

Symbol	Typ	Titel
B	Sektion	SECTION B — PERFORMING OPERATIONS; TRANSPORTING
B23	Klasse	MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR (punching, perforating, making articles by processing sheet metal, tubes, or profiles B21D; wire-working B21F; making pins, needles, or nails B21G; making chains B21L; grinding B24)
B23Q	Unterklasse	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
B23Q 1/00	Hauptgruppe	Members which are comprised in the general build-up of a form of machine, particularly relatively large fixed members (B23Q 37/00 takes precedence)
B23Q 1/01	1-Punkt Untergruppe	. Frames, beds, pillars or like members; Arrangement of ways [6]
B23Q 1/03	1-Punkt Untergruppe	. Stationary work or tool supports (B23Q 1/70 takes precedence; auxiliary tables B23Q 1/74; tailstocks B23B 23/00) [6]
B23Q 1/25	1-Punkt Untergruppe	. Movable or adjustable work or tool supports [6]
B23Q 1/26	2-Punkt Untergruppe	. . characterised by constructional features relating to the co-operation of relatively movable members; Means for preventing relative movement of such members [6]
B23Q 1/28	3-Punkt Untergruppe	. . . Means for securing sliding members in any desired position [6]
B23Q 1/30	3-Punkt Untergruppe	. . . controlled in conjunction with the feed mechanism [6]
B23Q 1/32	3-Punkt Untergruppe	. . . Relative movement obtained by co-operating spherical surfaces, e.g. ball-and-socket joints [6]
B23Q 1/34	3-Punkt Untergruppe	. . . Relative movement obtained by use of deformable elements, e.g. piezo-electric, magnetostrictive, elastic or thermally-dilatable elements (sensitive elements capable of producing movement or displacement for purposes not limited to measurement G12B 1/00) [6]
B23Q 1/36	4-Punkt Untergruppe	 Springs [6]
B23Q 1/38	3-Punkt Untergruppe	. . . using fluid bearings or fluid cushion supports [6]
B23Q 1/40	3-Punkt Untergruppe	. . . using ball, roller or wheel arrangements [6]
B23Q 1/42	3-Punkt Untergruppe	. . . using T-, V-, dovetail-section or like guides (B23Q 1/40 takes precedence) [6]
B23Q 1/44	2-Punkt Untergruppe	. . using particular mechanisms (B23Q 1/26 takes precedence) [6]
B23Q 1/46	3-Punkt Untergruppe	. . . with screw pairs [6]
B23Q 1/48	3-Punkt Untergruppe	. . . with sliding pairs and rotating pairs (B23Q 1/46 takes precedence) [6]
B23Q 1/50	3-Punkt Untergruppe	. . . with rotating pairs only [6]
B23Q 1/52	4-Punkt Untergruppe	 a single rotating pair [6]
B23Q 1/54	4-Punkt Untergruppe	 two rotating pairs only [6]
B23Q 1/56	3-Punkt Untergruppe	. . . with sliding pairs only [6]
B23Q 1/58	4-Punkt Untergruppe	 a single sliding pair [6]
B23Q 1/60	4-Punkt Untergruppe	 two sliding pairs only [6]

Symbol	Typ	Titel
B23Q 1/62	5-Punkt Untergruppe	 with perpendicular axes, e.g. cross-slides [6]
B23Q 1/64	2-Punkt Untergruppe	. . characterised by the purpose of the movement (indexing equipment B23Q 16/02) [6]
B23Q 1/66	3-Punkt Untergruppe	. . . Work-tables interchangeably movable into operating positions [6]
B23Q 1/68	3-Punkt Untergruppe	. . . for withdrawing tool or work during reverse movement [6]
B23Q 1/70	1-Punkt Untergruppe	. Stationary or movable members for carrying working-spindles for attachment of tools or work (headstocks or the like, working-spindle supports B23B 19/00; working-spindles B23B 19/02) [6]
B23Q 1/72	1-Punkt Untergruppe	. Auxiliary arrangements; Interconnections between auxiliary tables and movable machine elements [6]
B23Q 1/74	2-Punkt Untergruppe	. . Auxiliary tables [6]
B23Q 1/76	2-Punkt Untergruppe	. . Steadies; Rests [6]
B23Q 3/00	Hauptgruppe	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)
