

## B23Q

**DETAILS, COMPONENTS, OR ACCESSORIES FOR MACHINE TOOLS, e.g. ARRANGEMENTS FOR COPYING OR CONTROLLING (tools of the kind used in lathes or boring machines [B23B 27/00](#)); MACHINE TOOLS IN GENERAL CHARACTERISED BY THE CONSTRUCTION OF PARTICULAR DETAILS OR COMPONENTS; COMBINATIONS OR ASSOCIATIONS OF METAL-WORKING MACHINES, NOT DIRECTED TO A PARTICULAR RESULT;**

### Definition statement

*This subclass/group covers:*

General components that are usually used in any kind of machine tool, such as machine beds, feeding devices, workpiece holding means, workpiece conveying means, tool changing means, chip evacuating means, etc...

Machine configurations combining different kinds of machining operations, such as drilling, milling, sawing or turning.

### Relationship between large subject matter areas

There are other groups that are specially dedicated to specific machining techniques and their corresponding equipment or methods.

[B23B](#) is the group for machines or components dedicated to the turning or boring operations, [B23C](#) for milling, [B23D](#) for slotting or sawing, [B23F](#) for making gears, [B23G](#) for thread cutting, [B23H](#) for electro discharge machining, [B23K](#) for welding, B24 for grinding or polishing, etc.

F16 is a general group of mechanical components that are also generally used in machine tools but also in other technical fields, such as linear guides, bearings, etc.

The classes [B25C](#), [B25D](#), [B25F](#) deal with portable power driven tools,

B21 deals with mechanical working without removing material.

### Glossary of terms

*In this subclass/group, the following terms (or expressions) are used with the meaning indicated:*

Machine tool	mechanical working machine that removes material from a workpiece, essentially through drilling, milling, sawing or turning. The workpiece is generally made of metal, wood or plastic and is not a human body, food
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	or clothe.
Controlling	influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant, limiting its range of variation
Regulation	maintaining a variable automatically at a desired value or within a desired range of values. The desired value or range may be fixed, or manually varied, or may vary with time according to a predetermined "programme" or according to variation of another variable. Regulation is a form of control

## B23Q 1/00

**Members which are comprised in the general build-up of a form of machine, particularly relatively large fixed members ([B23Q 37/00](#) takes precedence)**

### Definition statement

*This subclass/group covers:*

Features relating to the transfer of energy (mechanical, hydraulic or pneumatic) or signals in the machine tool.

Features relating to the bed or frame of the machine tool, spatial disposition of the linear guides, degrees of freedom of the tool or workpiece.

Features of the structure supporting the workpiece.

Means for guiding or stopping the movement of slides or spindles carrying the tool or the workpiece.

### References relevant to classification in this group

*This subclass/group does not cover:*

Piezoelectric or electrostrictive positioners	<a href="#">H01L 41/09</a>
Positioning supports for measuring arrangements	<a href="#">G01B 5/0004</a>

Motorised alignment for optical elements	<a href="#">G02B 7/005</a>
Adjusting or compensating devices for optical apparatuses	<a href="#">G12B 5/00</a>
Handling of mask or wafer	<a href="#">G03F 7/70691</a>
The groups <a href="#">B23Q 1/48</a> - <a href="#">B23Q 1/62</a> do not cover parallel kinematic structures as such, without special application in a machine tool	<a href="#">B25J 9/00</a> , <a href="#">B25J 17/00</a>

### Special rules of classification within this subclass

#### [B23Q 1/48](#) - [B23Q 1/62](#)

The following table summarises the content of the classes, wherein

P means a purely translational movement along an axis (Prismatic)

R means a purely rotational movement around an axis

A means a perpendicular relationship between two consecutive moving axes

E means a parallel relationship between two consecutive moving axes

I means a 45° inclination between two consecutive moving axes

O means other relative orientation between two consecutive moving axes.

The machines are classed according to their axis configuration, starting from the bed (fixed portion) and going towards the last moving portion (usually the tool or the workpiece, or a spindle or a supporting surface for a workpiece).

The rotation of the cutting tool in the spindle (milling, drilling, etc.) is not considered here as a rotational movement R.

Class	Content (Comments)
<a href="#">B23Q 1/48</a>	R and P
<a href="#">B23Q 1/4804</a>	RAP
<a href="#">B23Q 1/4809</a>	RAPAR
<a href="#">B23Q 1/4814</a>	RAPER

<a href="#">B23Q 1/4819</a>	RAPAP
<a href="#">B23Q 1/4823</a>	RAPEP
<a href="#">B23Q 1/4828</a>	REP
<a href="#">B23Q 1/4833</a>	REPAR
<a href="#">B23Q 1/4842</a>	REPER
<a href="#">B23Q 1/4847</a>	REPEP
<a href="#">B23Q 1/4852</a>	PAR
<a href="#">B23Q 1/4857</a>	PARAR
<a href="#">B23Q 1/4861</a>	PARER
<a href="#">B23Q 1/4866</a>	PARAP
<a href="#">B23Q 1/4871</a>	PAREP
<a href="#">B23Q 1/4876</a>	PER
<a href="#">B23Q 1/488</a>	PERAR
<a href="#">B23Q 1/4885</a>	PERER
<a href="#">B23Q 1/489</a>	PERAP
<a href="#">B23Q 1/4895</a>	PEREP
<a href="#">B23Q 1/50</a>	R and R
<a href="#">B23Q 1/52</a>	R
<a href="#">B23Q 1/522</a>	R (Rotation axis is perpendicular to the supporting surface)
<a href="#">B23Q 1/525</a>	R (Rotation axis is parallel to the supporting surface)
<a href="#">B23Q 1/527</a>	R ( Using a ring or tube structure where the workpiece is fixed coaxially to its rotating axis.Related group for

