takes precedence; honing of plane surfaces on work B24B 33/055)

7/005 . . . [Portal grinding machines]
7/02 . . . involving a reciprocatingly-moved work-table (involving a reciprocatingly-moved grinding wheel in combination with a stationary work-table B24B 7/07)
7/04 . . . involving a rotary work-table
7/06 . . . involving conveyor belts, a sequence of travelling work-tables or the like
7/07 . . . involving a stationary work-table
7/075 . . . [using a reciprocating grinding head mounted on a movable carriage]
7/08 . . . having an abrasive wheel built in
7/10 . . . Single-purpose machines or devices (grinding tools or machines specially designed for use on assembled railway track E01B 31/17)
7/12 . . . for grinding travelling elongated stock, e.g. strip-shaped work
7/13 . . . grinding while stock moves from coil to coil
7/14 . . . for grinding slideways (portable grinding machines designed for fastening on workpieces B24B 23/08)
7/16 . . . for grinding end-faces, e.g. of gauges, rollers, nuts, piston rings (for combined grinding of surfaces of revolution and adjacent plane surfaces on work B24B 5/01; for grinding edges of bevels on work B24B 9/00)
7/162 . . . [for mass articles]
7/165 . . . [end faces of piston rings]
7/167 . . . [end faces coil springs]
7/17 . . . for simultaneously grinding opposite and parallel end faces, e.g. double disc grinders
7/18 . . . for grinding floorings, walls, ceilings or the like (machines or devices for cleaning floorings A47L 11/00, A47L 13/00)
7/182 . . . [for walls and ceilings]
7/184 . . . [pole sanders]
7/186 . . . [with disc-type tools]
7/188 . . . [with cylinder- or belt-type tools]
7/19 . . . for grinding plane decorative patterns
7/20 . . . characterised by a special design with respect to properties of the material of non-metallic articles to be ground
7/22 . . . for grinding inorganic material, e.g. stone, ceramics, porcelain
7/222 . . . [for grinding vertical surfaces (B24B 7/265 takes precedence)]
7/224 . . . [Portal grinding machines; Machines having a tool movable in a plane]
7/226 . . . [in which the tool is supported by the workpiece]
7/228 . . . [for grinding thin, brittle parts, e.g. semiconductors, wafers (grinding edges of thin, brittle parts B24B 9/065)]

7/24 . . . for grinding or polishing glass
7/241 . . . . . . [Methods]
7/242 . . . . . . [for plate glass]
7/244 . . . . . . [continuous]
7/245 . . . . . . [discontinuous]
7/247 . . . . . . [using reciprocating grinding tools]
7/248 . . . . . . [high-frequency reciprocating tools, e.g. magnetically driven]
7/26 . . . for simultaneously grinding or polishing opposite faces of continuously travelling sheets or bands
7/265 . . . . . . [of vertical surfaces]
7/28 . . . for grinding wood
7/30 . . . for grinding plastics

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)

9/002 . . . [for travelling workpieces]
9/005 . . . [for mass articles]
9/007 . . . [for end faces of tubes (cleaning pipe ends or pipe fittings, e.g. before soldering B08B 9/021)]
9/02 . . . characterised by a special design with respect to properties of materials specific to articles to be ground
9/04 . . . [of metal, e.g. skate blades (B24B 3/003 takes precedence)]
9/06 . . . [of non-metallic inorganic material, e.g. stone, ceramics, porcelain]
9/065 . . . . . . [of thin, brittle parts, e.g. semiconductors, wafers]
9/08 . . . [of glass]
9/085 . . . . . . [for watch glasses]
9/10 . . . . . . [of plate glass]
9/102 . . . . . . [for travelling sheets]
9/105 . . . . . . [using a template]
9/107 . . . . . . [for glass plates while they are turning]
9/12 . . . . . . [of hollow glassware, e.g. drinking glasses, preserve jars, television picture tube viewing panels]
9/14 . . . . . . [of optical work, e.g. lenses, prisms (control of the position of the tool for bevelling optical work B24B 47/225)]
9/142 . . . . . . [for contact lenses]
9/144 . . . . . . [the spectacles being used as a template]
9/146 . . . . . . [Accessories, e.g. lens mounting devices]
9/148 . . . . . . [electrically, e.g. numerically, controlled]
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)]
9/161 . . . . . . [Dops, dop holders]
9/162 . . . . . . [by bruting, i.e. rubbing two precious stones against each other]
9/163 . . . . . . [of gem stones or convex surfaces, cabochons]
9/164 . . . . . . [of diamond tools]
9/165 . . . . . . [for grinding cavities in gem stones]
Grinding surfaces of particular forms

