В	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)
B21D	Unterklasse	WORKING OR PROCESSING OF SHEET METAL OR METAL TUBES, RODS OR PROFILES WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING (operations of the kind involved in the manufacture of such products B21B, B21C; working or processing of wire B21F; cutting or severing devices or machines in general B26; presses in general B30B)
		Straightening; Restoring form; Bending; Corrugating; Flanging
B21D 1/00	Hauptgruppe	Straightening, restoring form or removing local distortions of sheet metal or specific articles made therefrom (B21D 3/00 takes precedence); Stretching sheet metal combined with rolling ( working sheet metal of limited length by stretching B21D 25/00; by localised hammering B21D 31/06) [2]
B21D 1/02	1-Punkt Untergruppe	. by rollers (B21D 1/06 takes precedence)
B21D 1/05	1-Punkt Untergruppe	. Stretching combined with rolling [2]
B21D 1/06	1-Punkt Untergruppe	. Removing local distortions
B21D 1/08	2-Punkt Untergruppe	of hollow bodies made from sheet metal (of substantially open bodies B21D 1/10)
B21D 1/10	2-Punkt Untergruppe	of specific articles made from sheet metal, e.g. mudguards
B21D 1/12	1-Punkt Untergruppe	. Straightening vehicle body parts or bodies (B21D 1/14 takes precedence)
B21D 1/14	1-Punkt Untergruppe	. Straightening frame structures
B21D 3/00	Hauptgruppe	Straightening or restoring form of metal rods, metal tubes, metal profiles, or specific articles made therefrom, whether or not in combination with sheet metal parts (straightening of well
		casings <u>in situ</u> E21B)
B21D 3/02	1-Punkt Untergruppe	. by rollers
B21D 3/04	2-Punkt Untergruppe	arranged on axes skew to the path of the work
B21D 3/05	2-Punkt Untergruppe	arranged on axes rectangular to the path of the work [2]
B21D 3/06	2-Punkt Untergruppe	arranged inclined to a revolving flier rolling frame
B21D 3/08	2-Punkt Untergruppe	which move in an orbit without rotating round the work
B21D 3/10	1-Punkt Untergruppe	. between rams and anvils or abutments
B21D 3/12	1-Punkt Untergruppe	. by stretching with or without twisting (by twisting only B21D 11/14)
B21D 3/14	1-Punkt Untergruppe	. Recontouring
B21D 3/16	1-Punkt Untergruppe	. of specific articles made from metal rods, tubes, or profiles, e.g. crankshafts, by specially-adapted methods or means
B21D 5/00	Hauptgruppe	Bending sheet metal along straight lines, e.g. to form simple curves (B21D 11/06-B21D 11/18 take precedence; corrugating sheet metal B21D 13/00; as edge treatment B21D 19/00)

Symbol	Тур	Titel
B21D 5/01	1-Punkt Untergruppe	. between rams and anvils or abutments
B21D 5/02	1-Punkt Untergruppe	. on press brakes without making use of clamping means
B21D 5/04	1-Punkt Untergruppe	. on brakes making use of clamping means on one side of the work
B21D 5/06	1-Punkt Untergruppe	. by drawing procedure making use of dies or forming-rollers, e.g. making profiles
B21D 5/08	2-Punkt Untergruppe	making use of forming-rollers (B21D 5/12 takes precedence)
B21D 5/10	2-Punkt Untergruppe	for making tubes
B21D 5/12	3-Punkt Untergruppe	making use of forming-rollers
B21D 5/14	1-Punkt Untergruppe	. by passing between rollers (B21D 5/06 takes precedence)
B21D 5/16	1-Punkt Untergruppe	. Folding; Pleating
B21D 7/00	Hauptgruppe	Bending rods, profiles, or tubes (B21D 11/02-B21D 11/18 take precedence; using mandrels or the like B21D 9/00) $$
B21D 7/02	1-Punkt Untergruppe	. over a stationary forming member; by use of a swinging forming member or abutment [2]
B21D 7/022	2-Punkt Untergruppe	over a stationary forming member only [2]
B21D 7/024	2-Punkt Untergruppe	by a swinging forming member
B21D 7/025	3-Punkt Untergruppe	and pulling or pushing the ends of the work
B21D 7/028	3-Punkt Untergruppe	and altering the profile at the same time, e.g. forming bumpers
