

67**Grinding and polishing**

- 67a** **Machines, devices and processes for grinding and polishing various articles, surfaces and materials; scouring by grinding, fire polishing, imprint polishing, etc., dressing of grinding tools; protective devices; abrasive tool feeding**
- 67b** **Sand blast apparatus**
- 67c** **Grinding tools, structure and manufacture thereof**

- 67a** **Machines, devices and processes for grinding and polishing various articles, surfaces and materials; scouring by grinding, fire polishing, imprint polishing, etc., dressing of grinding tools; protective devices; abrasive tool feeding** (grinding and polishing of wood 38c-2; of wood for paper production 55a-1; of fabrics 8b-25: of leather 28b-15, of footwear 71e-57, 71e-95/20 – 71e-95/24; of saws 49c-22/04; of cards during operations 76b-16; gold leaf polishing 49l-2; of horn and buttons 39a-6/02, 39a3-19/04; of needles 7e-5; of teeth 30b-5/01; fire polishing of glass 32a-31, 32a-32, 32a-29/00; lacquering of wood 75c-5; formation of tooth surfaces, also by grinding, in gears 49d; grinding machines used in the printing art 15e-15/03)

Tool grinding machines

- 67a-1 Grinding machines for milling cutters and reamers
- 67a-2 Grinding machines for twist drills
- 67a-3 Grinding machines for threads and thread dies
- 67a-4 Machines for grinding and sharpening embroidery machine borers, engraving tools, and ordinary drills
- 67a-5 Grinding machines for tools of a general nature: awls, chisels, lathe tools, plane bits, various types of hammers, [mining] crown drill bits, hatchets, etc.

Knife grinding and polishing machines

- 67a-6 Grinding machines for knives and scissors, manually operated, and for machine blades with straight edge (small hand grinding devices with reciprocating sharpening motion 67c-4)
- 67a-7 Machines and devices with rotary tools for grinding and sharpening razors and razor blades (simple sharpening devices with reciprocating grinding motion 67c-5)
- 67a-8 Grinding machines for knives designed for special purposes: shear blades, doctor blades, cross-shaped knives, disk knives, mowing machine blades, cutters comprising zigzag or otherwise curved, bent or spiral-shaped cutting edges, band knives (grinding devices for circular disk blades in combination with slicing machines 66b-9)

Machines and devices for grinding and polishing solids of revolution: cylindrical grinding machines

- 67a-9 Machines for grinding and polishing cylindrical bodies in general, cylindrical, tapered, shaped bodies: shafts, rods, wire, tubes
- 67a-10 Machines and devices for grinding and polishing crank pins, the outer, inner and lateral faces of all kinds of rings, e.g. piston rings, bushings, hollow vessels, railway wheels
- 67a-11 Machines, etc. for cylindrical grinding in situ, for surfacing and regrinding solids of revolution which have lost their roundness, cylinders, belt pulleys, shafts, collectors (21d1-61/02) etc.
- 67a-12 Machines and devices for grinding and polishing complete surfaces of balls and other fully rounded bodies (ball grinding drums 67a-23)

Machines and devices for grinding, polishing and cleaning flat surfaces

67a-13 Machines and devices for grinding the flat surfaces of metal elements, including sheet metal and of narrow edges of single or stacked metal sheets, and of measuring gauges or members

67a-14 Machines and devices for grinding natural or artificial stones, including uneven surfaces (stone processing, general 80d)

67a-15 Grinding and polishing machines for plate glass and glass bodies in general (for special glass bodies 67a-16 – 67a-20; processing by sand blast 67b)

Machines for grinding and polishing special-surface glass articles, bevelled edges of all kinds, spherical and parabolic surface portions and other optical surfaces, precious stones and pearls

67a-16 Bevelling plate glass (spectacle lenses 67a-19)

67a-17 Grinding and polishing machines for hollow glassware

67a-18 Bevelling hollow glassware and other glass articles (bevel-edge plates 67a-16)

67a-19 Grinding machines for spectacle lenses, edge grinding (for plate glass 67a-16) and grind-boring of holes in spectacle lenses (32a-33; 32a-33/00; 42h; 80d-9), for optical lenses and for spherical, toroidal, multifocal and cylindrical surfaces (67a-31/03; 80d-9)