B23Q 3/02	1-Punkt Untergruppe	. for mounting on a work-table, tool-slide, or analogous part (B23Q 3/15 takes precedence)
B23Q 3/04	2-Punkt Untergruppe	. . adjustable in inclination
B23Q 3/06	2-Punkt Untergruppe	. . Work-clamping means
B23Q 3/08	3-Punkt Untergruppe	. . . other than mechanically-actuated
B23Q 3/10	2-Punkt Untergruppe	. . Auxiliary devices, e.g. bolsters, extension members
B23Q 3/12	1-Punkt Untergruppe	. for securing to a spindle in general (B23Q 3/152 takes precedence; chucks B23B 31/02)
B23Q 3/14	2-Punkt Untergruppe	. . Mandrels in general (expansion mandrels B23B 31/40)
B23Q 3/15	1-Punkt Untergruppe	. Devices for holding work using magnetic or electric force acting directly on the work
B23Q 3/152	2-Punkt Untergruppe	. . Rotary devices
B23Q 3/154	2-Punkt Untergruppe	. . Stationary devices
B23Q 3/155	1-Punkt Untergruppe	. Arrangements for automatic insertion or removal of tools
B23Q 3/157	2-Punkt Untergruppe	. . of rotary tools
B23Q 3/16	1-Punkt Untergruppe	. controlled in conjunction with the operation of the tool
B23Q 3/18	1-Punkt Untergruppe	. for positioning only
B23Q 5/00	Hauptgruppe	Driving or feeding mechanisms; Control arrangements therefor (automatic control B23Q 15/00; copying B23Q 33/00, B23Q 35/00; specially adapted for boring or drilling machines B23B 39/10, B23B 47/02)
B23Q 5/02	1-Punkt Untergruppe	. Driving main working members
B23Q 5/027	2-Punkt Untergruppe	. . reciprocating members [2]
B23Q 5/033	3-Punkt Untergruppe	. . . driven essentially by fluid pressure [2]
B23Q 5/04	2-Punkt Untergruppe	. . rotary shafts, e.g. working-spindles
B23Q 5/06	3-Punkt Untergruppe	. . . driven essentially by fluid pressure or pneumatic power

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B23Q 5/08	4-Punkt Untergruppe	 electrically controlled
B23Q 5/10	3-Punkt Untergruppe	. . . driven essentially by electrical means
B23Q 5/12	3-Punkt Untergruppe	. . . Mechanical drives with means for varying the speed ratio
B23Q 5/14	4-Punkt Untergruppe	 step-by-step
B23Q 5/16	4-Punkt Untergruppe	 infinitely-variable
B23Q 5/18	4-Punkt Untergruppe	 Devices for preselecting speed of working-spindle
B23Q 5/20	3-Punkt Untergruppe	. . . Adjusting or stopping working-spindles in a predetermined position
B23Q 5/22	1-Punkt Untergruppe	. Feeding members carrying tools or work
B23Q 5/26	2-Punkt Untergruppe	. . Fluid-pressure drives [3]
B23Q 5/28	2-Punkt Untergruppe	. . Electric drives [3]
B23Q 5/32	2-Punkt Untergruppe	. . Feeding working-spindles (feeding working-spindle supports B23Q 5/34) [3]
B23Q 5/34	2-Punkt Untergruppe	. . Feeding other members supporting tools or work, e.g. saddles, tool-slides, through mechanical transmission [3]
B23Q 5/36	3-Punkt Untergruppe	. . . in which a servomotor forms an essential element [3]
B23Q 5/38	3-Punkt Untergruppe	. . . feeding continuously [3]
B23Q 5/40	4-Punkt Untergruppe	 by feed shaft, e.g. lead screw [3]
B23Q 5/42	5-Punkt Untergruppe	 Mechanism associated with headstock [3]
B23Q 5/44	5-Punkt Untergruppe	 Mechanism associated with the moving member [3]
B23Q 5/46	4-Punkt Untergruppe	 with variable speed ratio [3]
B23Q 5/48	5-Punkt Untergruppe	 by use of toothed gears [3]
B23Q 5/50	3-Punkt Untergruppe	. . . feeding step by step [3]
B23Q 5/52	2-Punkt Untergruppe	. . Limiting feed movement
B23Q 5/54	1-Punkt Untergruppe	. Arrangements or details not restricted to group B23Q 5/02 or group B23Q 5/22 respectively
B23Q 5/56	2-Punkt Untergruppe	. . Preventing backlash
B23Q 5/58	2-Punkt Untergruppe	. . Safety devices
B23Q 7/00	Hauptgruppe	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, B23B 19/02; for automatic or semi-automatic turning machines B23B 15/00) [2]