	welding: <a href="#">B23K 37/0452</a> )
<a href="#">B23Q 1/54</a>	ROR,RIR
<a href="#">B23Q 1/5406</a>	RAR
<a href="#">B23Q 1/5412</a>	RARAR
<a href="#">B23Q 1/5418</a>	RARER
<a href="#">B23Q 1/5425</a>	RARAP
<a href="#">B23Q 1/5431</a>	RAREP
<a href="#">B23Q 1/5437</a>	RAR' (The last rotation of the supporting surface is perpendicular to this surface)
<a href="#">B23Q 1/5443</a>	RAR'' (The last rotation of the supporting surface is parallel to this surface)
<a href="#">B23Q 1/545</a>	R and R w. spherical joint (At least 2 degrees of freedom in rotation, using a spherical surface joint)
<a href="#">B23Q 1/5456</a>	joint and additional rotation ( - Parallel kinematic structures, using spherical surface joints or other kind of joints, where the movement is induced by a rotating element (EP1529597).- Structures using a spherical surface joint, and comprising an additional dof in rotation (US1,927,675))
<a href="#">B23Q 1/5462</a>	joint and additional translation ( - Parallel kinematic structures, using spherical surface joints or other kind of joints, where the movement is induced by a sliding/translating element (WO2005/120780) or by a telescopic element (WO2006/054935).- Structures using a spherical surface joint, and comprising an additional dof in translation (US5,544,968)).
<a href="#">B23Q 1/5468</a>	RER

<a href="#">B23Q 1/5475</a>	REREAR
<a href="#">B23Q 1/5481</a>	RERER
<a href="#">B23Q 1/5487</a>	RERAP
<a href="#">B23Q 1/5493</a>	REREP
<a href="#">B23Q 1/56</a>	P and P
<a href="#">B23Q 1/58</a>	P
<a href="#">B23Q 1/585</a>	P' (Translation perpendicular to the working/supporting surface)
<a href="#">B23Q 1/60</a>	POP,PIP
<a href="#">B23Q 1/601</a>	PEP
<a href="#">B23Q 1/603</a>	PEPAR
<a href="#">B23Q 1/605</a>	PEPER
<a href="#">B23Q 1/606</a>	PEPAP
<a href="#">B23Q 1/608</a>	PEPEP
<a href="#">B23Q 1/62</a>	PAP (Use this class when the perpendicular axes are not piled, that is that both axes are at a same level (not one on top of the other; JP3234488))
<a href="#">B23Q 1/621</a>	PAP
<a href="#">B23Q 1/623</a>	PAPAR
<a href="#">B23Q 1/625</a>	PAPER
<a href="#">B23Q 1/626</a>	PAPAP
<a href="#">B23Q 1/628</a>	PAPEP

Further details of subgroups:

[B23Q 1/0054](#)

Means for adjusting height or inclination of the machine on the floor or on a support surface.

[B23Q 1/0063](#)

Means for clamping pallets or similar exchangeable parts in a fixed place on the machine, usually engaging a male and a female part (e.g. "quick clamping cylinder").

[B23Q 1/01](#)

Special features of the frame, the bed, the portal of the machine, or the arrangement of the ways (linear guides) on the machine.

Machines where a portal, bridge or gantry is an important feature are classified in [B23Q 1/012](#).

[B23Q 1/25](#)

Inventions concerning the kinematical structure of the machine tool: how the movement is guided, number and relative arrangement of the axes.

[B23Q 1/703](#)

Inventions relating to the extension of a tool holder or a tool.

## **B23Q 1/0009**

**[N: Energy-transferring means or control lines for movable machine parts; Control panels or boxes; Control parts (control handles for driving or feeding mechanisms [B23Q 5/54](#))]**

### **Definition statement**

*This subclass/group covers:*

Means for transferring energy (electrical, hydraulic or pneumatic) or signals through moving parts of the machine.

### **References relevant to classification in this group**

*This subclass/group does not cover:*

Devices for coolant flowing through the spindle	<a href="#">B23Q 11/1015</a>
Rotary joints for coolant through the	<a href="#">B23Q 11/103</a>

spindle	
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## B23Q 1/03

**Stationary work or tool supports ([B23Q 1/70](#) takes precedence; auxiliary tables [B23Q 1/74](#); tailstocks [B23B 23/00](#))**

### Definition statement

*This subclass/group covers:*

Mostly workpiece supports for specially shaped workpieces (large or flexible) or variety of workpiece shapes or special cutting applications requiring special features of the workpiece support.

### References relevant to classification in this group

*This subclass/group does not cover:*

Vices composed of a plurality of parts adapting to the shape of the workpiece	<a href="#">B25B 1/2421</a>
Holders for printed circuit boards	<a href="#">H05K 13/0069</a>

## B23Q 1/70

**Stationary or movable members for carrying working-spindles for attachment of tools or work ([N: [B23Q 1/01](#) takes precedence; designed to be moved by using particular mechanisms [B23Q 1/44](#)])**

### Definition statement

*This subclass/group covers:*

Inventions relating to the bearings configuration or the housing of a working spindle.

