Symbol	Typ	Titel
B	**Sektion**	**SECTION B — PERFORMING OPERATIONS; TRANSPORTING**
B21	**Untersektion**	**SHAPING**
B21	**Klasse**	**MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (casting, powder metallurgy B22; shearing B23D; working of metal by the action of a high concentration of electric current B23H; soldering, welding, flame-cutting B23K; other working of metal B23P; punching sheet material in general B26F; processes for changing of physical properties of metals C21D, C22F; electroforming C25D 1/00)**
B21C	**Unterklasse**	**MANUFACTURE OF METAL SHEETS, WIRE, RODS, TUBES OR PROFILES, OTHERWISE THAN BY ROLLING; AUXILIARY OPERATIONS USED IN CONNECTION WITH METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL**
		Metal drawing (continuous casting B22D 11/00; pressure welding by means of a rolling mill B23K 20/04)
B21C 1/00	**Hauptgruppe**	**Manufacture of metal sheets, metal wire, metal rods, metal tubes by drawing**
B21C 1/02	1-Punkt Untergruppe	. Drawing metal wire or like flexible metallic material by drawing machines or apparatus in which the drawing action is effected by drums
B21C 1/04	2-Punkt Untergruppe	. . with two or more dies operating in series
B21C 1/06	3-Punkt Untergruppe	. . . in which the material slips on the drums
B21C 1/08	3-Punkt Untergruppe	. . . in which the material does not slip on the drums
B21C 1/10	4-Punkt Untergruppe	. . . . with accumulation of material between consecutively-arranged dies
B21C 1/12	2-Punkt Untergruppe	. . Regulating or controlling speed of drawing drums, e.g. to influence tension; Drives; Stop or relief mechanisms (couplings for drums B21C 1/14; design or construction of electrical equipment, see the relevant classes)
B21C 1/14	2-Punkt Untergruppe	. . Drums, e.g. capstans (capstans or winches in general B66D); Connection of grippers thereto; Grippers specially adapted for drawing machines or apparatus of the drum type; Couplings specially adapted for these drums
B21C 1/16	1-Punkt Untergruppe	. Metal drawing by machines or apparatus in which the drawing action is effected by other means than drums, e.g. by a longitudinally-moved carriage pulling or pushing the work or stock for making metal sheets, bars, or tubes
B21C 1/18	2-Punkt Untergruppe	. . from stock of limited length (B21C 1/22 takes precedence)
B21C 1/20	2-Punkt Untergruppe	. . from stock of essentially unlimited length (B21C 1/22 takes precedence)
B21C 1/22	2-Punkt Untergruppe	. . specially adapted for making tubular articles (bending sheet metal into tubular form by drawing B21D 5/10)
B21C 1/24	3-Punkt Untergruppe	. . . by means of mandrels (mandrels B21C 3/16)
B21C 1/26	4-Punkt Untergruppe	. . . . Push-bench drawing
B21C 1/27	2-Punkt Untergruppe	. . Carriages; Drives
B21C 1/28	3-Punkt Untergruppe	. . . Carriages; Connections of grippers thereto; Grippers (for drawing machines of the drum type B21C 1/14)
B21C 1/30	3-Punkt Untergruppe	. . . Drives, e.g. carriage-traversing mechanisms; Driving elements, e.g. drawing chains; Controlling the drive
B21C 1/32	2-Punkt Untergruppe	. . Feeding or discharging the material or mandrels
B21C 1/34	2-Punkt Untergruppe	. . Guiding or supporting the material or mandrels

Symbol	Typ	Titel
B21C 3/00	**Hauptgruppe**	**Profiling tools for metal drawing; Combinations of dies and mandrels**
B21C 3/02	1-Punkt Untergruppe	. Dies; Selection of material therefor; Cleaning thereof