11/00 Machines or devices designed for grinding spherical surfaces or parts of spherical surfaces on work; Accessories therefor (specially designed for optical surfaces B24B 13/00; for seat surfaces B24B 15/00)

11/02 . . . for grinding balls
11/04 . . . involving grinding wheels
11/06 . . . acting by the front faces, e.g. of plane, grooved or bevelled shape
11/08 . . . acting by the circumference
11/10 . . . of cup type

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)

13/0006 . . . {for intraocular lenses}
13/0012 . . . {for multifocal lenses}
13/0018 . . . {for plane optical surfaces}
13/0025 . . . {for contact lenses}
13/0031 . . . {Machines having several working posts; Feeding and manipulating devices}
13/0037 . . . {the lenses being worked by different tools, e.g. for rough-grinding, fine-grinding, polishing}
13/0043 . . . {the workpieces being deformed during the grinding operation}
13/005 . Blocking means, chucks or the like; Alignment devices
13/0052 . . . {Lens block moulding devices}
13/0055 . . . {Positioning of lenses; Marking of lenses}
13/0057 . . . {Deblocking of lenses}
13/01 . Specific tools, e.g. bowl-like; Production, dressing or fastening of these tools
13/012 . . . {conformable in shape to the optical surface, e.g. by fluid pressure acting on an elastic membrane}
13/015 . of television picture tube viewing panels, headlight reflectors or the like
13/02 . by means of tools with abrading surfaces corresponding in shape with the lenses to be made
13/023 . . . {for grinding several lenses simultaneously}
13/026 . . . {the contact between tool and workpiece being a line}
13/04 . . . {for grinding of lenses involving grinding wheels controlled by gearing (B24B 13/06 takes precedence)}
13/043 . . . {using cup-type grinding wheels}
13/046 . . . {using a pointed tool or scraper-like tool (B24B 13/015 and B24B 13/065 take precedence)}
13/06 . . . {grinding of lenses, the tool or work being controlled by information-carrying means, e.g. patterns, punched tapes, magnetic tapes}
13/065 . . . {using a template}

15/00 Machines or devices designed for grinding seat surfaces; Accessories therefor (for spherical surfaces in general B24B 11/00)

15/02 . . . in valve housings
15/03 . . . using portable or mobile machines
15/04 . . . on valve members
15/06 . . . on openings of bottles; on bottle stoppers or the like
15/08 . . . for grinding co-operating seat surfaces by moving one over the other

17/00 Special adaptations of machines or devices for grinding controlled by patterns, drawings, magnetic tapes or the like (machines or devices so-controlled for grinding the edges of lenses B24B 9/14; for grinding or polishing optical lens surfaces B24B 13/06; for grinding non-circular cross-sections B24B 19/08; for grinding trochoidal surfaces B24B 19/09; for grinding cams B24B 19/12; for grinding turbine blades or the like B24B 19/14; such control means per se B23Q 33/00, B23Q 35/00, G05); Accessories therefor

17/02 . . . involving mechanical transmission means only
17/021 . . . {using a pantograph}
17/023 . . . {using two or more templates}
17/025 . . . {for grinding rotating workpieces (three dimensional)}
17/026 . . . {for the periphery of plane workpieces, e.g. cams, lenses}
17/028 . . . {using an abrasive belt}
17/04 . . . involving optical auxiliary means, e.g. optical projection form grinding machines
17/06 . . . combined with electrical transmission means, e.g. controlled by photoelectric cells
17/08 . . . involving fluid transmission means only
17/10 . . . involving electrical transmission means only, e.g. controlled by magnetic tape

19/00 Single-purpose machines or devices for particular grinding operations not covered by any other main group (tapering, chamfering, or relief cutting of taps or reamers B24B 3/20, B24B 3/22, grinding screw threads B23G)