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

General features relating to bearings or other spindles	<a href="#">F16C</a>
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Grinding spindles with magnetic or electromagnetic bearings	<a href="#">B24B 41/044</a>
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## B23Q 3/00

Devices holding, supporting, or positioning work or tools, of a kind normally removable from the machine (work-tables or other parts, e.g. faceplates, normally not incorporating means for securing work [B23Q 1/00](#); automatic position control [B23Q 15/00](#); rotary tool heads for turning-machines [B23B 3/24](#), [B23B 3/26](#); non-driven tool holders [B23B 29/00](#); general features of turrets [B23B 29/24](#); tools or bench devices for fastening, connecting, disengaging or holding [B25B](#))

### Definition statement

*This subclass/group covers:*

Guides or fences for guiding the movement of workpieces ([B23Q 3/005](#)).

Devices for tightly holding a workpiece on a table or support in order to machine it ([B23Q 3/06](#) - [B23Q 3/08](#)).

Any holding, supporting or positioning device for a workpiece, directed to the machining of the workpiece.

Arrangements for the automatic insertion or removal of a cutting tool from the spindle or tool holder of the machine tool ([B23Q 3/155](#)).

### References relevant to classification in this group

*This subclass/group does not cover:*

Work supports with reconfigurable surface	<a href="#">B23Q 1/03</a>
Quick clamping cylinders	<a href="#">B23Q 1/0063</a>
Clamps, vices or chucks as such, with no special relation to a specific configuration of a machine tool.	<a href="#">B25B</a>
Workpiece support for dies	<a href="#">B21D 37/02</a>
Devices for holding circuit boards	<a href="#">H05K 13/0061</a>
For holding semiconductors or wafers	<a href="#">H01L 21/67</a>

For welding	<a href="#">B23K 37/04</a>
For electrical discharge machining	<a href="#">B23H 11/003</a>
For assembling or manufacturing aircrafts	<a href="#">B64F 5/0009</a>
Work benches for manual work	<a href="#">B25H 1/00</a>
Food cutting boards	<a href="#">A47J 47/00</a>
Drawbars in spindles	<a href="#">B23B 31/261</a>
Chucks for percussive tools	<a href="#">B25D 17/084</a>
Mountings for abrasive wheels	<a href="#">B24D 5/16</a>
Means for securing grinding wheels	<a href="#">B24B 45/00</a>
Devices for securing circular saw blades	<a href="#">B27B 5/32</a>

### Special rules of classification within this group

While the classes [B23Q 3/1572](#) to [B23Q 3/15766](#) are subclasses of [B23Q 3/15713](#), they shall be also used for devices with direct insertion of the tool in the spindle ([B23Q 3/15706](#)).

The documents shall thus receive one of the [B23Q 3/15706](#) or [B23Q 3/15713](#) classes and eventually one of the subclasses [B23Q 3/1572](#) to [B23Q 3/15766](#).

### B23Q 3/002

**[N: Means to press a workpiece against a guide]**

#### Definition statement

*This subclass/group covers:*

Means for pressing a workpiece against a guide, fence or table. Usually mounted on a structure over the machine table or on the spindle head. If the means is mounted directly on the table and presses the workpiece downwards against the table, then classify in [B23Q 3/069](#).

### References relevant to classification in this group

*This subclass/group does not cover:*

Pressure rollers for feeding timber in sawing machines	<a href="#">B27B 25/02</a>
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## **B23Q 3/005**

**[N: provided with measuring means allowing the positioning of the guides]**

### **Definition statement**

*This subclass/group covers:*

Guides or fences for workpieces.

### **References relevant to classification in this group**

*This subclass/group does not cover:*

Guide fences for sawing machines	<a href="#">B27B 27/00</a>
Guide fences for wood working	<a href="#">B27C 5/04</a>
Devices for conveying work in sawing machines	<a href="#">B23D 47/042</a>

## **B23Q 3/15553**

**[N: Tool holder and tensioning device therefor (also bringing the spindle in a given angular position [B23Q 5/20](#), [B23C 5/26](#) )]**

### **Definition statement**

*This subclass/group covers:*

Devices for holding the tools in the storage means (grippers) or special features relating to the tool holder in the spindle for the automatic tool exchange.

## **B23Q 5/00**

**Driving or feeding mechanisms; Control arrangements therefore (automatic control [B23Q 15/00](#); copying [B23Q 33/00](#), [B23Q 35/00](#); specially adapted for boring or drilling machines [B23B 39/10](#); [N: numerical programme-control of machine**

tools [G05B 19/18](#)])

### Definition statement

*This subclass/group covers:*

Mechanisms for producing a rotational or reciprocating movement (driving) or translational movement (feeding) of a workpiece or tool, in a machine tool.

### References relevant to classification in this group

*This subclass/group does not cover:*

Vibratory toolholders	<a href="#">B23B 29/125</a>
Ultrasonic boring	<a href="#">B23B 37/00</a>
Ultrasonic cutting of gems, jewels	<a href="#">B28D 5/047</a>
Gearings, speed selectors for power driven hand tools	<a href="#">B25F 5/001</a>

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

General features of fluid pressure drives accelerating or decelerating the stroke	<a href="#">F15B 15/02</a>
Linears motors as such	<a href="#">H02K 41/00</a>
General mechanisms or mechanical components not specific to a machine tool.	<a href="#">F16H</a>
Cam or ballscrew mechanisms as such	<a href="#">F16H 25/00</a>
General mechanical drives with varying speed ratio	<a href="#">F16H 3/00</a>

### Special rules of classification within this group

Further details of subgroups:

[B23Q 5/10](#)

Motorspindles.