B21C 3/04	2-Punkt Untergruppe	. . with non-adjustable section (B21C 3/08 takes precedence)
B21C 3/06	2-Punkt Untergruppe	. . with adjustable section (B21C 3/08 takes precedence)
B21C 3/08	2-Punkt Untergruppe	. . with section defined by rollers, balls, or the like
B21C 3/10	2-Punkt Untergruppe	. . with hydraulic forces acting immediately on work
B21C 3/12	2-Punkt Untergruppe	. . Die holders; Rotating dies
B21C 3/14	3-Punkt Untergruppe	. . . Die holders combined with devices for guiding the drawing material or combined with devices for cooling, heating, or lubricating
B21C 3/16	1-Punkt Untergruppe	. Mandrels (separating mandrels from work B21C 45/00); Mounting or adjusting same
B21C 3/18	1-Punkt Untergruppe	. Making tools by operations not covered by a single other subclass; Repairing
B21C 5/00	**Hauptgruppe**	**Pointing; Push-pointing**
B21C 9/00	**Hauptgruppe**	**Cooling, heating or lubricating drawing material (B21C 3/14 takes precedence)**
B21C 9/02	1-Punkt Untergruppe	. Selection of compositions therefor
B21C 19/00	**Hauptgruppe**	**Devices for straightening wire or like work combined with or specially adapted for use in connection with drawing or winding machines or apparatus**
		Metal extruding (continuous casting B22D 11/00)
B21C 23/00	**Hauptgruppe**	**Extruding metal; Impact extrusion**
B21C 23/01	1-Punkt Untergruppe	. starting from material of particular form or shape, e.g. mechanically pre-treated (B21C 23/22 takes precedence; heat treatment or combinations thereof with mechanical treatments, see appropriate classes)
B21C 23/02	1-Punkt Untergruppe	. Making uncoated products
B21C 23/03	2-Punkt Untergruppe	. . by both direct and backward extrusion
B21C 23/04	2-Punkt Untergruppe	. . by direct extrusion
B21C 23/06	3-Punkt Untergruppe	. . . Making sheets
B21C 23/08	3-Punkt Untergruppe	. . . Making wire, bars, tubes
B21C 23/10	4-Punkt Untergruppe	. . . . Making finned tubes
B21C 23/12	4-Punkt Untergruppe	. . . . Extruding bent tubes or rods
B21C 23/14	3-Punkt Untergruppe	. . . Making other products
B21C 23/16	4-Punkt Untergruppe	. . . . Making turbo blades or propellers
B21C 23/18	2-Punkt Untergruppe	. . by impact extrusion [2]
B21C 23/20	2-Punkt Untergruppe	. . by backward extrusion
B21C 23/21	1-Punkt Untergruppe	. Presses specially adapted for extruding metal (extrusion presses in general B30B 11/22)
B21C 23/22	1-Punkt Untergruppe	. Making metal-coated products; Making products from two or more metals
B21C 23/24	2-Punkt Untergruppe	. . Covering indefinite lengths of metal or non-metal material with a metal coating
B21C 23/26	3-Punkt Untergruppe	. . . Applying metal coats to cables, e.g. to insulated electric cables

Symbol	Typ	Titel
B21C 23/28	4-Punkt Untergruppe	. . . . on intermittently-operating extrusion presses
B21C 23/30	4-Punkt Untergruppe	. . . . on continuously-operating extrusion presses
B21C 23/32	1-Punkt Untergruppe	. Lubrication of metal being extruded or of dies, or the like, e.g. physical state of lubricant, location where lubricant is applied (chemical composition, see appropriate classes)
B21C 25/00	**Hauptgruppe**	**Profiling tools for metal extruding**
B21C 25/02	1-Punkt Untergruppe	. Dies
B21C 25/04	1-Punkt Untergruppe	. Mandrels
B21C 25/06	1-Punkt Untergruppe	. Press heads, dies, or mandrels for coating work
B21C 25/08	1-Punkt Untergruppe	. Dies or mandrels with section variable during extruding, e. g for making tapered work; Controlling variation
