

CPC**COOPERATIVE PATENT CLASSIFICATION****B23C**

MILLING (broaching [B23D](#); broach-milling in making gears [B23E](#); arrangement for copying or controlling [B23Q](#))

B23C 1/00

Milling machines not designed for particular work or special operations

B23C 1/002

- . { Gantry-type milling machines }

B23C 1/005

- . { with a tool moving in a closed path around the workpiece }

B23C 1/007

- . { movable milling machines, e.g. on rails }

B23C 1/02

- . with one horizontal working-spindle

B23C 1/025

- .. with working-spindle movable in a fixed position

B23C 1/027

- .. with working-spindle movable in a vertical direction

B23C 1/04

- . with a plurality of horizontal working-spindles

B23C 1/045

- .. { Opposed - spindle machines }

B23C 1/06

- . with one vertical working-spindle

B23C 1/08

- . with a plurality of vertical working-spindles

B23C 1/10

- . with both horizontal and vertical working-spindles

B23C 1/12

- . with spindle adjustable to different angles, e.g. either horizontal or vertical

B23C 1/14

- . (work tables for machine tools in general [B23Q 1/00](#))

B23C 1/16

- . specially designed for control by copying devices { not used; see [B23Q 35/00](#) }

B23C 1/18

- .. for milling while revolving the work

B23C 1/20

- . Portable devices or machines (details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#)); Hand-driven devices or machines

B23C 3/00

Milling particular work; Special milling operations; Machines therefor (milling gear-teeth [B23E](#), { heat assisted machining [B23P 25/00](#) })

B23C 3/002

- . { Milling elongated workpieces }

B23C 3/005

- .. { Rails }

B23C 3/007

- . { Milling end surfaces of nuts or tubes }

B23C 3/02

- . Milling surfaces of revolution ([B23C 3/06](#), [B23C 3/08](#) take precedence)

- B23C 3/023 .. { Milling spherical surfaces }
- B23C 3/026 ... { Milling balls }
- B23C 3/04 .. while revolving the work
- B23C 3/05 .. Finishing valves or valve seats {(machines for grinding seat surfaces, e.g. in valve housings, [B24B 15/00](#))}
- B23C 3/051 ... { Reconditioning of valve seats }
- B23C 3/053 { having means for guiding the tool carrying spindle }
- B23C 3/055 { for engines }
- B23C 3/056 { for taps or valves }
- B23C 3/058 ... { Reconditioning of valves }

- B23C 3/06 . Milling crankshafts

- B23C 3/08 . Milling cams, camshafts, or the like

- B23C 3/10 . Relief milling ([lathes or turning devices for relieving B23B 5/42](#))

- B23C 3/12 . Trimming or finishing edges, e.g. deburring welded corners
- B23C 3/122 .. { of pipes or cylinders }
- B23C 3/124 ... { internally }
- B23C 3/126 .. { Portable devices or machines for chamfering edges }
- B23C 3/128 .. { Trimming or finishing edges of doors and windows }

- B23C 3/13 . Surface milling of plates, sheets or strips

- B23C 3/14 . Scrubbing or peeling ingots or similar work-pieces

- B23C 3/16 . Working surfaces curved in two directions
- B23C 3/18 .. for shaping screw-propellers, turbine blades, or impellers
- B23C 3/20 .. for shaping dies

- B23C 3/22 . Forming overlapped joints, e.g. of the ends of piston-rings

- B23C 3/24 . Making square or polygonal ends on work-pieces, e.g. key studs on tools

- B23C 3/26 . Making square or polygonal holes in work-pieces, e.g. key holes in tools

- B23C 3/28 . Grooving workpieces ([tread-cutting by milling B23G 1/32](#))
- B23C 3/30 .. Milling straight grooves, e.g. keyways
- B23C 3/305 ... { in which more than one milling tool is used simultaneously, e.g. for sheet material }
- B23C 3/32 .. Milling helical grooves, e.g. in making twist-drills
- B23C 3/34 .. Milling grooves of other forms, e.g. circumferential
- B23C 3/35 .. Milling grooves in keys
- B23C 3/355 ... { Holders for the template keys }