19/001 . . . {for table cutlery}
19/002 . . . {for knife blades (sharpening table knife blades B24B 3/54)}
19/003 . . . {for the underframes of locomotives}
19/004 . . . {for grinding rails, T, I, H or other similar profiles}
19/005 . . . {for grinding skins or similar sheets}
19/006 . . . {for grinding hollow glassware, bottles}
19/007 . . . {for grinding buttons, nail heads, screw heads, bottle capsules or the like}
19/008 . . . {for grinding ceramics, pottery, table ware}
19/009 . . . {for grinding profiled workpieces using a profiled grinding tool}
19/02 . . . for grinding grooves, e.g. on shafts, in casings, in tubes, homokinetic joint elements
19/022 . . . {for helicoidal grooves (B24B 19/04 takes precedence)}
19/024 . . . {on electrical resistances}
19/026 . . . {for checks for pilger rolls}
19/028 . . . {for microgrooves or oil spots}
19/03 . . . for grinding grooves in glass workpieces, e.g. decorative grooves
19/04 . . . for fluting drill shanks
Grinding surfaces of particular forms

B24B

21/00 Machines or devices using grinding or polishing belts (for sharpening cutting edges of tools B24B 3/00; portable belt-grinding machines B24B 23/06); Accessories therefor

21/002 . . . (for grinding edges or bevels)
21/004 . . . (using abrasive rolled strips)
21/006 . . . (for special purposes, e.g. for television tubes, car bumpers)
21/008 . . . (Machines comprising two or more tools or having several working posts (B24B 21/006 takes precedence))
21/02 . . . for grinding rotationally symmetrical surfaces
21/025 . . . (for travelling elongated stock, e.g. wire)
21/04 . . . for grinding plane surfaces
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)
21/08 . . . Pressure shoes; {Pressure members, e.g.} backing belts

21/10 . . . involving a rigid member, e.g. pressure bar, table, pressing or supporting the belt over substantially its whole span
21/12 . . . involving a contact wheel or roller pressing the belt against the work
21/14 . . . Contact wheels; Contact rollers; Belt supporting rolls
21/16 . . . for grinding other surfaces of particular shape (single purpose machines for grinding cams or camshafts B24B 19/12)
21/165 . . . {for vanes or blades of turbines, propellers, impellers, compressors and the like}
21/18 . . . Accessories
21/20 . . . for controlling or adjusting the tracking or the tension of the grinding belt
21/22 . . . for producing a reciprocation of the grinding belt normal to its direction of movement

23/00 Portable grinding machines, e.g. hand-guided; Accessories therefor (B24B 7/18 takes precedence; for grinding seat surfaces B24B 15/00; having a flexible shaft B24B 27/027; grinders for cutting-off B24B 27/08; dust extraction equipment B24B 55/10; details or components, e.g. casings, bodies of portable power-driven tools not particularly related to the operation performed B25F 5/00)

23/005 . . . (auxiliary devices used in connection with portable grinding machines, e.g. holders)
23/02 . . . with rotating grinding tools; Accessories therefor
23/022 . . . (Spindle-locking devices, e.g. for mounting or removing the tool)
23/024 . . . (driven by hands or feet)
23/026 . . . (Fluid driven)
23/028 . . . (Angle tools)
23/03 . . . the tool being driven in a combined movement
23/04 . . . with oscillating grinding tools; Accessories therefor
23/043 . . . (reciprocatingly driven by a pneumatic or hydraulic piston)
23/046 . . . (Clamping or tensioning means for abrasive sheets)
23/06 . . . with abrasive belts, e.g. with endless travelling belts; Accessories therefor
23/08 . . . Portable grinding machines designed for fastening on workpieces or other parts of particular section, e.g. for grinding commutators

25/00 Grinding machines of universal type

27/00 Other grinding machines or devices

27/0007 . . . (Movable machines)
27/0015 . . . (Hanging grinding machines)
27/0023 . . . (grinding machines with a plurality of working posts}
27/003 . . . (using a tool turning around the work-piece)
27/0038 . . . (with the grinding tool mounted at the end of a set of bars)
27/0046 . . . (Column grinding machines)
27/0053 . . . (Radial grinding machines)
27/0061 . . . (having several tools on a revolving tools box)
27/0069 . . . (with means for feeding the work-pieces to the grinding tool, e.g. turntables, transfer means (see also B24B 27/0023, B24B 7/16))
27/0076 . . . (grinding machines comprising two or more grinding tools)
Grinding surfaces of particular forms

