

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

. with rotary work-carrying table ([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 [B23B5/42](#))
- B23C 3/12 . Trimming or finishing edges, e.g. deburring welded corners
 - .. {of pipes or cylinders}
 - ... {internally}
- B23C 3/124 .. {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
 - .. for shaping screw-propellers, turbine blades, or impellers
 - .. for shaping dies
- B23C 3/20 . 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](#))
 - .. Milling straight grooves, e.g. keyways
 - ... {in which more than one milling tool is used simultaneously, e.g. for sheet material}
 - .. Milling helical grooves, e.g. in making twist-drills
 - .. Milling grooves of other forms, e.g. circumferential
 - .. Milling grooves in keys
 - ... {Holders for the template keys}
- B23C 3/30 . Milling milling-cutters ([B23C 3/28](#) takes precedence)
- B23C 3/305 . Milling milling-cutters ([B23C 3/28](#) takes precedence)
- B23C 3/32 . Milling milling-cutters ([B23C 3/28](#) takes precedence)
- B23C 3/34 . Milling milling-cutters ([B23C 3/28](#) takes precedence)
- B23C 3/35 . Milling milling-cutters ([B23C 3/28](#) takes precedence)
- B23C 3/355 . Milling milling-cutters ([B23C 3/28](#) takes precedence)
- 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
 - .. Plain cutters, i.e. having essentially a cylindrical or tapered cutting surface of substantial length ([B23C 5/10](#) takes precedence)
 - .. Face-milling cutters, i.e. having only or primarily a substantially flat cutting surface
 - .. Disc-type cutters
 - .. Shank-type cutters, i.e. with an integral shaft
 - ... {Ball nose end mills}
 - {with permanently fixed cutting inserts}
 - {with one or more removable cutting inserts}
 - {having a single cutting insert, the cutting edges of which subtend 180 degrees}
 - {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