- B23C 3/36 . Milling milling-cutters ([B23C 3/28](#) takes precedence)
- B23C 5/00** **Milling-cutters** (for cutting gear-teeth [B23F 21/12](#))
- B23C 5/003 . { with vibration suppressing means }
- B23C 5/006 . { Details of the milling cutter body }
- B23C 5/02 . characterised by the shape of the cutter
- B23C 5/04 . . Plain cutters, i.e. having essentially a cylindrical or tapered cutting surface of substantial length ([B23C 5/10](#) takes precedence)
- B23C 5/06 . . Face-milling cutters, i.e. having only or primarily a substantially flat cutting surface
- B23C 5/08 . . Disc-type cutters
- B23C 5/10 . . Shank-type cutters, i.e. with an integral shaft
- B23C 5/1009 . . . { Ball nose end mills }
- B23C 5/1018 { with permanently fixed cutting inserts }
- B23C 5/1027 { with one or more removable cutting inserts }
- B23C 5/1036 { having a single cutting insert, the cutting edges of which subtend 180 degrees }
- B23C 5/1045 { having a cutting insert, the cutting edge of which subtends substantially 90 degrees }
- B23C 5/1054 . . . { T slot cutters }
- B23C 5/1063 { with permanently fixed cutting inserts }
- B23C 5/1072 { with removable cutting inserts }
- B23C 5/1081 . . . { with permanently fixed cutting inserts ([B23C 5/1054](#) and [B23C 5/1081](#) take precedence)}
- B23C 5/109 . . . { with removable cutting inserts }
- B23C 5/12 . . Cutters specially designed for producing particular profiles ([B23C 5/10](#) takes precedence)
- B23C 5/14 . . . essentially comprising curves {([B23C 5/1009](#) takes precedence)}
- B23C 5/16 . characterised by physical features other than shape
- B23C 5/165 . . { with chipbreaking or chipdividing equipment (for turning machines [B23B 25/02](#); turning tools [B23B 27/00](#); drilling machines [B23B 47/34](#))}
- B23C 5/18 . . with permanently-fixed cutter-bits or teeth
- B23C 5/20 . . with removable cutter bits or teeth { or cutting inserts }
- B23C 5/202 . . . { Special by shaped plate-like cutting inserts, i.e. length greater than or equal to width, width greater than or equal to thickness (with removable plate-like turning cutting inserts of special form [B23B 27/141](#))}
- B23C 5/205 { having chip-breakers }
- B23C 5/207 { having a special shape }
- B23C 5/22 . . . Securing arrangements for bits or teeth { or cutting inserts }

B23C 5/2204	....	{ with cutting inserts clamped against the walls of the recess in the shank by a clamping member acting upon the wall of a hole in the insert }
B23C 5/2208	.....	{ for plate-like cutting inserts (B23C 5/2226 , B23C 5/223 , B23C 5/2234 take precedence)}
B23C 5/2213	.....	{ Special by shaped cutting inserts }
B23C 5/2217	.....	{ having chip-breakers }
B23C 5/2221	.....	{ having a special shape }
B23C 5/2226	.....	{ for plate-like cutting inserts fitted on an intermediate carrier }
B23C 5/223	.....	{ for plate-like cutting inserts fitted on a shank, fixed in the cutter body }
B23C 5/2234	.....	{ for plate-like cutting inserts fitted on a ring or ring segment }
B23C 5/2239	....	{ with cutting inserts clamped by a clamping member acting almost perpendicular on the cutting face }
B23C 5/2243	.....	{ for plate-like cutting inserts (B23C 5/2252 , B23C 5/2256 , B23C 5/226 take precedence)}
B23C 5/2247	.....	{ having a special shape }
B23C 5/2252	.....	{ for plate-like cutting inserts fitted on an intermediate carrier }
B23C 5/2256	.....	{ for plate-like cutting inserts fitted on a shank, fixed in the cutter body }
B23C 5/226	.....	{ for plate-like cutting inserts fitted on a ring or ring segment }
B23C 5/2265	....	{ by means of a wedge }
B23C 5/2269	.....	{ for plate-like cutting inserts (B23C 5/2278 , B23C 5/2286 , B23C 5/2291 take precedence)}
B23C 5/2273	.....	{ having a special shape }
B23C 5/2278	.....	{ for plate-like cutting inserts fitted on an intermediate carrier }
B23C 5/2282	.....	{ having a special shape }
B23C 5/2286	.....	{ for plate-like cutting inserts fitted on a shank, fixed in the cutter body }
B23C 5/2291	.....	{ for plate-like cutting inserts fitted on a ring or ring segment }
B23C 5/2295	....	{ the cutting elements being clamped simultaneously }
B23C 5/24	....	adjustable
B23C 5/2403	.....	{ with cutting inserts clamped against the walls of the recess in the shank by a clamping member acting upon the wall of a hole in the insert }
B23C 5/2406	.....	{ for plate-like cutting inserts (B23C 5/241 , B23C 5/2413 , B23C 5/2417 take precedence)}
B23C 5/241	.....	{ for plate-like cutting inserts fitted on an intermediate carrier }
B23C 5/2413	.....	{ for plate-like cutting inserts fitted on a shank, fixed in the cutter body }
B23C 5/2417	.....	{ for plate-like cutting inserts fitted on a ring or ring segment }
B23C 5/242	.....	{ with cutting inserts clamped by a clamping member acting almost perpendicularly on the cutting face }
B23C 5/2424	.....	{ for plate-like cutting inserts (B23C 5/2427 , B23C 5/2431 , B23C 5/2434 take precedence)}
B23C 5/2427	.....	{ for plate-like cutting inserts fitted on an intermediate carrier }
B23C 5/2431	.....	{ for plate-like cutting inserts fitted on a shank, fixed in the cutter body }