[B23Q 5/28](#)

Machine tools with special configurations or features of linear motors.

## **B23Q 7/00**

**Arrangements for handling work specially combined with or arranged in, or specially adapted for use in connection with, machine tools, e.g. for conveying, loading, positioning, discharging, sorting (incorporated in working-spindles [B23B 13/00](#))**

### **Definition statement**

*This subclass/group covers:*

Arrangements concerning the conveying of workpieces between machine tools or to the loading/unloading of machine tools.

The classes correspond either to the type of conveying means used [B23Q 7/001](#) to [B23Q 7/08](#) or to the relationship between the machining stations of a production line that are linked by conveying means [B23Q 7/14](#) to [B23Q 7/1421](#).

### **References relevant to classification in this group**

*This subclass/group does not cover:*

Handling sheet metal, metal tubes or metal profiles	<a href="#">B21D 43/00</a>
Indexing rotating tables as such	<a href="#">B23Q 16/025</a>
Separating articles from piles	<a href="#">B65H 3/00</a>
Simultaneous operations on different machining stations, incorporated in a same machine. Transfer of the workpiece within such a machine.	<a href="#">B23Q 39/04</a>
Feed chains for timber	<a href="#">B27B 25/04</a>
General aspects of gripping heads	<a href="#">B25J 15/00</a>
Programme-controlled manipulators	<a href="#">B25J 9/00</a>

Vacuum work grippers	<a href="#">B25B 11/00</a>
Conveying bar stock in a lathe	<a href="#">B23B 13/00</a>
Pallets for loads to be lifted	<a href="#">B65D 19/00</a>

## Informative references

Attention is drawn to the following places, which may be of interest for search:

General aspects of article conveyers	<a href="#">B65G</a>
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## Special rules of classification within this group

If the work is carried on a pallet or cart loosely mounted on a conveyer means, the document should be classified in [B23Q 7/1426](#) or subclasses of it.

The classification of new documents in groups [B23Q 7/14](#) to [B23Q 7/1421](#) should be avoided, since the classification in [B23Q 39/00](#) or [B23Q 41/00](#) is preferred.

Further details of subgroups:

[B23Q 7/007](#)

Machining of the workpiece during its conveying (GB2273077).

[B23Q 7/008](#)

Devices for catching a finished workpiece (DE202006003047U).

[B23Q 7/045](#)

Arrangements for gripping a workpiece by using the tool holder means (EP1637279) or mounted on the tool spindle (EP2253422).

[B23Q 7/1405](#)

The workpieces are consecutively conveyed to the next working device, the working devices being placed in series (linearly or not) corresponding to the the sequence of working.

[B23Q 7/141](#)

A long workpiece is axially transported and one end of it is machined and cut from the rest of the workpiece.

## B23Q 9/00

**Arrangements for supporting or guiding portable metal-working machines or apparatus (for tapping pipe walls [N: [F16L 41/04](#)]; specially designed for workshop or domestic use [N: [B25H 1/0021](#)])**

### Definition statement

*This subclass/group covers:*

Arrangements for supporting, fixing or guiding a portable machine tool in combination with guide means that position the machine tool relative to the workpiece.

Machine tools that are mounted on the surface of large workpieces (such as aircrafts), or that are fixed to a large workpiece with a special profile (such as beam or tube).

### References relevant to classification in this group

*This subclass/group does not cover:*

Portable stands or supports for positioning portable tools or work to be operated on thereby

	<a href="#">B25H 1/0078</a>
Turning machine for reconditioning wheel sets without removing same from the vehicle	<a href="#">B23B 5/32</a>
Portable hand-operated wood-milling machines; Routers	<a href="#">B27C 5/10</a>
Tables for sawing machines	<a href="#">B23D 47/025</a>

### Special rules of classification within this group

Further details of subgroups:

[B23Q 9/0014](#)

The machine or the guide means are supported by the workpiece. If the guide means form part of the machine, then classify in [B23Q 9/0028](#); if they are independent from the machine and fixed on the workpiece, then classify in [B23Q 9/0042](#).

## [B23Q 9/0064](#)

The machine or the guide means are supported by a support independent from the workpiece. If the guide means form part of the machine, then classify in [B23Q 9/0071](#); if they are independent from the machine and fixed to the support, then classify in [B23Q 9/0078](#).

## [B23Q 9/02](#)

This class takes precedence over [B23Q 9/0014](#).

Here are classified machines that are secured to workpieces with a special shape such as beams or tubes, to which the securing means are specially adapted. If the workpiece is secured on the surface of the workpiece with standard fixing means, then classify in [B23Q 9/0014](#).

## Glossary of terms

*In this subclass/group, the following terms (or expressions) are used with the meaning indicated:*

Portable machine tool	A machine that is brought to the workpiece. Either the workpiece is very large (aircraft fuselage, long beams or tubes) or the machine is very light and easy to transport.
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## **B23Q 11/00**

**Accessories fitted to machine tools for keeping tools or parts of the machine in good working condition or for cooling work [N: (accessories specially designed for sawing machines or sawing devices [B23D 59/00](#))]; Safety devices specially combined with or arranged in, or specially adapted for use in connection with, machine tools (in respect of boring or drilling machines [B23B 47/32](#) takes precedence; safety devices in general [F16P](#))**

### **Definition statement**

*This subclass/group covers:*

Arrangements reducing or eliminating thermal influences in the machining accuracy ([B23Q 11/0003](#)).

