

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

MILLING (broaching [B23D](#); broach-milling in making gears [B23F](#); 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 [B23F](#), {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 replaceable 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 (VAIN)

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