B23C 5/2434	.....	{ for plate-like cutting inserts fitted on a ring or ring segment }
B23C 5/2437	.....	{ clamping by means of a wedge }
B23C 5/2441	.....	{ for plate-like cutting inserts (B23C 5/2444 , B23C 5/2448 , B23C 5/2451 take precedence)}
B23C 5/2444	.....	{ for plate-like cutting inserts fitted on an intermediate carrier }
B23C 5/2448	.....	{ for plate-like cutting inserts fitted on a shank, fixed in the cutter body }
B23C 5/2451	.....	{ for plate-like cutting inserts fitted on a ring or ring segment }
B23C 5/2455	.....	{ The adjusting means being serrated teeth on the cutter and the cutting insert }
B23C 5/2458	.....	{ the cutting elements being clamped or adjusted simultaneously }
B23C 5/2462	.....	{ the adjusting means being oblique surfaces }
B23C 5/2465	.....	{ the adjusting means being notches }
B23C 5/2468	.....	{ the adjusting means being serrations }
B23C 5/2472	.....	{ the adjusting means being screws }
B23C 5/2475	.....	{ the adjusting means being distance elements, e.g. shims or washers }
B23C 5/2479	.....	{ the adjusting means being eccentrics }
B23C 5/2482	.....	{ the adjusting means being hydraulic cylinders }
B23C 5/2486	.....	{ where the adjustment is made by balancing the toolholders }
B23C 5/2489	.....	{ where the adjustment is made by changing the inclination of the inserts }
B23C 5/2493	.....	{ where the adjustment is made by deforming the seating surfaces }
B23C 5/2496	.....	{ where the adjusting means are gears and racks }
B23C 5/26	.	Securing milling cutters to the driving spindle
B23C 5/265	..	{ by fluid pressure means }
B23C 5/28	.	Features relating to lubricating or cooling
B23C 7/00		Milling devices able to be attached to a machine tool, whether or not replacing an operative portion of the machine tool
B23C 7/02	.	to lathes
B23C 7/04	.	to planing or slotting machines
B23C 9/00		Details or accessories so far as specially adapted to milling machines or cutter (drives, control devices, or accessories, in general B23Q)
B23C 9/005	.	{ milling heads }
B23C 2200/00		Details of milling cutting inserts
B23C 2200/04	.	Overall shape

B23C 2200/0405	..	Hexagonal
B23C 2200/0411	...	irregular
B23C 2200/0416	..	Irregular
B23C 2200/0422	..	Octagonal
B23C 2200/0427	...	rounded
B23C 2200/0433	..	Parallelogram
B23C 2200/0438	...	rounded
B23C 2200/0444	..	Pentagonal
B23C 2200/045	..	Round
B23C 2200/0455	..	Square
B23C 2200/0461	...	rounded
B23C 2200/0466	..	Star form
B23C 2200/0472	..	Trapezium
B23C 2200/0477	..	Triangular
B23C 2200/0483	...	rounded
B23C 2200/0488	..	Heptagonal
B23C 2200/0494	..	Rectangular
B23C 2200/08	.	Rake or top surfaces
B23C 2200/081	..	with projections (chip breaking projections in general B23C 2200/323)
B23C 2200/082	..	with an elevated clamping surface
B23C 2200/083	..	curved
B23C 2200/085	..	discontinuous
B23C 2200/086	..	with one or more grooves
B23C 2200/087	...	for chip-breaking (with chip-breaking grooves in general B23C 2200/326)
B23C 2200/088	..	spherical
B23C 2200/12	.	Side or flank surfaces
B23C 2200/121	..	with projections
B23C 2200/123	..	curved
B23C 2200/125	..	discontinuous
B23C 2200/126	...	stepped
B23C 2200/128	..	with one or more grooves
B23C 2200/16	.	Supporting or bottom surfaces
B23C 2200/161	..	with projections
B23C 2200/162	..	curved
B23C 2200/164	..	discontinuous
B23C 2200/165	..	with one or more grooves
B23C 2200/167	..	star form