Arrangements reducing or eliminating the influence of gravity on the machine ([B23Q 11/001](#)).

Arrangements reducing or eliminating undesired vibrations in parts of the



machine ([B23Q 11/0032](#)).

Arrangements for removing or evacuating from the working area cutting chips produced during machining ([B23Q 11/0042](#)).

Arrangements protecting the operator from possible injuries or noise ([B23Q 11/0078](#)).

Arrangements for removing scrap from the teeth of cutting devices ([B23Q 11/02](#)).

Arrangements for preventing overload of tools for preventing their damage ([B23Q 11/04](#)).

Safety devices for specially adapted for disc shaped cutters like saws ([B23Q 11/06](#)).

Coverings for protecting parts of machine tools from dust, chips, cutting fluids, etc or for protecting the operator from flying cutting chips, centrifugated tools or cutting fluid ([B23Q 11/08](#)).

Arrangements for cooling or lubricating the interface between the tool and the workpiece or the tool itself. Special cooling or lubricating strategies, coolant nozzles, cooling liquid filtration systems ([B23Q 11/10](#)).

Arrangements for cooling or lubricating other parts of the machine than the tool and workpiece (bearings, spindle, motors, ballscrew, linear guides, frame ([B23Q 11/12](#)).

Arrangements for maintaining a constant temperature in parts of the machine tool, meaning the use of a certain temperature control strategy ([B23Q 11/14](#)).

## References relevant to classification in this group

*This subclass/group does not cover:*

Preventing escape of dirt or fumes from the working area; suction systems	<a href="#">B08B 15/00</a>
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## Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Safety devices in general, not specially designed for a machine tool	<a href="#">F16P</a>
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## Special rules of classification within this group

Further details of subgroups:

### [B23Q 11/0053](#)

Constructional or design measures intended to facilitate the evacuation of the chips by their own weight.

### [B23Q 11/06](#)

This class should not be used if a more specific class in another field exists (see classes cited in [B23Q 11/0078](#)).

### [B23Q 11/1069](#)

Systems for filtering the cutting liquid for separating the chips from the liquid.

### [B23Q 11/1076](#)

Nozzle suited to be adapted to different tools, so that its position or the direction of the cutting liquid jet can be adjusted to the geometry of the tool.

### [B23Q 11/1084](#)

General features relating to the distribution of coolant to the machine tools, coolant dispensing devices independent of the machine, etc.

## **B23Q 11/0003**

**[N: Arrangements for preventing undesired thermal effects on tools or parts of the machine ([B23Q 11/10](#), [B23Q 11/12](#) and [B23Q 11/14](#) take precedence)]**

## References relevant to classification in this group

*This subclass/group does not cover:*

Automatic compensation of tool deflection due to temperature or force	<a href="#">B23Q 15/18</a>
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## Special rules of classification within this group

Constructional or design measures intended to prevent negative influences of varying temperatures are classified in [B23Q 11/0003](#).

If thermal dilation occurs, but measures are taken to compensate for it, then classify in [B23Q 11/0007](#) (e.g. EP1989019).

## B23Q 11/001

[N: Arrangements compensating weight or flexion on parts of the machine (adjustment of the fluid layer in fluid bearings or cushions depending upon the position of a weight [B23Q 1/385](#))]

### References relevant to classification in this group

*This subclass/group does not cover:*

Automatic compensation of tool deflection due to temperature or force	<a href="#">B23Q 15/18</a>
Tool balancers for portable tools	<a href="#">B25H 1/0028</a>

## B23Q 11/0032

[N: Arrangements for preventing or isolating vibrations in parts of the machine ([B23B 29/022](#), [B23D 47/005](#) take precedence; means for damping or suppressing vibrations, in general [F16F](#))]

### References relevant to classification in this group

*This subclass/group does not cover:*

Vibration damping in sawing machines	<a href="#">B23D 47/005</a>
Boring bars with vibration reducing means	<a href="#">B23B 29/022</a>
Detection or control of chatter	<a href="#">B23Q 17/0976</a>

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Counterweights for suppressing vibrations in general	<a href="#">F16F 15/28</a>
Numerical control for compensation of load, inertia or temperature	<a href="#">G05B 19/404</a>

## B23Q 11/0057

[N: outside the working area]

### Definition statement

*This subclass/group covers:*

Chip collectors or chip conveyors placed under or next to a machine tool, in order to catch and convey the chips from the working area to the outside.

If the invention is focussed on the separating of the chips from the coolant, then classify rather in [B23Q 11/1069](#) (filtration).

### References relevant to classification in this group

*This subclass/group does not cover:*

Arrangements for removing bark-zones, chips, waste, or dust, specially designed for use in connection with wood-working machines	<a href="#">B27G 3/00</a>
Removing or collecting chips in sawing machines	<a href="#">B23D 59/006</a>
Means for removing cut-out material or waste in punching or perforating machines	<a href="#">B26D 7/18</a>
Dust removing means in manipulators	<a href="#">B25J 19/0058</a>

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Cleaning workpieces in general	<a href="#">B08B 3/00</a>
Conveying materials in general, other than cutting chips	<a href="#">B65G 53/00</a>

## B23Q 11/0078

[N: Safety devices protecting the operator, e.g. against

accident or noise (protecting the machine tool [B23Q 5/58](#); protecting people, in general [F16P 1/00](#), [F16P 3/00](#))]