B21C 25/10	1-Punkt Untergruppe	. Making tools by operations not covered by a single other subclass
B21C 26/00	**Hauptgruppe**	**Rams or plungers; Discs therefor [2]**
B21C 27/00	**Hauptgruppe**	**Containers for metal to be extruded (B21C 29/02 takes precedence)**
B21C 27/02	1-Punkt Untergruppe	. for making coated work
B21C 27/04	1-Punkt Untergruppe	. Venting metal-container chamber
B21C 29/00	**Hauptgruppe**	**Cooling or heating work or parts of the extrusion press**
B21C 29/02	1-Punkt Untergruppe	. of containers for metal to be extruded
B21C 29/04	1-Punkt Untergruppe	. of press heads, dies, or mandrels
B21C 31/00	**Hauptgruppe**	**Control devices, e.g. for regulating the pressing speed or temperature of metal (B21C 25/08 takes precedence); Measuring devices, e.g. for temperature of metal, combined with or specially adapted for use in connection with extrusion presses (measuring devices of more general interest within subclass B21C, see group B21C 51/00)**
B21C 33/00	**Hauptgruppe**	**Feeding extrusion presses with metal to be extruded**
B21C 33/02	1-Punkt Untergruppe	. the metal being in liquid form
B21C 35/00	**Hauptgruppe**	**Removing work or waste from extruding presses; Drawing-off extruded work (in connection with the extruding of bent tubes or rods B21C 23/12); Cleaning dies, ducts, containers, or mandrels [2]**
B21C 35/02	1-Punkt Untergruppe	. Removing or drawing-off work
B21C 35/03	2-Punkt Untergruppe	. . Straightening the work (metal straightening in general B21D)
B21C 35/04	1-Punkt Untergruppe	. Cutting-off or removing waste
B21C 35/06	1-Punkt Untergruppe	. Cleaning dies, ducts, containers or mandrels [2]
B21C 37/00	**Hauptgruppe**	**Manufacture of metal sheets, bars, wire, tubes or like semi-manufactured products, not otherwise provided for (by rolling B21B; by working or processing semi-finished sheet metal, profiles, tubes, or wire B21D, B21F; by casting B22; by material-removing machine tools B23; by welding, e.g. cladding or plating, B23K; by grinding or polishing B24; by electroforming C25D 1/00; by drawing or extruding, see the relevant groups); Manufacture of tubes of special shape [2]**
B21C 37/02	1-Punkt Untergruppe	. of sheets
B21C 37/04	1-Punkt Untergruppe	. of bars or wire
B21C 37/06	1-Punkt Untergruppe	. of tubes or metal hoses; Combined procedures for making tubes, e.g. for making multi-wall tubes (bending sheets for making tubes B21D 5/00; seaming by folding B21D 39/02)

Symbol	Typ	Titel
B21C 37/08	2-Punkt Untergruppe	. . Making tubes with welded or soldered seams (involving only a soldering or welding operation B23K)
B21C 37/083	3-Punkt Untergruppe	. . . Supply, or operations combined with supply, of strip material
B21C 37/087	3-Punkt Untergruppe	. . . using rods or strips of soldering material
B21C 37/09	3-Punkt Untergruppe	. . . of coated strip material
B21C 37/10	2-Punkt Untergruppe	. . Making tubes with riveted seams
B21C 37/12	2-Punkt Untergruppe	. . Making tubes or metal hoses with helically arranged seams
B21C 37/14	2-Punkt Untergruppe	. . Making tubes from doubled flat material
B21C 37/15	2-Punkt Untergruppe	. . Making tubes of special shape; Making the fittings
B21C 37/16	3-Punkt Untergruppe	. . . Making tubes with varying diameter in longitudinal direction
B21C 37/18	4-Punkt Untergruppe	. . . . conical tubes
B21C 37/20	3-Punkt Untergruppe	. . . Making helical or similar guides in or on tubes without removing material, e.g. by drawing same over mandrels, by pushing same through dies