- B23C 2200/168 . . with features related to indexing ([with lines to permit indexing of round inserts B23C 2200/363](#))
- B23C 2200/20 . Top or side views of the cutting edge
- B23C 2200/201 . . Details of the nose radius and immediately surrounding areas
- B23C 2200/203 . . Curved cutting edges
- B23C 2200/205 . . Discontinuous cutting edges
- B23C 2200/206 . . Cutting edges having a wave-form
- B23C 2200/208 . . Wiper, i.e. an auxiliary cutting edge to improve surface finish
- B23C 2200/24 . Cross section of the cutting edge
- B23C 2200/243 . . bevelled or chamfered
- B23C 2200/246 . . rounded
- B23C 2200/28 . Angles
- B23C 2200/283 . . Negative cutting angles
- B23C 2200/286 . . Positive cutting angles
- B23C 2200/32 . Chip breaking or chip evacuation
- B23C 2200/323 . . by chip-breaking projections ([with projection on top surface B23C 2200/081](#))
- B23C 2200/326 . . by chip breaking grooves ([with grooves on top surface for chip-breaking B23C 2200/087](#))
- B23C 2200/36 . Other features of the milling insert not covered by [B23C 2200/04](#) to [B23C 2200/32](#)
- B23C 2200/361 . . Fixation holes
- B23C 2200/362 . . . Having two fixation holes
- B23C 2200/363 . . Lines to permit indexing of round insert ([bottom surface with features relating to indexing B23C 2200/168](#))
- B23C 2200/365 . . Lands, i.e. the outer peripheral section of rake faces
- B23C 2200/366 . . . Variable
- B23C 2200/367 . . Mounted tangentially, i.e. where the rake face is not the face with largest area
- B23C 2200/368 . . Roughened surfaces
- B23C 2210/00 Details of milling cutters**
- B23C 2210/02 . Connections between the shanks and detachable cutting heads
- B23C 2210/03 . Cutting heads comprised of different material than the shank irrespective of whether the head is detachable from the shank
- B23C 2210/04 . Angles
- B23C 2210/0407 . . Cutting angles
- B23C 2210/0414 . . . different
- B23C 2210/0421 . . . negative

B23C 2210/0428	....	axial rake angle
B23C 2210/0435	....	radial rake angle
B23C 2210/0442	...	positive
B23C 2210/045	....	axial rake angle
B23C 2210/0457	....	radial rake angle
B23C 2210/0464	...	neutral
B23C 2210/0471	....	axial rake angle
B23C 2210/0478	....	radial rake angle
B23C 2210/0485	..	Helix angles
B23C 2210/0492	...	different
B23C 2210/08	.	Side or top views of the cutting edge
B23C 2210/082	..	Details of the corner region between axial and radial cutting edges
B23C 2210/084	..	Curved cutting edges
B23C 2210/086	..	Discontinuous or interrupted cutting edges
B23C 2210/088	..	Cutting edges with a wave form
B23C 2210/12	.	Cross section of the cutting edge
B23C 2210/123	..	Bevelled cutting edges
B23C 2210/126	..	Rounded cutting edges
B23C 2210/16	.	Fixation of inserts or cutting bits in the tool (details of connections B23C 2240/00)
B23C 2210/161	..	Elastically deformable clamping members
B23C 2210/163	..	Indexing
B23C 2210/165	..	Fixation bolts
B23C 2210/166	..	Shims
B23C 2210/168	..	Seats for cutting inserts, supports for replacable cutting bits
B23C 2210/20	.	Number of cutting edges
B23C 2210/201	..	one
B23C 2210/202	..	three
B23C 2210/203	..	four
B23C 2210/204	..	five
B23C 2210/205	..	six
B23C 2210/206	..	seven
B23C 2210/207	..	eight
B23C 2210/208	..	ten
B23C 2210/209	..	twelve
B23C 2210/24	.	Overall form of the milling cutter (angles B23C 2210/04 ; top or side views of cutting edges B23C 2210/08 ; cross sections of cutting edges B23C 2210/12)
B23C 2210/241	..	Cross sections of the whole milling cutter