### References relevant to classification in this group

*This subclass/group does not cover:*

Protective coverings placed between the working area and the operator	<a href="#">B23Q 11/0891</a>
Chambers provided with manipulation devices	<a href="#">B25J 21/00</a>
Devices for arresting movement of the saw chain	<a href="#">B27B 17/083</a>
Devices for braking the circular saw blade or the saw spindle	<a href="#">B27B 5/38</a>
Safety guards for wood saws	<a href="#">B27G 19/02</a>

## B23Q 11/08

**Protective coverings for parts of machine tools; Splash guards**

### References relevant to classification in this group

*This subclass/group does not cover:*

Tool covers	<a href="#">B23Q 13/00</a>
Arrangements for covering or protecting the waysfixed to the carriage or bearing body movable along the guide rail	<a href="#">F16C 29/084</a>

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Screening or protective devices in general	<a href="#">E06B 9/00</a>
Bellows in general	<a href="#">F16J 3/04</a>

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## B23Q 11/10

Arrangements for cooling or lubricating tools or work (incorporated in tools, see the relevant subclass for the tool, [N: e.g. [B23B 27/10](#), [B23B 51/06](#), [B23C 5/28](#), [B23D 77/006](#); for circular saw blades [B23D 59/02](#), for cooling grinding surfaces [B24B 55/02](#) ])

### Definition statement

*This subclass/group covers:*

If the invention concerns a specific kind of tool with features concerning its cooling or lubricating, it should be classified in the corresponding class of the tool.

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Feed or discharge mechanisms for settling tanks (sedimentation)	<a href="#">B01D 21/245</a>
Filters in general	<a href="#">B01D 35/00</a> , <a href="#">B01D 36/00</a>

## B23Q 13/00

Equipment for use with tools or cutters when not in operation, e.g. protectors for storage [N: ([B26B 29/00](#) takes precedence)]

### Definition statement

*This subclass/group covers:*

Equipment used in combination with a tool when the tool is not in operation, e.g. tool covers avoiding injury of an operator or damage of the tool.

## B23Q 15/00

Automatic control or regulation of feed movement, cutting velocity or position of tool or work (programme-control [G05B 19/00](#), e.g. numerical programme-control [G05B 19/18](#))

### Definition statement

*This subclass/group covers:*

Control while the tool acts upon the workpiece. Control before or after the tool acts upon the workpiece.

### References relevant to classification in this group

*This subclass/group does not cover:*

Control of manipulators	<a href="#">B25J 9/16</a>
Numerical Control of machine-tools	<a href="#">G05B 19/18</a>
Microprocessor Control of machines	<a href="#">G05B 19/042</a>

## B23Q 16/00

**Equipment for precise positioning of tool or work into particular locations not otherwise provided for (automatic control or regulation of position of tool or work [B23Q 15/22](#); arrangements for indicating or measuring existing or desired position of tool or work [B23Q 17/22](#))**

### Definition statement

*This subclass/group covers:*

Mechanical stops for positively defining a position of a part of the machine tool by abutment against the stop ([B23Q 16/001](#) to [B23Q 16/002](#)).

Mechanisms of peck feed drills for periodically retracting the drill from the bored hole and advancing it again to the previous working position. Other mechanisms allowing to bring the tool back to a previous working position after an interruption ([B23Q 16/003](#)).

Equipment for measuring the distance just before contact or detecting the contact between two machine parts ([B23Q 16/005](#)).

### References relevant to classification in this group

*This subclass/group does not cover:*

Detection of contact between tool and workpiece	<a href="#">B23Q 17/2241</a>
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### Special rules of classification within this group

[B23Q 16/001-B23Q 16/002](#)

If the stop is in a hollow spindle, then classify in [B23Q 16/002](#)

[B23Q 16/04-B23Q 16/08](#)

If the relative movement is locked by an intermediate member mounted on the support and insertable in an aperture of the indexing part, then classify in [B23Q 16/04-B23Q 16/065](#).

If the relative movement is stopped by a sort of clamping means or meshing means (hirth ring), then classify in [B23Q 16/08-B23Q 16/102](#).

If the indexing movement is a rotation and the clamping means is a disc or a drum brake, then classify in [B23Q 16/105](#) or [B23Q 16/107](#) respectively.

[B23Q 16/04-B23Q 16/08](#)

These classes concern details for locking or clamping the indexing part in the indexing position, so that it does not move relative to the fixed support.

If the relative movement is locked by an intermediate member mounted on the support and insertable in an aperture of the indexing part, then classify in

[B23Q 16/04- B23Q 16/065](#)

If the relative movement is stopped by a sort of clamping means or meshing means (hirth ring), then classify in [B23Q 16/08-16C](#).

If the indexing movement is a rotation and the clamping means is a disc or a drum brake, then classify in [B23Q 16/105](#) or [B23Q 16/107](#) respectively.

Further details of subgroups:

[B23Q 16/006](#)

See, for example, US-5,765,448.

Device consisting of a plurality of abutting stops at different positions or of different lengths, in a common carrier, used for determining a position or length of a machine part.

[B23Q 16/007](#)

Positive angle adjustment of a pivotable table. See, for example, US-3,861,088.

[B23Q 16/02](#)

Equipment for bringing a linearly or rotatably moving part to one of a plurality of consecutive predefined indexing positions.

[B23Q 16/021](#)



Details concerning the elements that assure the accurate positioning at the indexing point.