B21D 7/03	2-Punkt Untergruppe	Apparatus with means to keep the profile in shape
B21D 7/04	1-Punkt Untergruppe	. over a movably-arranged forming member (B21D 7/02 takes precedence)
B21D 7/06	1-Punkt Untergruppe	. in press brakes or between rams and anvils or abutments; Pliers with forming dies
B21D 7/08	1-Punkt Untergruppe	. by passing between rollers or through a curved die
B21D 7/10	1-Punkt Untergruppe	. by abutting members and flexible bending means, e.g. with chains, ropes
B21D 7/12	1-Punkt Untergruppe	. with programme control
B21D 7/14	1-Punkt Untergruppe	. combined with measuring of bends or lengths
B21D 7/16	1-Punkt Untergruppe	. Auxiliary equipment, e.g. for heating or cooling of bends
B21D 9/00	Hauptgruppe	Bending tubes using mandrels or the like (B21D 11/02-B21D 11/18 take precedence)
B21D 9/01	1-Punkt Untergruppe	. the mandrel being flexible and engaging the entire tube length
B21D 9/03	2-Punkt Untergruppe	and built-up from loose elements, e.g. series of balls
B21D 9/04	1-Punkt Untergruppe	. the mandrel being rigid [2]
B21D 9/05	1-Punkt Untergruppe	. co-operating with forming members
B21D 9/07	2-Punkt Untergruppe	with one or more swinging forming members engaging tube ends only
B21D 9/08	1-Punkt Untergruppe	. in press brakes or between rams and anvils or abutments; Pliers with forming dies
B21D 9/10	1-Punkt Untergruppe	. by passing between rollers
B21D 9/12	1-Punkt Untergruppe	. by pushing over a curved mandrel; by pushing through a curved die

Symbol	Тур	Titel
B21D 9/14	1-Punkt Untergruppe	. Wrinkle-bending, i.e. bending by corrugating
B21D 9/15	1-Punkt Untergruppe	. using filling material of indefinite shape, e.g. sand, plastic material (filling of tubes with such material B21D 9/16) [2]
B21D 9/16	1-Punkt Untergruppe	. Auxiliary equipment, e.g. machines for filling tubes with sand
B21D 9/18	2-Punkt Untergruppe	for heating or cooling of bends
B21D 11/00	Hauptgruppe	Bending not restricted to forms of material mentioned in only one of groups B21D 5/00, B21D 7/00 , B21D 9/00; Bending not provided for in groups B21D 5/00-B21D 9/00 (corrugating or bending into wave form B21D 13/00, B21D 15/00; flanging B21D 19/00); Twisting [2]
B21D 11/02	1-Punkt Untergruppe	. Bending by stretching or pulling over a die (working sheet metal of limited length by stretching B21D 25/00)
B21D 11/06	1-Punkt Untergruppe	. Bending into helical or spiral form; Forming a succession of return bends, e.g. serpentine form (making helically seamed tubing B21C 37/12)
B21D 11/07	2-Punkt Untergruppe	Making serpentine-shaped articles by bending essentially in one plane
B21D 11/08	1-Punkt Untergruppe	. Bending by altering the thickness of part of the cross-section of the work (B21D 11/06 takes precedence)
B21D 11/10	1-Punkt Untergruppe	. Bending specially adapted to produce specific articles, e.g. leaf springs
B21D 11/12	2-Punkt Untergruppe	the articles being reinforcements for concrete
B21D 11/14	1-Punkt Untergruppe	. Twisting
B21D 11/15	2-Punkt Untergruppe	Reinforcing rods for concrete
B21D 11/16	2-Punkt Untergruppe	Crankshafts
B21D 11/18	1-Punkt Untergruppe	. Joggling
B21D 11/20	1-Punkt Untergruppe	. Bending sheet metal, not otherwise provided for
B21D 11/22	1-Punkt Untergruppe	. Auxiliary equipment, e.g. positioning devices
B21D 13/00	Hauptgruppe	Corrugating sheet metal, rods or profiles; Bending sheet metal, rods or profiles into wave form ( tubes B21D 15/00)
B21D 13/02	1-Punkt Untergruppe	. by pressing
B21D 13/04	1-Punkt Untergruppe	. by rolling
B21D 13/06	1-Punkt Untergruppe	. by drawing
B21D 13/08	1-Punkt Untergruppe	. by combined methods
B21D 13/10	1-Punkt Untergruppe	. into a peculiar profiling shape
B21D 15/00	Hauptgruppe	Corrugating tubes (wrinkle-bending using mandrels or the like B21D 9/14) [2]
B21D 15/02	1-Punkt Untergruppe	. longitudinally
B21D 15/03	2-Punkt Untergruppe	by applying fluid pressure