B24B

31/0084 . [the grinding wheel support being angularly adjustable]
27/0032. {Grinding attachments for lathes or the like}
27/02 . Bench grinders
27/027 . having a flexible shaft
27/033 . for grinding a surface for cleaning purposes, e.g. for descaling or for grinding off flaws in the surface
27/04 . . . Grinding machines or devices in which the grinding tool is supported on a swinging arm
27/06 . . . Grinders for cutting-off
27/0608 . . . [using a saw movable on slideways]
27/0616 . . . [using a tool turning around the workpiece]
27/0625 . . . [whereby the workpieces are radially fed by means of a turning drum]
27/0633 . . . [using a cutting wire]
27/0641 . . . [for grinding holes]
27/065 . . . [the saw being mounted on a pivoting arm]
27/0658 . . . [for cutting workpieces while they are turning about their longitudinal axis]
27/0666 . . . [the saw blade being arranged underneath a work-table]
27/0675 . . . [methods therefor]
27/0683 . . . [Accessories therefor]
27/0691 . . . [for controlling the feeding or return movement of the saw]
27/08 . . . being portable
27/085 . . . [Stands therefor]

Polishing surfaces (machines or devices for grinding or polishing glass B24B 7/24, B24B 9/00, B24B 13/00; for grinding or polishing using belts B24B 21/00); Finishing surfaces (B24B 3/00 takes precedence)

29/00 Machines or devices for polishing surfaces on work by means of tools made of soft or flexible material or with or without the application of solid or liquid polishing agents (polishing tools in general B24D 13/00)
29/005 . . . [using brushes]
29/02 . . . designed for particular workpieces
29/04 . . . for rotationally symmetrical workpieces, e.g. ball-, cylinder- or cone-shaped workpieces
29/06 . . . for elongated workpieces having uniform cross-section in one main direction
29/08 . . . the cross-section being circular, e.g. tubes, wires, needles
29/10 . . . for table cutlery

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 and/or the abrasive material is loose; Accessories therefor (abrasive blasting machines B24C 3/26)
31/003 . . . [whereby the workpieces are mounted on a holder and are immersed in the abrasive material]
31/006 . . . [for grinding the interior surfaces of hollow workpieces]
31/02 . . . involving rotary barrels
31/0206 . . . [for descaling wires travelling through the rotating drum]
31/0212 . . . [the barrels being submitted to a composite rotary movement]
31/0218 . . . [the barrels are moving around two parallel axes, e.g. gyrotary, planetary movement (B24B 31/033 takes precedence)]
31/0224 . . . [the workpieces being fitted on a support]
31/023 . . . with tiltable axis
31/027 . . . with additional oscillating movement
31/03 . . . the workpieces being continuously-travelling
31/033 . . . having several rotating or tumbling drums with parallel axes
31/037 . . . having several rotating or tumbling drums with non-parallel axes (B24B 31/0212, B24B 31/0218 take precedence)
31/05 . . . involving a container formed as a conveyor belt
31/06 . . . involving oscillating or vibrating containers
31/062 . . . [the workpieces travelling through the containers (B24B 31/067, B24B 31/072 take precedence)]
31/064 . . . [the workpieces being fitted on a support]
31/067 . . . involving a bowl formed as a straight through
31/073 . . . involving a bowl being ring- or spiral-shaped
31/10 . . . involving other means for tumbling of work
31/102 . . . [using an alternating magnetic field]
31/104 . . . involving a rotating bowl, in which a ring zone of abrasive powder is formed by centrifugal force
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
31/112 . . . using magnetically consolidated grinding powder, moved relatively to the workpiece under the influence of pressure
31/116 . . . using plastically deformable grinding compound, moved relatively to the workpiece under the influence of pressure
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 (in general B24B 55/00)
31/14 . . . Abrading-bodies specially designed for tumbling apparatus, e.g. abrading-balls
31/16 . . . Means for separating the workpiece from the abrasive medium at the end of operation