[B23Q 16/022](#)

Details concerning the mechanism that produces the movement from an indexing point to the next.

[B23Q 16/027](#)

Means for varying the distance between two consecutive indexing points or between various consecutive machine parts separated from each other by the same distance.

[B23Q 16/028](#)

Additional means for adjusting the position of the indexing part around the normal indexing position.

## Glossary of terms

*In this subclass/group, the following terms (or expressions) are used with the meaning indicated:*

Reciprocating or oscillating movement	Linear movement
Continuous movement or continuous drive	Rotary movement or rotary drive

## B23Q 17/00

**Arrangements for [N: observing,] indicating or measuring on machine tools (for automatic control or regulation of feed movement, cutting velocity or position of tool or work [B23Q 15/00](#))**

### Definition statement

*This subclass/group covers:*

Arrangements for measuring any parameters, such as tool or workpiece dimensions, vibrations, positions of machine parts, etc.

Arrangements for detecting any machine condition, such as "tool or workpiece are safely clamped", "the machine parts are in a good state", for managing the life of the tools or other parts of the machine, etc.

## Special rules of classification within this group

[B23Q 17/0966](#) - [B23Q 17/0971](#)

If the amplitude of a force is analysed in the time domain, then classify in [B23Q 17/0966](#).

If the force is analysed in the frequency domain (vibration), then classify in [B23Q 17/0971](#).

[B23Q 17/2216](#)-[B23Q 17/2225](#)

The documents should rather be classified in [B23Q 17/0914](#)-[B23Q 17/0947](#) as far as possible.

[B23Q 17/2233](#)

If the referencing is done by contacting the workpiece with the tool, then classify in [B23Q 17/2241](#).

Further details of subgroups:

[B23Q 17/002](#)

Controlling whether a tool or workpiece holder is correctly holding (correct position or correct holding force).

Depending on whether the parameter controlled is a position of a part or a force, pressure or deformation acting on a part, the document should be classified in [B23Q 17/003](#) or [B23Q 17/005](#) respectively.

[B23Q 17/006](#)

As opposed to [B23Q 17/002](#), this class deals only with the detecting of the presence or absence of a tool or workpiece in its holder, and not to the quality of the holding action.

[B23Q 17/007](#)

Controlling the right, smooth functioning of parts of the machine, except the tool. Details concerning life management of a specific part (how long can this part still work correctly before it must be replaced or maintained?) are classified in [B23Q 17/008](#).

[B23Q 17/099](#)

Analysing the quality (dimensions, roughness, temperature, etc.) of the machined workpiece.

[B23Q 17/12](#)

Special details of arrangements for measuring vibrations in machine tools.

[B23Q 17/22](#)

Special arrangements in machine tools for measuring the position of the workpiece or the tool relative to the machine or relative to each other.

Arrangements for correcting position errors or for adjusting the tool and the workpiece relative to each other.

[B23Q 17/2208](#)

Arrangements for detecting or preventing collisions between parts (tool, workpiece, slides, etc. ) of the machine tool.

[B23Q 17/2216](#)

Adjusting the tool into its holder or into the tool head, for example for correcting an eccentricity or an inclination error.

[B23Q 17/2233](#)

Arrangements for adjusting the position of the tool or the spindle relative to the workpiece or to a reference part in the machine.

[B23Q 17/24](#)

Arrangements using optical devices (lenses, electromagnetic waves, radar, cameras, etc.) for measuring, detecting a certain machine state, or facilitating the working in a machine tool.

## **B23Q 17/09**

**for indicating or measuring cutting pressure or [N: for determining] cutting-tool condition, e.g. cutting ability, load on tool (arrangements preventing overload of tools [B23Q 11/04](#); devices for indicating failure of drills during boring [B23B 49/00](#))**

### **Definition statement**

*This subclass/group covers:*

Details concerning the control of the condition of the tool (level of wear, broken tool, dimensions, temperature, machining forces, etc.). Depending on whether the control is performed before/after machining or during machining, classify in [B23Q 17/0904](#) - [B23Q 17/0947](#) or [B23Q 17/0952](#) - [B23Q 17/099](#) respectively.

### **References relevant to classification in this group**

*This subclass/group does not cover:*

Accessories for positioning, for tool-setting for measuring probes	<a href="#">G01B 21/047</a>
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## B23Q 17/0919

[N: Arrangements for measuring or adjusting cutting-tool geometry in presetting devices]

### Definition statement

*This subclass/group covers:*

The tool is measured in an apparatus (presetting device) independent from the machine tool.

### References relevant to classification in this group

*This subclass/group does not cover:*

Clamping a tool in a tool holder by heating and shrinking the holder (tool length setting device)	<a href="#">B23P 11/02</a>
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## B23Q 17/20

for indicating or measuring workpiece characteristics, e.g. contour, dimension, hardness

### Definition statement

*This subclass/group covers:*

Measurement of workpiece characteristics, in a machine tool or directly related to the functioning of the machine tool.

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Measuring instruments in general	<a href="#">G01B</a>
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## B23Q 17/2414

[N: for indicating desired positions guiding the positioning of tools or workpieces ([B25H 1/0092](#) takes precedence)]

### Definition statement

*This subclass/group covers:*

Using light beams projected on the working area for helping the operator to guide the tool or workpiece to the desired target.