B21D 15/04	1-Punkt Untergruppe	. transversely, e.g. helically
B21D 15/06	2-Punkt Untergruppe	annularly
B21D 15/10	2-Punkt Untergruppe	by applying fluid pressure
B21D 15/12	1-Punkt Untergruppe	. Bending tubes into wave form
B21D 17/00	Hauptgruppe	Forming single grooves in sheet metal or tubular or hollow articles

1. Punkt Untergruppe   by pressing Ignorwing or notching of botts, studs, or the like 821K 1/54)  1. Punkt Untergruppe   by rolling  1. Punkt Untergruppe   by continuously-acting tools moving along the edge (edge-curling 821D 19/12)  1. Punkt Untergruppe   by continuously-acting tools moving along the edge (edge-curling 821D 19/12)  1. Punkt Untergruppe   by sample on successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   by single or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   by single or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   consistency or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or successive action of pressing tools, e.g., vice jows  1. Punkt Untergruppe   complete or tools or yieldable or realized page 321D 28/24)  1. Punkt Untergruppe   complete or tools or yieldable or realized page 321D 28/24)  1. Punkt Untergruppe   c	Symbol	Тур	Titel
### B21D 1704 ### 1-Punkt Untergruppe ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## 821D 3900). ### Flanging or other edge treatment, e.g. of tubes (connecting ## 921D 1901). ### Flanging or other edge treatment, e.g. of tubes (connecting ## 921D 1901). ### Flanging or other edge treatment, e.g. of tubes (connecting ## 921D 1901). ### Flanging or other edge treatment, e.g. of tubes (connecting ## 921D 1901). ### Flanging edge (edge-curing ## 921D 1901). ### Flanging edge (edge-curing ## 921D 1902). ### Flanging edges, e.g. armouring same ##			
### Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds ## E21D 39/00; flanding out tube ends ## E21D 41/02)  ### ## ## ## ## ## ## ## ## ## ## ## #		2	
### ### ### ##########################		5	
B21D 19/04 2. Punkt Untergruppe working inwardly  21D 19/06 3. Punkt Untergruppe working inwardly  21D 19/10 2. Punkt Untergruppe working inwardly  21D 19/11 2. Punkt Untergruppe working inwardly  21D 19/11 2. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 19/11 3. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 19/11 4. 2-Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 19/10 1. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 19/10 1. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 19/10 1. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 19/10 1. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 21/10 1. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 21/10 1. Punkt Untergruppe Reinforcing edges, e.g. armouring same  21D 22/10 1. Punkt Untergruppe Stamping of tube ends  21D 22/10 1. Punkt Untergruppe Stamping using right devices or tools or yieldable or resilient pads 821D 26/00)  21D 22/10 2. Punkt Untergruppe In a wing relatively-movable die parts  21D 22/10 1. Punkt Untergruppe with die parts on rotating carriers  21D 22/11 2. Punkt Untergruppe Stamping using yieldable or resilient pads  21D 22/11 2. Punkt Untergruppe signing  21D 22/12 2. Punkt Untergruppe using enclosed flexible chambers  21D 22/11 2. Punkt Untergruppe using enclosed flexible chambers  21D 22/12 2. Punkt Untergruppe with die parts on rotating carriers  21D 22/12 2. Punkt Untergruppe using enclosed flexible chambers  21D 22/12 2. Punkt Untergruppe with dievices for holding the edge of the blanks (821D 22/24021 22/30 take precedence, shaping over a die without external former 821D 11/02)  21D 22/22 2. Punkt Untergruppe with devices for holding the edge of the blanks (821D 22/244 221D 22/30 take precedence, shaping over a die without external former 821D 11/02)  21D 22/22 2. Punkt Untergruppe involving two drawing operations having	B21D 19/00	nauptgruppe	