33/00 Honing machines or devices; Accessories therefor
33/02 . . . designed for working internal surfaces of revolution, e.g. of cylindrical or conical shapes
33/022 . . . [Horizontal honing machines]
33/025 . . . [Internal surface of conical shape]
33/027 . . . [using an unexpandable tool]
33/04 . . . designed for working external surfaces of revolution
33/05 . . . designed for working grooves, e.g. in gun barrels
33/055 . . . designed for working plane surfaces
33/06 . . . with controlling or gauging equipment (gauging in general G01B; controlling in general G05)
33/08 . . . Honing tools [(for manufacturing gear teeth B23F 21/03)]
33/081 . . . [for external surfaces]
33/082 . . . [having only one honing stone]
33/083 . . . [with different sets of honing stones]
33/084 . . . [having honing stones at the end of bars]
33/085 . . . [in which the honing element consists of a deformable body]
33/086 . . . [Abrading blocks for honing tools]
33/087 . . . [provided with measuring equipment]
33/088 . . . [for holes having a shape other than cylindrical]
33/089 . . . [with a rack-and-pinion mechanism for expanding the honing segments]
33/10 . . . Accessories
Polishing surfaces; Finishing surfaces

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<th>CPC</th>
<th>Description</th>
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</tr>
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<td>37/00</td>
<td>Lapping machines or devices; Accessories</td>
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<td>Components such as frames, beds, carriages, headstocks</td>
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<tr>
<td>37/20</td>
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</tbody>
</table>

Component parts of grinding machines or devices so far as specially adapted to grinding (if applicable to other machine tools, B23Q takes precedence; if peculiar to a particular type of machine or device, see the relevant group therefor)

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<tr>
<td>41/00</td>
<td>Component parts such as frames, beds, carriages, headstocks</td>
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B24B
Component parts of grinding machines or devices so far as specially adapted to grinding

45/00 Means for securing grinding wheels on rotary arbors (suppression of vibrations in systems F16F 15/00; testing static or dynamic balancing of machines G01M 1/00)

45/003 . . . . . . . (Accessories therefor)
45/006 . . . . . . . [Quick mount and release means for disc-like wheels, e.g. on power tools]

47/00 Drives or gearings; Equipment therefor
47/02 . . . for performing a reciprocating movement of carriages or work-tables
47/04 . . . . . . . by mechanical gearing only
47/06 . . . . . . . by liquid or gas pressure only
47/08 . . . . . . . by mechanical gearing combined with fluid systems
47/10 . . . for rotating or reciprocating working-spindles carrying grinding wheels or workpieces
47/12 . . . . . . . by mechanical gearing or electric power (B24B 47/16 takes precedence)
47/14 . . . . . . . by liquid or gas pressure (B24B 47/16 takes precedence)
47/16 . . . . . . . performing a reciprocating movement, e.g. during which the sense of rotation of the working-spindle is reversed
47/18 . . . . . . . for rotating the spindle at a speed adaptable to wear of the grinding wheel
47/20 . . . . . . . relating to feed movement
47/203 . . . . . . . [driven by hand]
47/206 . . . . . . . [for centreless grinding machines; for machines comprising work supports, e.g. steady rests]
47/22 . . . . . . . Equipment for exact control of the position of the grinding tool or work at the start of the grinding operation
47/225 . . . . . . . [for bevelling optical work, e.g. lenses]
47/25 . . . . . . . for compensating grinding wheel abrasion resulting from dressing
47/26 . . . . . . . Accessories, e.g. stops
47/28 . . . . . . . Equipment for preventing backlash

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)

49/003 . . . . . . . [involving acoustic means]
49/006 . . . . . . . [taking regard of the speed]
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)
49/03 . . . . . . . according to the final size of the previously ground workpiece
49/04 . . . . . . . involving measurement of the workpiece at the place of grinding during grinding operation
49/045 . . . . . . . [Specially adapted gauging instruments]
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
49/06 . . . . . . . requiring comparison of the workpiece with standard gauging plugs, rings or the like