### References relevant to classification in this group

*This subclass/group does not cover:*

Optical guiding devices for hand tools	<a href="#">B25H 1/0092</a>
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## B23Q 23/00

**Arrangement for compensating for irregularities or wear, e.g. of ways, of setting mechanisms (automatic control [B23Q 15/00](#))**

### Definition statement

*This subclass/group covers:*

Arrangements for compensating any irregularities, such as wear, in the functioning of the machine tool.

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Automatic control of parts of a machine tool	<a href="#">B23Q 15/00</a>
Programme control systems	<a href="#">G05B 19/00</a>

## B23Q 27/00

**Geometrical mechanisms for the production of work of particular shapes, not fully provided for in another subclass**

### Definition statement

*This subclass/group covers:*

Special machine configurations allowing to produce works of particular shape.

### References relevant to classification in this group

*This subclass/group does not cover:*

Numerical control for generating special surfaces	<a href="#">G05B 19/182</a>
Grinding non circular cross sections	<a href="#">B24B 19/08</a>

## B23Q 33/00

### Methods for copying

#### Definition statement

*This subclass/group covers:*

General methods for copying a shape.

This class is not used anymore for classifying. It contains some old documents that deal with the reproduction of a shape on a workpiece.

#### References relevant to classification in this group

*This subclass/group does not cover:*

Tracing or scanning a model for preparing numerical control data	<a href="#">G05B 19/4207</a>
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## B23Q 35/00

**Control systems or devices for copying directly from a pattern or a master model; Devices for use in copying manually [N: (copy milling classified also in [B27C 5/003](#))]**

#### Definition statement

*This subclass/group covers:*

Arrangements allowing a tool to copy a pattern or model.

Arrangements allowing a cutting tool to machine a workpiece for reproducing the shape of a physical master model (e.g. a key). The shape of the master model is detected either with or without physical contact and the corresponding information is transferred to the axis of a machine tool.

#### References relevant to classification in this group

*This subclass/group does not cover:*

Using a copying machine for making	<a href="#">A61C 13/0009</a>
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dental prostheses	
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## B23Q 37/00

**Metal-working machines, or constructional combinations thereof, built-up from units designed so that at least some of the units can form parts of different machines or combinations; Units therefor in so far as the feature of interchangeability is important (features relating to particular metal-working operations, see the relevant subclasses, e.g. [B23P 23/00](#))**

### Definition statement

*This subclass/group covers:*

Machine tools made of special modules allowing the machine to be reconfigured.

Modules adapted to make reconfigurable machines.

Machines not made of modular elements but being convertible into different working configurations (e.g., from horizontally working into vertically working; [B23Q 37/002](#)).

## B23Q 39/00

**Metal-working machines incorporating a plurality of sub-assemblies; each capable of performing a metal-working operation ([B23Q 33/00](#), [B23P 23/00](#) take precedence; if the operations are similar and the kind of operation is essential, see the relevant subclass for the operation)**

### Definition statement

*This subclass/group covers:*

Machine tools made of a plurality of sub-assemblies, wherein each-subassembly can perform a machining operation, either simultaneously or consecutively, either on a same workpiece or not.

### References relevant to classification in this group

*This subclass/group does not cover:*

Turning-machines with two or more working-spindles	<a href="#">B23B 3/30</a>
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## Special rules of classification within this group

Further details of subgroups:

### [B23Q 39/02](#)

There is a single operating station, i.e. either a single workholder for a plurality of toolheads ([B23Q 39/021](#) - [B23Q 39/027](#)) or a plurality of workholders ready to be operated on by a single toolhead ([B23Q 39/028](#)).

### [B23Q 39/021](#) - [B23Q 39/027](#)

In these classes, "same working direction" means that the toolheads operate on the workpiece from the same side, with similar inclination of the tool. "Different working direction" means that the toolheads operate on the workpiece from different sides or with different inclination of the tool.

### [B23Q 39/04](#)

Several workpieces are machined simultaneously at different stations by different tool heads.

## B23Q 41/00

**Combinations or associations of metal-working machines not directed to a particular result according to classes B21, B23, or B24 ([B23Q 37/00](#), [B23Q 39/00](#) take precedence; features relating to operations performed, if the different metal-working operations are of the same kind, the subclass for the kind of operation, e.g. punching [B21D](#), welding [B23K](#), grinding [B24B](#); features relating to technically specified combinations of different metal-working operations [B23P 23/00](#))**

### Definition statement

*This subclass/group covers:*

Machining lines with a plurality of machining stations of different types, with a special arrangement or organisation of the machines, characterised not by the end product or the machining technology but by the relationship between the machines.

### References relevant to classification in this group

*This subclass/group does not cover:*

Total factory control	<a href="#">G05B 19/418</a>
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Assembly with two or more workstations	<a href="#">B23P 21/004</a>
Advancing work in multistage presses	<a href="#">B21D 43/05</a>

## Informative references

Attention is drawn to the following places, which may be of interest for search:

Combinations of conveyers in general	<a href="#">B65G 37/02</a>
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## Special rules of classification within this group

Further details of subgroups:

[B23Q 41/02](#)

Details relating to the transfer of the work between the machines.

If the details correspond to a specific transfer device, then classify in the corresponding group in [B23Q 7/00](#) - [B23Q 7/103](#).

[B23Q 41/04](#)

Details relating to the relative spatial arrangements of the machines in the factory.

[B23Q 41/06](#)

Details relating to the organisation of the working of the machines or to the distribution or flow of the workpieces between the machines.

[B23Q 41/08](#)

General details relating to the maintenance of efficient working conditions in the machines, such as parts or tool wear control, checking of quality, optimisation of working conditions.