821D 19/06 3-Punkt Untergruppe working inwardly 821D 19/08 1-Punkt Untergruppe working inwardly 821D 19/10 2-Punkt Untergruppe working inwardly 821D 19/11 1-Punkt Untergruppe & working inwardly 821D 19/12 1-Punkt Untergruppe & Reinforcing edges, e.g. armouring same 821D 19/14 2-Punkt Untergruppe & Reinforcing edges, e.g. armouring same 821D 19/16 1-Punkt Untergruppe & Reinforcing edges, e.g. armouring same 821D 19/16 1-Punkt Untergruppe & Reverse flanging of tube ends 821D 19/10 Hauptgruppe Combined processes according to methods covered by groups 821D 19/0-821D 19/0 821D 21/00 Hauptgruppe Combined processes according to methods covered by groups 821D 19/0-821D 19/0 821D 22/00 Hauptgruppe Degen-drawing: Working sheet metal of limited length by stretching: Punkthing 821D 22/00 1-Punkt Untergruppe Stamping using rigid devices or tools 821D 22/04 2-Punkt Untergruppe for dimpling (combined with perforating 821D 26/24) 821D 22/06 2-Punkt Untergruppe having relatively-movable die parts 821D 22/10 1-Punkt Untergruppe with die parts on rotating carriers 821D 22/10 2-Punkt Untergruppe using enclosed flexible chambers 821D 22/11 2-Punkt Untergruppe using sools guided to produce the required profile 821D 22/11 2-Punkt Untergruppe using tools guided to produce the required profile 821D 22/12 2-Punkt Untergruppe using tools guided to produce the required profile 821D 22/12 2-Punkt Untergruppe with devices for holding the edge of the blank (821D 22/24-821D 22/30 take precedence; shaping over a die without external former 82/10 11/02) 821D 22/22 2-Punkt Untergruppe with devices for holding the edge of the blanks (821D 22/24-821D 22/30 take precedence; shaping over a die without external former 82/10 11/02) 821D 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank 821D 22/26 2-Punkt Untergruppe for making peculiarly, e.g., irregularly, shaped articles 821D 22/30 4-Punkt Untergrup	B21D 19/02	1-Punkt Untergruppe	. by continuously-acting tools moving along the edge (edge-curling B21D 19/12)
1. Punkt Untergruppe . by single or successive action of pressing tools, e.g. vice jaws 2. Punkt Untergruppe . working inwardly 2. Punkt Untergruppe . Edge curling 2. Punkt Untergruppe . Reinforcing edges, e.g. armouring same 2. Punkt Untergruppe . Reverse financing of tube ends 2. Punkt Untergruppe . Reverse financing of tube ends 2. Combined processes according to methods covered by groups 221D 1/00-821D 19/00 2. Stampling. Splanning: Deep-drawing: Working sheet metal of limited length by stretching: Punching 2. Punkt Untergruppe . Stamping using rigid devices or tools 2. Punkt Untergruppe . Stamping using rigid devices or tools 2. Punkt Untergruppe . Stamping using rigid devices or tools 2. Punkt Untergruppe . with die parts on rotating carriers 2. Punkt Untergruppe . with die parts on rotating carriers 3. Punkt Untergruppe . with die parts on rotating carriers 3. Punkt Untergruppe . using enclosed fiexible chambers 3. Punkt Untergruppe . Spinning . 3. Spinning using rigid toor resilient pads 3. Punkt Untergruppe . using enclosed fiexible chambers 3. Punkt Untergruppe . using stools guided to produce the required profile 3. Punkt Untergruppe . using tools guided to produce the required profile 3. Punkt Untergruppe . using tools guided to produce the required profile 3. Punkt Untergruppe . without fixing the border of the blank (2) 3. Punkt Untergruppe . without fixing the border of the blank (2) 3. Punkt Untergruppe . without fixing the border of the blank (2) 3. Punkt Untergruppe . involving two drawing operations having effects in opposite directions with respect to the blank die without external former 321D 11/02) 3. Punkt Untergruppe . involving two drawing operations having effects in opposite directions with respect to the blank with persent during upper . Involving two drawing operations having effects in opposite directions with respec	B21D 19/04	2-Punkt Untergruppe	shaped as rollers