- B23C 2210/242 . . Form tools, i.e. cutting edges profiles to generate a particular form
- B23C 2210/243 . . Cutting parts at both ends
- B23C 2210/244 . . Milling cutters comprised of disc-shaped modules or multiple disc-like cutters
- B23C 2210/245 . . Milling cutters comprising a disc having a wave form
- B23C 2210/246 . . Milling cutters comprising a hole or hollow in the end face or between the cutting edges
- B23C 2210/247 . . Stepped milling cutters
- B23C 2210/248 . . . with enlarged cutting heads

- B23C 2210/28 . . Arrangement of teeth
- B23C 2210/282 . . Unequal angles between the cutting edges, i.e. cutting edges unequally spaced in the circumferential direction
- B23C 2210/285 . . Cutting edges arranged at different diameters
- B23C 2210/287 . . Cutting edges arranged at different axial positions or having different lengths in the axial direction

- B23C 2210/32 . . Details of teeth
- B23C 2210/321 . . Lands, i.e. the area on the rake face in the immediate vicinity of the cutting edge
- B23C 2210/323 . . Separate teeth, i.e. discrete profiled teeth similar to those of a hob
- B23C 2210/325 . . Different teeth, i.e. one tooth having a different configuration to a tooth on the opposite side of the flute
- B23C 2210/326 . . File like cutting teeth, e.g. the teeth of cutting burrs
- B23C 2210/328 . . Treated cutting edges

- B23C 2210/40 . . Flutes, i.e. chip conveying grooves
- B23C 2210/402 . . of variable depth
- B23C 2210/405 . . . having decreasing depth in the direction of the shank from the tip of the tool
- B23C 2210/407 . . . having increasing depth in the direction of the shank from the tip of the tool

- B23C 2210/44 . . Margins, i.e. the part of the peripheral surface immediately adjacent the cutting edge
- B23C 2210/445 . . variable

- B23C 2210/48 . . Chip breakers
- B23C 2210/483 . . Chip breaking projections
- B23C 2210/486 . . Chip breaking grooves or depressions

- B23C 2210/50 . . Cutting inserts
- B23C 2210/503 . . mounted internally on the cutter
- B23C 2210/506 . . mounted so as to be able to rotate freely

- B23C 2210/52 . . Bushings

- B23C 2210/54 . . Configuration of the cutting part

- B23C 2210/56 . . Supporting or guiding sections located on the periphery of the tool

B23C 2210/58	. Brushes
B23C 2210/60	. Axis of the cutter inclined with respect to the axis of rotation
B23C 2210/62	. Selectable cutting diameters
B23C 2210/64	. End milling cutters having a groove in the end cutting face, the groove not being present so as to provide a cutting edge
B23C 2210/66	. Markings, i.e. symbols or indicating marks
B23C 2210/68	. Reground to nominal diameter by removal of material from both the front of the insert and the back of insert carrier
B23C 2210/70	. Pilots
B23C 2210/72	. Rotatable in both directions
B23C 2210/74	. Slits
B23C 2215/00	Details of workpieces
B23C 2215/04	. Aircraft components
B23C 2215/045	.. Propellers
B23C 2215/08	. Automotive parts (B23C 2215/16 , B23C 2215/20 and B23C 2215/24 take precedence)
B23C 2215/085	.. Wheels
B23C 2215/12	. Propellers for boats
B23C 2215/16	. Camshafts
B23C 2215/20	. Crankshafts
B23C 2215/24	. Components of internal combustion engines
B23C 2215/242	.. Combustion chambers
B23C 2215/245	.. Connecting rods
B23C 2215/247	.. Components of diesel engines
B23C 2215/28	. Nipples
B23C 2215/32	. Railway tracks
B23C 2215/36	. Railway wheels
B23C 2215/40	. Spectacles

- B23C 2215/44 . Turbine blades
- B23C 2215/48 . Kaplan turbines
- B23C 2215/52 . Axial turbine wheels
- B23C 2215/56 . Radial turbine wheels
- B23C 2215/60 . Valve guides in combination with the neighbouring valve seat
- B23C 2215/64 . Well pipe windows, i.e. windows in tubings or casings for wells