49/08 . . . . . . . involving liquid or pneumatic means
49/10 . . . . . . . involving electrical means (B24B 49/02, B24B 49/08 take precedence)
49/105 . . . . . . . [using eddy currents]
49/12 . . . . . . . involving optical means
49/14 . . . . . . . taking regard of the temperature during grinding
49/16 . . . . . . . taking regard of the load
49/165 . . . . . . . [for grinding tyres]
49/18 . . . . . . . taking regard of the presence of dressing tools
49/183 . . . . . . . [Wear compensation without the presence of dressing tools]
49/186 . . . . . . . [taking regard of the wear of the dressing tools]

51/00 Arrangements for automatic control of a series of individual steps in grinding a workpiece (if applicable to other machine tools, G05B takes precedence)

53/00 Devices or means for dressing or conditioning abrasive surfaces (compensation for grinding wheel abrasion resulting from dressing B24B 47/25)

53/001 . . . . . . . [using the electric current]
53/003 . . . . . . . [using at least two conditioning tools]
53/005 . . . . . . . [Positioning devices for conditioning tools]
53/007 . . . . . . . Cleaning of grinding wheels
53/013 . . . . . . . Application of loose grinding agent as auxiliary tool during truing operation
53/017 . . . . . . . Devices or means for dressing, cleaning or otherwise conditioning lapping tools
53/02 . . . . . . . of plane surfaces on abrasive tools (B24B 53/017 takes precedence)
53/04 . . . . . . . of cylindrical or conical surfaces on abrasive tools or wheels (B24B 53/017 takes precedence)
53/047 . . . . . . . equipped with one or more diamonds
53/053 . . . . . . . using a rotary dressing tool
53/06 . . . . . . . of profiled abrasive wheels
53/062 . . . . . . . [using rotary dressing tools (B24B 53/07 takes precedence)]
53/065 . . . . . . . having other than straight profiles, e.g. crowned (B24B 53/07 takes precedence)
53/07 . . . . . . . by means of forming tools having a shape complementary to that to be produced, e.g. blocks, profile rolls
53/075 . . . . . . . for workpieces having a grooved profile, e.g. gears, splined shafts, threads, worms (B24B 53/07 takes precedence)
53/08 . . . . . . . controlled by information means, e.g. patterns, templets, punched tapes or the like
53/081 . . . . . . . [by means of a template]
53/082 . . . . . . . [for tools having a screw-thread profile]
53/083 . . . . . . . [for tools having a screw-thread profile (B24B 53/081 takes precedence)]
53/085 . . . . . . . for workpieces having a grooved profile, e.g. gears, splined shafts, threads, worms (B24B 53/082, B24B 53/083, B24B 53/09 takes precedence)
53/09 . . . . . . . having transfer elements formed as pantograph mechanism
53/095 . . . . . . . Cooling or lubricating during dressing operation (cooling the grinding surfaces B24B 55/02)
53/10 . . . . . . . of travelling flexible backings coated with abrasives; Cleaning of abrasive belts
53/12 . . . . . . . Dressing tools; Holders therefor
Dressing tools equipped with rotary rollers or cutters; Holders therefor

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 (of general applicability for machine tools B23Q 11/00; in general F16P)

Equipment for cooling the grinding surfaces, e.g. devices for feeding coolant (cooling or lubricating during dressing operation B24B 53/095; incorporated in grinding wheels B24D)

. . . designed as a complete equipment for feeding or clarifying coolant

Protective covers for the grinding wheel

. . { with cooling means incorporated}

. . specially designed for portable grinding machines

. . . . { with rotating tools}

. . . . { with oscillating tools}

. . . . { with belt-like tools}

Dust extraction equipment on grinding or polishing machines (B24B 31/12 takes precedence)

. . specially designed for belt grinding machines

. . specially designed for portable grinding machines, e.g. hand-guided

. . . . { with rotating tools}

. . . . { with oscillating tools}

. . . . { with belt-like tools}

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

Devices for feeding, applying, grading or recovering grinding, polishing or lapping agents (for abrasive blasting B24C 1/00, B24C 7/00)

. for feeding of fluid, sprayed, pulverised, or liquefied grinding, polishing or lapping agents

. for feeding of solid grinding, polishing or lapping agents