67a-20 Grinding machines for parabolic surfaces and other surfaces produced by conic sections, as well as for reflectors

67a-21 Grinding machines for precious stones and pearls

Machines for grinding and polishing various articles, in particular mass-produced articles

67a-22 Grinding machines for steel springs and needles (67a-23; 7e-5)

67a-23 Grinding, polishing and cleaning drums, also for balls (in combination with sand blast 67b; with chemically active materials 31c-32; 32b-7; 32b-19/00; 48d-2; 48d1-3/00)

67a-24/01 Machines for centre-less grinding and polishing of surfaces of revolution and end faces of rollers, bolts, etc.

67a-24/02 Grinding and polishing machines for bushings, knobs, small disks, buttons (39a-6/02; 39a3-19/04; 39a7), screw heads, rivet heads, chain links, etc.

67a-25 Bottle cap polishing

Auxiliary devices for grinding and polishing machines; grinding and polishing machines of special types and materials; drives, elements

67a-26 Machines and devices for truing, dressing and sharpening grinding tools

67a-27 Devices for supplying coolants and abrasives to grinding apparatus

67a-28 Safety and dust suction devices for grinding machines

67a-29 Grinding machines with travelling abrading band (for grinding wood 38c-2)

67a-30 Card grinding machines (76b-16)

67a-31/01 Simple grindstones, hand or foot operated or mechanically driven

67a-31/02 Grinding machines with special frames and spindle arrangements, with several tools, special tools and special drives (drives in particular 67a-32/02, 67a-33)

67a-31/03 Grinding machines for special surfaces, e.g. straight and curved grooves, bent, winding, oval, and irregular surfaces, oval chucks (42a; 49)

67a-31/04 Grinding machines for the sealing surfaces of valves, slide valves, hatches, stoppers

67a-31/10 Machines for grinding and polishing special articles: machine elements (tooth flanks 49d), springs, pointed articles, eyelets, rails (grinding rails in railway tracks and rail joints 19a-31/12), locomotive frames, dies for wire drawing (boring of dies otherwise than by grinding 80d-9), bearing recesses, pointing of rods, centre punches, phonograph needles, reeds for musical instruments, spades, tableware, cutlery, also by means of steel burnishers, horseshoes, etc.

67a-31/20 Machines for grinding and polishing miscellaneous special materials

67a-31/30 Miscellaneous special grinding processes and devices

- Elements and drives for grinding and polishing machines and devices
- 67a-32/01 Workpiece and tool fasteners and holders, work tables (87a-22), supports, guides, couplings, indexing heads, etc.
- 67a-32/02 Drives, table movement, control devices of all kinds, releasing and engaging devices, work-piece feed etc. (hydraulic drives 67a-33)
- 67a-33 Hydraulic and pneumatic drives for grinding machines of all kinds (hydraulic drives, general 47h-22; hydraulic or pneumatic workpiece or tool fastening to grinding machines 67a-15, 67a-19, 67a-32)
- 67b Sand blast apparatus**
- Devices for grinding objects, surfaces, materials, by means of whirling sand or similar granular material, including drum-type workpiece holders, processes and elements (cleaning devices for castings 31c-32; treatment of glass by sand blasting 32b-7, 32b-19/00; pipe cleaning 13e-7, 24g-4/01)
- 67b (No subdivision)
- 67c Grinding tools, structure and manufacture thereof**
- 67c-1 Grinding and polishing disks and drums, abrasive paper and cloth, mechanical structure (wire and circular brushes 9b-6)
- 67c-2 Non-rotary grinding and polishing tools (for shoemaking 71c-56, 71c-95/16; 71c-95/18)
- 67c-4 Simple grinding and sharpening tools for cutting edges of all kinds, knives, scissors, etc. (grinding machines 67a-6; whetting machines 45c-4, 45c-3/00)
- 67c-5 Sharpening devices for used razor and razor blades, with reciprocating motion and also with oscillating rotary grinding motion (with rotary tools 67a-7)