B23Q 7/02	1-Punkt Untergruppe	. by means of drums or rotating tables or discs
B23Q 7/03	1-Punkt Untergruppe	. by means of endless chain conveyers (B23Q 7/16 takes precedence) [2]
B23Q 7/04	1-Punkt Untergruppe	. by means of grippers
B23Q 7/05	1-Punkt Untergruppe	. by means of roller-ways (B23Q 7/16 takes precedence) [2]
B23Q 7/06	1-Punkt Untergruppe	. by means of pushers

Symbol	Typ	Titel
B23Q 7/08	1-Punkt Untergruppe	. by means of slides or chutes
B23Q 7/10	1-Punkt Untergruppe	. by means of magazines
B23Q 7/12	1-Punkt Untergruppe	. Sorting arrangements
B23Q 7/14	1-Punkt Untergruppe	. co-ordinated in production lines
B23Q 7/16	1-Punkt Untergruppe	. Loading work on to conveyers; Arranging work on conveyers, e.g. varying spacing between individual workpieces [2]
B23Q 7/18	2-Punkt Untergruppe	. . Orienting work on conveyers [2]
B23Q 9/00	Hauptgruppe	Arrangements for supporting or guiding portable metal-working machines or apparatus (for tapping pipes B23B 41/08; specially designed for drilling B23B 45/14)
B23Q 9/02	1-Punkt Untergruppe	. for securing machines or apparatus to workpieces, or other parts, of particular shape, e.g. to beams of particular cross-section
		<u>Accessories</u>
B23Q 11/00	Hauptgruppe	Accessories fitted to machine tools for keeping tools or parts of the machine in good working condition or for cooling work; 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 47/24, B23B 47/32 take precedence; safety devices in general F16P)
B23Q 11/02	1-Punkt Untergruppe	. Devices for removing scrap from the cutting teeth of circular cutters
B23Q 11/04	1-Punkt Untergruppe	. Arrangements preventing overload of tools, e.g. restricting load
B23Q 11/06	1-Punkt Untergruppe	. Safety devices for circular cutters
B23Q 11/08	1-Punkt Untergruppe	. Protective coverings for parts of machine tools; Splash guards
<i>B23Q 11/10</i>	<i>1-Punkt Untergruppe</i>	<i>. Arrangements for cooling or lubricating tools or work (incorporated in tools, <u>see</u> the relevant subclass for the tool) [1, 2006.01]</i>
<i>B23Q 11/12</i>	<i>1-Punkt Untergruppe</i>	<i>. Arrangements for cooling or lubricating parts of the machine (B23Q 11/14 takes precedence) [1, 2006.01]</i>
<i>B23Q 11/14</i>	<i>1-Punkt Untergruppe</i>	<i>. Methods or arrangements for maintaining a constant temperature in parts of machine tools [1, 2006.01]</i>
B23Q 13/00	Hauptgruppe	Equipment for use with tools or cutters when not in operation, e.g. protectors for storage
		<u>Measuring; Indicating; Controlling [3]</u>
B23Q 15/00	Hauptgruppe	Automatic control or regulation of feed movement, cutting velocity or position of tool or work [3]
B23Q 15/007	1-Punkt Untergruppe	. while the tool acts upon the workpiece [3]
B23Q 15/013	2-Punkt Untergruppe	. . Control or regulation of feed movement (B23Q 15/12 takes precedence) [3]
B23Q 15/02	3-Punkt Untergruppe	. . . according to the instantaneous size and the required size of the workpiece acted upon (B23Q 15/06 takes precedence) [3]
B23Q 15/04	3-Punkt Untergruppe	. . . according to the final size of the previously machined workpiece (B23Q 15/06 takes precedence) [3]
B23Q 15/06	3-Punkt Untergruppe	. . . according to measuring results produced by two or more gauging methods using different measuring principles, e.g. by both optical and mechanical gauging [3]
B23Q 15/08	2-Punkt Untergruppe	. . Control or regulation of cutting velocity (B23Q 15/12 takes precedence) [3]
B23Q 15/10	3-Punkt Untergruppe	. . . to maintain constant cutting velocity between tool and workpiece [3]