### B21D 19/10   2-Punkt Untergruppe   working inwardly   ### B21D 19/14   2-Punkt Untergruppe   Reinforcing edges, e.g. armouring same   ### B21D 19/16   1-Punkt Untergruppe   Reinforcing edges, e.g. armouring same   ### B21D 21/00   Hauptgruppe   Reverse flanging of tube ends   ### B21D 21/00   Hauptgruppe   Reverse flanging of tube ends   ### B21D 22/00   Hauptgruppe   Stamping: Spinning; Deep-drawing: Working sheet metal of limited length by stretching: Punching   ### B21D 22/00   Punkt Untergruppe   Stamping using rigid devices or tools or yeldable or resilient pads ### B21D 26/00   ### B21D 22/04   2-Punkt Untergruppe   Stamping using rigid devices or tools   ### B21D 22/06   2-Punkt Untergruppe   having relatively-movable die parts   ### B21D 22/08   2-Punkt Untergruppe   with die parts on rotating carriers   ### B21D 22/08   2-Punkt Untergruppe   stamping using yieldable or resilient pads   ### B21D 22/10   1-Punkt Untergruppe   with die parts on rotating carriers   ### B21D 22/10   1-Punkt Untergruppe   using enclosed flexible chambers   ### B21D 22/11   1-Punkt Untergruppe   over shaping mandrels or formers   ### B21D 22/12   2-Punkt Untergruppe   using tools guided to produce the required profile   ### B21D 22/12   2-Punkt Untergruppe   without fixing the border of the blank [2]   ### B21D 22/12   2-Punkt Untergruppe   without fixing the border of the blank [2]   ### B21D 22/12   2-Punkt Untergruppe   with devices for holding the edge of the blanks [821D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02   ### B21D 22/24   2-Punkt Untergruppe   with devices for holding the edge of the blanks [821D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02   ### B21D 22/26   2-Punkt Untergruppe   involving two drawing operations having effects in opposite directions with respect to the blank   ### B21D 22/26   2-Punkt Untergruppe   for making peculiarly, e.g. irregularly, sh	B21D 19/06	3-Punkt Untergruppe	working inwardly
### 1-Punkt Untergruppe   Edge-curling   ### 2-Punkt Untergruppe   Reinforcing edges, e.g. armouring same   ### 2-Punkt Untergruppe   Reinforcing edges, e.g. armouring same   ### 2-Punkt Untergruppe   Reverse flanging of tube ends   ### 2-Punkt Untergruppe   Combined processes according to methods covered by groups ### 2110 1/00-## 2110 1/9/00   ### 2-Punkt Untergruppe   Shaping without cutting, by stamping, spinning, or deep-drawing (otherwise than using rigid devices or tools or yeldable for resilient pads ### 210 26/00)   ### 2-Punkt Untergruppe   Stamping using rigid devices or tools or yeldable for resilient pads ### 210 26/00)   ### 2-Punkt Untergruppe   And in the parts on rotating carriers   And in the parts on rotating carriers   ### 2-Punkt Untergruppe   Stamping using yieldable or resilient pads   ### 2-Punkt Untergruppe   Stamping using yieldable or resilient pads   ### 2-Punkt Untergruppe   Stamping using yieldable or resilient pads   And in the parts   ### 2-Punkt Untergruppe   Spinning   Spinning   ### 2-Punkt Untergruppe   And in the parts   And in the parts   And in the parts   ### 2-Punkt Untergruppe   Spinning   Spinning   ### 2-Punkt Untergruppe   And in the parts   And in the parts   And in the parts   And in the parts   ### 2-Punkt Untergruppe   And in the parts   And in the parts   And in the parts   And in the parts   ### 2-Punkt Untergruppe   And in the parts   ### 2-Punkt Untergruppe   And in the parts   And	B21D 19/08	1-Punkt Untergruppe	. by single or successive action of pressing tools, e.g. vice jaws
### 2-Punkt Untergruppe   Reinforcing edges, e.g. amouring same   ### 2-Punkt Untergruppe   Reverse flanging of tube ends   ### Combined processes