B23C 2220/00 Details of milling processes

- B23C 2220/04 . Milling with the axis of the cutter inclined to the surface being machined
- B23C 2220/08 . Milling with the axis of the tool perpendicular to the workpiece axis
- B23C 2220/12 . Cutting off, i.e. producing multiple discrete components from a single piece of material
- B23C 2220/16 . Chamferring
- B23C 2220/20 . Deburring
- B23C 2220/24 . Production of elliptical holes
- B23C 2220/28 . Finishing ([roughing and finishing B23C 2220/605](#))
- B23C 2220/32 . Five-axis
- B23C 2220/36 . Production of grooves
- B23C 2220/363 . . . Spiral grooves
- B23C 2220/366 . . . Turbine blade grooves
- B23C 2220/40 . Using guiding means
- B23C 2220/44 . High speed milling
- B23C 2220/48 . Methods of milling not otherwise provided for
- B23C 2220/52 . Orbital drilling, i.e. use of a milling cutter moved in a spiral path to produce a hole
- B23C 2220/56 . Plunge milling
- B23C 2220/60 . Roughing
- B23C 2220/605 . . . Roughing and finishing

B23C 2220/64	. Using an endmill, i.e. a shaft milling cutter, to generate profile of a crankshaft or camshaft
B23C 2220/68	. Whirling
B23C 2222/00	Materials of tools or workpieces composed of metals, alloys or metal matrices
B23C 2222/04	. Aluminium
B23C 2222/06	. Babbitt metal
B23C 2222/12	. Brass
B23C 2222/14	. Cast iron
B23C 2222/16	. Cermet
B23C 2222/28	. Details of hard metal, i.e. cemented carbide
B23C 2222/32	. Details of high speed steel (steel B23C 2222/84)
B23C 2222/52	. Magnesium
B23C 2222/61	. Metal matrices with metallic or non-metallic particles or fibres
B23C 2222/64	. Nickel
B23C 2222/76	. Silver
B23C 2222/78	. Sodium
B23C 2222/84	. Steel (details of high speed steel B23C 2222/32)
B23C 2222/88	. Titanium
B23C 2222/98	. Zinc
B23C 2224/00	Materials of tools or workpieces composed of a compound including a metal
B23C 2224/04	. Aluminium oxide
B23C 2224/13	. Chromium nitride
B23C 2224/14	. Chromium aluminium nitride (CrAlN)
B23C 2224/20	. Tantalum carbide
B23C 2224/22	. Titanium aluminium carbide nitride (TiAlCN)

B23C 2224/24 . Titanium aluminium nitride (TiAlN)

B23C 2224/28 . Titanium carbide

B23C 2224/32 . Titanium carbide nitride (TiCN)

B23C 2224/36 . Titanium nitride

B23C 2224/56 . Vanadium aluminium nitride (VAlN)

B23C 2226/00 Materials of tools or workpieces not comprising a metal

B23C 2226/12 . Boron nitride

B23C 2226/125 . . cubic (CBN)

B23C 2226/18 . Ceramic

B23C 2226/27 . Composites, e.g. fibre reinforced composites

B23C 2226/31 . Diamond

B23C 2226/315 . . polycrystalline (PCD)

B23C 2226/33 . Elastomers, e.g. rubber

B23C 2226/37 . Fibreglass

B23C 2226/41 . Gypsum

B23C 2226/42 . Gem, i.e. precious stone

B23C 2226/45 . Glass ([milling glass B28D 1/18](#))

B23C 2226/54 . Paper

B23C 2226/61 . Plastics not otherwise provided for, e.g. nylon

B23C 2226/62 . Polystyrene foam

B23C 2226/72 . Silicon carbide

B23C 2226/73 . Silicon nitride

B23C 2226/75 . Stone, rock or concrete ([milling stone or like materials B28D 1/18](#))

B23C 2228/00 Properties of materials of tools or workpieces, materials of tools or workpieces applied in a specific manner

B23C 2228/04 . applied by chemical vapour deposition (CVD)

B23C 2228/08 . applied by physical vapour deposition (PVD)