B23Q 15/12	2-Punkt Untergruppe	. . Adaptive control, i.e. adjusting itself to have a performance which is optimum according to a preassigned criterion [3]

Symbol	Typ	Titel
B23Q 15/14	2-Punkt Untergruppe	. . Control or regulation of the orientation of the tool with respect to the work [3]
B23Q 15/16	2-Punkt Untergruppe	. . Compensation for wear of the tool [3]
B23Q 15/18	2-Punkt Untergruppe	. . Compensation of tool-deflection due to temperature or force [3]
B23Q 15/20	1-Punkt Untergruppe	. before or after the tool acts upon the workpiece [3]
B23Q 15/22	2-Punkt Untergruppe	. . Control or regulation of position of tool or workpiece [3]
B23Q 15/24	3-Punkt Untergruppe	. . . of linear position [3]
B23Q 15/26	3-Punkt Untergruppe	. . . of angular position [3]
B23Q 15/28	2-Punkt Untergruppe	. . with compensation for tool wear [3]
B23Q 16/00	Hauptgruppe	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) [4]
B23Q 16/02	1-Punkt Untergruppe	. Indexing equipment (specially adapted for gear-cutting machines B23F 23/08) [4]
B23Q 16/04	2-Punkt Untergruppe	. . having intermediate members, e.g. pawls, for locking the relatively movable parts in the indexed position [4]
B23Q 16/06	3-Punkt Untergruppe	. . . Rotary indexing [4]
B23Q 16/08	2-Punkt Untergruppe	. . having means for clamping the relatively movable parts together in the indexed position [4]
B23Q 16/10	3-Punkt Untergruppe	. . . Rotary indexing [4]
B23Q 16/12	2-Punkt Untergruppe	. . using optics [4]
B23Q 17/00	Hauptgruppe	Arrangements for 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) [3, 4]
B23Q 17/09	1-Punkt Untergruppe	. for indicating or measuring cutting pressure or 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) [4]
B23Q 17/10	1-Punkt Untergruppe	. for indicating or measuring cutting speed or number of revolutions
B23Q 17/12	1-Punkt Untergruppe	. for indicating or measuring vibration
B23Q 17/20	1-Punkt Untergruppe	. for indicating or measuring workpiece characteristics, e.g. contour, dimension, hardness [4]
B23Q 17/22	1-Punkt Untergruppe	. for indicating or measuring existing or desired position of tool or work [4]
B23Q 17/24	1-Punkt Untergruppe	. using optics [4]
B23Q 23/00	Hauptgruppe	Arrangements for compensating for irregularities or wear, e.g. of ways, of setting mechanisms (automatic control B23Q 15/00) [3]
B23Q 27/00	Hauptgruppe	Geometrical mechanisms for the production of work of particular shapes, not fully provided for in another subclass
		<u>Copying</u>
B23Q 33/00	Hauptgruppe	Methods for copying
B23Q 35/00	Hauptgruppe	Control systems or devices for copying directly from a pattern or a master model; Devices for use in copying manually
B23Q 35/02	1-Punkt Untergruppe	. Copying discrete points from the pattern, e.g. for determining the position of holes to be drilled
B23Q 35/04	1-Punkt Untergruppe	. using a feeler or the like travelling along the outline of the pattern, model or drawing; Feelers, patterns, or models therefor

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B23Q 35/06	2-Punkt Untergruppe	. . specially adapted for controlling successive operations, e.g. separate cuts, on a workpiece
B23Q 35/08	2-Punkt Untergruppe	. . Means for transforming movement of the feeler or the like into feed movement of tool or work
B23Q 35/10	3-Punkt Untergruppe	. . . mechanically only
B23Q 35/12	3-Punkt Untergruppe	. . . involving electrical means (programme recording for copying purposes in a separate apparatus G05, G11)
B23Q 35/121	4-Punkt Untergruppe	 using mechanical sensing
B23Q 35/122	5-Punkt Untergruppe	 the feeler opening or closing electrical contacts