according to methods covered by groups ### 21D 1/00-## 21D 19/00   ### Stambing: Spinning: Deep-drawing: Working sheet metal of limited length by stretching: Punchina   ### Shaping without cutting, by stamping, spinning, or deep-drawing (otherwise than using rigid devices or tools or yleidable or resilient pads ## 21D 26/00)   ### Stamping using rigid devices or tools   ### 2-Punkt Untergruppe   for dimpling (combined with perforating ## 21D 28/24)   ### 2-Punkt Untergruppe   having relatively-movable die parts   with die parts on rotating carriers   ### 2-Punkt Untergruppe   stamping using syleidable or resilient pads   using enclosed flexible chambers   using enclosed flexible chambers   using enclosed flexible chambers   using enclosed flexible chambers   using tools guided to produce the required profile   with devices for holding the edge of the blanks (## 21D 22/24-## 21D 22/30 take precedence; shaping over a die without external former ## 21D 11/02)   with devices for holding the edge of the blanks (## 21D 22/24-## 21D 22/30 take precedence; shaping over a die without external former ## 21D 11/02)   involving two drawing operations having effects in opposite directions with respect to the blank   for making peculiarly, e.g. irregularly, shaped articles   to finish articles using consecutive dies   to finish articles using con	B21D 19/10	2-Punkt Untergruppe	working inwardly
B2ID 21/00 Hauptgruppe Combined processes according to methods covered by groups B2ID 1/00-B2ID 19/00 Stampling: Spinning: Deep-drawing: Working sheet metal of limited length by stretching: Punching  B2ID 22/00 Hauptgruppe Shaping without cutting, by stamping, spinning, or deep-drawing (otherwise than using rigid devices or tools or yieldable or resilient pads B2ID 26/00)  B2ID 22/04 2-Punkt Untergruppe for dimpling (combined with perforating B2ID 28/24)  B2ID 22/06 2-Punkt Untergruppe with die parts on rotating carriers  B2ID 22/10 1-Punkt Untergruppe stamping using yieldable or resilient pads  B2ID 22/10 2-Punkt Untergruppe stamping using yieldable or resilient pads  B2ID 22/10 1-Punkt Untergruppe stamping using yieldable or resilient pads  B2ID 22/12 2-Punkt Untergruppe stamping using yieldable or resilient pads  B2ID 22/14 1-Punkt Untergruppe over shaping mandrels or formers  B2ID 22/16 2-Punkt Untergruppe over shaping mandrels or formers  B2ID 22/16 2-Punkt Untergruppe using tools guided to produce the required profile  B2ID 22/20 1-Punkt Untergruppe beep-drawing (special deep-drawing arrangements in, or in connection with, presses B2ID 24/00)  B2ID 22/21 2-Punkt Untergruppe without fixing the border of the blank [2]  B2ID 22/22 2-Punkt Untergruppe without fixing the border of the blanks (B2ID 22/24-B2ID 22/30 take precedence; shaping over a die without external former B2ID II/02)  B2ID 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  B2ID 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  B2ID 22/30 2-Punkt Untergruppe of cylindrical articles formed by deep-drawing  B2ID 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B2ID 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing	B21D 19/12	1-Punkt Untergruppe	. Edge-curling
B2ID 22/00 Hauptgruppe Combined processes according to methods covered by groups B2ID 1/00-B2ID 19/00 Stampling; Spinning; Deep-drawing; Working sheet metal of limited length by stretching; Punching  B2ID 22/00 Hauptgruppe Shaping without cutting, by stamping, spinning, or deep-drawing (otherwise than using rigid devices or tools or yieldable or resilient pads B2ID 26/00)  B2ID 22/04 2-Punkt Untergruppe Stamping using rigid devices or tools  B2ID 22/06 2-Punkt Untergruppe Inavity relatively-movable die parts  B2ID 22/08 2-Punkt Untergruppe Inavity relatively-movable die parts  B2ID 22/10 1-Punkt Untergruppe Inavity suising vieldable or resilient