B23C 2228/10 . Coating

B23C 2228/12 . Cast, i.e. in the form of a casting

B23C 2228/14 . Flexible

B23C 2228/24 . Hard, i.e. after being hardened

B23C 2228/25 . Honeycomb

B23C 2228/26 . Hot

B23C 2228/49 . Sintered

B23C 2228/50 . Soft metal

B23C 2230/00 Details of chip evacuation ([chip evacuation in cutting inserts B23C 2200/32](#))

B23C 2230/04 . Transport of chips

B23C 2230/045 . . to the middle of the cutter or in the middle of a hollow cutter

B23C 2230/08 . Using suction

B23C 2235/00 Details of milling keys

B23C 2235/04 . Keys with blind holes

B23C 2235/08 . Brushes

B23C 2235/12 . Using a database to store details of the key, the information in the database being used for the generation of the profile of the key

B23C 2235/16 . Dial indicators

B23C 2235/21 . Calibration by electronic detection of position of probes and cutting wheels

B23C 2235/24 . Electronic sensors

B23C 2235/28 . Key blanks

B23C 2235/32 . Measurement systems

B23C 2235/36 . Ring keys

B23C 2235/41	. Scanning systems
B23C 2235/44	. Templates for the simulation of keys
B23C 2235/48	. Tracers, probes or styli
B23C 2240/00	Details of connections of tools or workpieces (fixation of the cutting insert or bit in the tool B23C 2210/16)
B23C 2240/04	. Bayonet connections
B23C 2240/08	. Brazed connections
B23C 2240/12	. Connections using captive nuts
B23C 2240/16	. Welded connections
B23C 2240/21	. Glued connections
B23C 2240/24	. Connections using screws
B23C 2240/245	. . hollow screws, e.g. for the transmission of coolant
B23C 2240/32	. Connections using screw threads
B23C 2245/00	Details of adjusting inserts or bits in the milling cutter
B23C 2245/04	. Adjustable wedge surfaces
B23C 2245/08	. Setting gauges
B23C 2245/12	. Spiral discs
B23C 2250/00	Compensating adverse effects during milling
B23C 2250/04	. Balancing the cutter (vibration damping B23C 2250/16)
B23C 2250/08	. compensating centrifugal force
B23C 2250/12	. Cooling and lubrication
B23C 2250/16	. Damping vibrations (balancing B23C 2250/04)
B23C 2250/21	. compensating wear of parts not designed to be exchanged as wear parts
B23C 2255/00	Regulation of depth of cut

B23C 2255/04 . Depth indicators

B23C 2255/08 . Limitation of depth of cut

B23C 2255/12 . Depth stops

B23C 2260/00 Details of constructional elements

B23C 2260/04 . Adjustable elements

B23C 2260/08 . Bearings

B23C 2260/12 . Cams

B23C 2260/28 . Differential screw threads

B23C 2260/40 . Harmonic gearboxes, i.e. reduction gearing including a wave generator, a flex spline or a circular spline

B23C 2260/48 . Indication scales

B23C 2260/52 . Keys, e.g. spanners or Allen keys, especially for assembling or disassembling tooling

B23C 2260/56 . Lasers ([improving machinability with laser whilst milling B23P 25/003](#))

B23C 2260/68 . Rings

B23C 2260/72 . Seals

B23C 2260/76 . Sensors

B23C 2260/80 . Serrations

B23C 2260/84 . Springs

B23C 2260/88 . Steadies

B23C 2265/00 Details of general geometric configurations

B23C 2265/08 . Conical

B23C 2265/12 . Eccentric

B23C 2265/16 . Elliptical

B23C 2265/32 . Polygonal

B23C 2265/36 . Spherical

B23C 2265/40 . Spiral

B23C 2270/00 **Details of milling machines, milling processes or milling tools not otherwise provided for**

B23C 2270/02 . Use of a particular power source

B23C 2270/022 . . Electricity

B23C 2270/025 . . Hydraulics

B23C 2270/027 . . Pneumatics

B23C 2270/04 . Use of centrifugal force ([compensation of effect of centrifugal force B23C 2250/08](#))

B23C 2270/06 . Use of elastic or plastic deformation ([B23C 2210/161 takes precedence](#))

B23C 2270/08 . Clamping mechanisms or provision for clamping ([B23C 2210/16 takes precedence](#))

B23C 2270/10 . Use of ultrasound

B23C 2270/12 . Centering of two elements relative to one another

B23C 2270/14 . Constructions comprising exactly two similar components

B23C 2270/16 . Constructions comprising three or more similar components

B23C 2270/18 . Milling internal areas of components

B23C 2270/20 . Milling external areas of components