B23Q 35/123	5-Punkt Untergruppe	 the feeler varying the impedance in a circuit
B23Q 35/124	6-Punkt Untergruppe	 varying resistance
B23Q 35/125	6-Punkt Untergruppe	 varying capacitance
B23Q 35/126	6-Punkt Untergruppe	 varying inductance
B23Q 35/127	4-Punkt Untergruppe	 using non-mechanical sensing
B23Q 35/128	5-Punkt Untergruppe	 Sensing by using optical means
B23Q 35/129	5-Punkt Untergruppe	 Sensing by means of electric discharges
B23Q 35/13	5-Punkt Untergruppe	 Sensing by using magnetic means
B23Q 35/14	4-Punkt Untergruppe	 controlling one or more electromotors
B23Q 35/16	4-Punkt Untergruppe	 controlling fluid motors
B23Q 35/18	3-Punkt Untergruppe	. . . involving fluid means (B23Q 35/16 takes precedence)
B23Q 35/20	3-Punkt Untergruppe	. . . with special means for varying the ratio of reproduction
B23Q 35/22	3-Punkt Untergruppe	. . . specially adapted for compensating for wear of the tool
B23Q 35/24	2-Punkt Untergruppe	. . Feelers; Feeler units
B23Q 35/26	3-Punkt Untergruppe	. . . designed for physical contact with a pattern or a model
B23Q 35/28	4-Punkt Untergruppe	 for control of a mechanical copying system
B23Q 35/30	4-Punkt Untergruppe	 for control of an electrical or electro-hydraulic copying system
B23Q 35/32	5-Punkt Untergruppe	 in which the feeler makes and breaks an electrical contact or contacts, e.g. with brush-type tracers
B23Q 35/34	5-Punkt Untergruppe	 in which the feeler varies an electrical characteristic in a circuit, e.g. capacity, frequency
B23Q 35/36	4-Punkt Untergruppe	 for control of a hydraulic or pneumatic copying system
B23Q 35/38	3-Punkt Untergruppe	. . . designed for sensing the pattern, model, or drawing without physical contact (sensing by means of a fluid jet B23Q 35/36)
B23Q 35/40	4-Punkt Untergruppe	 involving optical or photoelectrical systems
B23Q 35/42	2-Punkt Untergruppe	. . Patterns; Master models
B23Q 35/44	3-Punkt Untergruppe	. . . provided with means for adjusting the contact face, e.g. comprising flexible bands held by set-screws
B23Q 35/46	3-Punkt Untergruppe	. . . Supporting devices therefor

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B23Q 35/48	1-Punkt Untergruppe	. using a feeler or the like travelling to-and-fro between opposite parts of the outline of the pattern, model, or drawing
		<u>Metal-working machines comprising units or sub-assemblies; Associations of metal-working machines or units</u>
B23Q 37/00	Hauptgruppe	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, <u>see</u> the relevant subclasses, e.g. B23P 23/00)
B23Q 39/00	Hauptgruppe	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, <u>see</u> the relevant subclass for the operation)
B23Q 39/02	1-Punkt Untergruppe	. the sub-assemblies being capable of being brought to act at a single operating station
B23Q 39/04	1-Punkt Untergruppe	. the sub-assemblies being arranged to operate simultaneously at different stations, e.g. with an annular work-table moved in steps (associations of machines connected only by work-transferring means B23Q 41/00)
B23Q 41/00	Hauptgruppe	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, <u>see</u> 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)
B23Q 41/02	1-Punkt Untergruppe	. Features relating to transfer of work between machines (arrangements for handling work for machine tools co-ordinated in production lines B23Q 7/14)
B23Q 41/04	1-Punkt Untergruppe	. Features relating to relative arrangements of machines
B23Q 41/06	1-Punkt Untergruppe	. Features relating to organisation of working of machines
B23Q 41/08	1-Punkt Untergruppe	. Features relating to maintenance of efficient operation