B21C 37/22	3-Punkt Untergruppe	. . . Making finned or ribbed tubes by fixing strip or like material to tubes (making heat exchangers B21D 53/02)
B21C 37/24	4-Punkt Untergruppe	. . . . annularly-ribbed tubes
B21C 37/26	4-Punkt Untergruppe	. . . . helically-ribbed tubes
B21C 37/28	3-Punkt Untergruppe	. . . Making tube fittings for connecting pipes, e.g. U-pieces
B21C 37/29	4-Punkt Untergruppe	. . . . Making branched pieces, e.g. T-pieces
B21C 37/30	2-Punkt Untergruppe	. . Finishing tubes, e.g. sizing, burnishing
B21C 43/00	**Hauptgruppe**	**Devices for cleaning metal products combined with or specially adapted for use with machines or apparatus provided for in this subclass**
B21C 43/02	1-Punkt Untergruppe	. combined with or specially adapted for use in connection with drawing or winding machines or apparatus
B21C 43/04	2-Punkt Untergruppe	. . Devices for de-scaling wire or like flexible work
		Auxiliary operations used in connection with metal working without essentially removing material
B21C 45/00	**Hauptgruppe**	**Separating mandrels from work or vice versa**
B21C 47/00	**Hauptgruppe**	**Winding-up, coiling or winding-off metal wire, metal band or other flexible metal material characterised by features relevant to metal processing only (coiling wire into particular forms B21F 3/00; hot coilers in connection with heat-treatment apparatus C21D 9/68)**
B21C 47/02	1-Punkt Untergruppe	. Winding-up or coiling
B21C 47/04	2-Punkt Untergruppe	. . on or in reels or drums, without using a moving guide (reels or drums B21C 47/28)
B21C 47/06	3-Punkt Untergruppe	. . . with loaded rollers, bolts, or equivalent means holding the material on the reel or drum
B21C 47/08	2-Punkt Untergruppe	. . without making use of a reel or drum, the first turn being formed by a stationary guide
B21C 47/10	2-Punkt Untergruppe	. . by means of a moving guide
B21C 47/12	3-Punkt Untergruppe	. . . the guide moving parallel to the axis of the coil (B21C 47/14 takes precedence)
B21C 47/14	3-Punkt Untergruppe	. . . by means of a rotating guide, e.g. laying the material around a stationary reel or drum

Symbol	Typ	Titel
B21C 47/16	1-Punkt Untergruppe	. Unwinding or uncoiling
B21C 47/18	2-Punkt Untergruppe	. . from reels or drums
B21C 47/20	3-Punkt Untergruppe	. . . the unreeled material moving transversely to the tangent line of the drum, e.g. axially, radially
B21C 47/22	2-Punkt Untergruppe	. . Unwinding coils without reels or drums
B21C 47/24	1-Punkt Untergruppe	. Transferring coils to or from winding apparatus or to or from operative position therein; Preventing uncoiling during transfer
B21C 47/26	1-Punkt Untergruppe	. Special arrangements with regard to simultaneous or subsequent treatment of the material
B21C 47/28	1-Punkt Untergruppe	. Drums or other coil-holders (gripping means B21C 47/32)
B21C 47/30	2-Punkt Untergruppe	. . expansible or contractible
B21C 47/32	1-Punkt Untergruppe	. Tongs or gripping means specially adapted for reeling operations
B21C 47/34	1-Punkt Untergruppe	. Feeding or guiding devices not specially adapted to a particular type of apparatus
B21C 49/00	**Hauptgruppe**	**Devices for temporarily accumulating material**
B21C 51/00	**Hauptgruppe**	**Measuring, gauging, indicating, counting, or marking devices specially adapted for use in the production or manipulation of material in accordance with subclasses B21B-B21F**