pads  B2ID 22/10 1-Punkt Untergruppe Inavity syledable or resilient pads  B2ID 22/12 2-Punkt Untergruppe Inavity syledable or resilient pads  B2ID 22/14 1-Punkt Untergruppe Inavity syledable or formers  B2ID 22/15 2-Punkt Untergruppe Inavity soles guided to produce the required profile  B2ID 22/18 2-Punkt Untergruppe Inavity spinning (special deep-drawing arrangements in, or in connection with, presses B2ID 24/00)  B2ID 22/12 2-Punkt Untergruppe Inavity fixing the border of the blank [2]  B2ID 22/22 2-Punkt Untergruppe Inavity fixing the border of the blank [2]  B2ID 22/24 2-Punkt Untergruppe Inavity fixing the border of the blank [2]  B2ID 22/24 2-Punkt Untergruppe Inavity fixing the border of the blank [2]  B2ID 22/24 2-Punkt Untergruppe Inavity fixing the border of the blank [2]  B2ID 22/24 2-Punkt Untergruppe Inavity fixing the border of the blank [2]  B2ID 22/25 2-Punkt Untergruppe Inavity of orangements in a proposite directions with respect to the blank [2]  B2ID 22/26 2-Punkt Untergruppe Inavity of orangements in a proposite directions with respect to the blank [2]  B2ID 22/28 2-Punkt Untergruppe Inavity of orangements in a proposite directions with respect to the blank [2]  B2ID 22/29 2-Punkt Untergruppe Inavity of orangements in a proposite direction with, presses [2] D2/29 2-Punkt Untergruppe Inavity of orangements in a proposite direction with, presses [2] D	B21D 19/14	2-Punkt Untergruppe	Reinforcing edges, e.g. armouring same
B2ID 22/00  Hauptgruppe Stamping: Spinning: Deep-drawing: Working sheet metal of limited length by stretching: Punching Shaping without cutting, by stamping, spinning, or deep-drawing (otherwise than using rigid devices or tools or yieldable or resilient pads B2ID 26/00)  B2ID 22/04 2-Punkt Untergruppe 3- for dimpling (combined with perforating B2ID 28/24)  B2ID 22/06 2-Punkt Untergruppe 3- with die parts on rotating carriers  B2ID 22/10 1-Punkt Untergruppe 3- Stamping using yieldable or resilient pads  B2ID 22/12 2-Punkt Untergruppe 3- Stamping using yieldable or resilient pads  B2ID 22/12 2-Punkt Untergruppe 3- Stamping using yieldable or resilient pads  B2ID 22/12 2-Punkt Untergruppe 4- wishing enclosed flexible chambers  B2ID 22/14 1-Punkt Untergruppe 5- Spinning  B2ID 22/16 2-Punkt Untergruppe 5- Spinning  B2ID 22/16 2-Punkt Untergruppe 7- over shaping mandrels or formers  B2ID 22/20 1-Punkt Untergruppe 8- Deep-drawing (special deep-drawing arrangements in, or in connection with, presses B2ID 24/00)  B2ID 22/20 2-Punkt Untergruppe 8- with devices for holding the edge of the blanks (B2ID 22/24-B2ID 22/30 take precedence; shaping over a die without external former B2ID 11/02)  B2ID 22/24 2-Punkt Untergruppe 8- involving two drawing operations having effects in opposite directions with respect to the blank (B2ID 22/24 2-Punkt Untergruppe 8- for making peculiarly, e.g. irregularly, shaped articles  B2ID 22/28 2-Punkt Untergruppe 8- of cylindrical articles using consecutive dies  B2ID 22/30 2-Punkt Untergruppe 8- to finish articles formed by deep-drawing  B2ID 22/30 3-Punkt Untergruppe 8- to finish articles formed by deep-drawing	B21D 19/16	1-Punkt Untergruppe	. Reverse flanging of tube ends
B21D 22/00	B21D 21/00	Hauptgruppe	Combined processes according to methods covered by groups B21D 1/00-B21D 19/00
B2ID 22/02 1-Punkt Untergruppe . Stamping using rigid devices or tools B2ID 22/04 2-Punkt Untergruppe for dimpling (combined with perforating B2ID 28/24) B2ID 22/06 2-Punkt Untergruppe having relatively-movable die parts B2ID 22/08 2-Punkt Untergruppe with die parts on rotating carriers B2ID 22/10 1-Punkt Untergruppe stamping using yieldable or resilient pads B2ID 22/10 2-Punkt Untergruppe using enclosed flexible chambers B2ID 22/12 2-Punkt Untergruppe spinning B2ID 22/14 1-Punkt Untergruppe over shaping mandrels or formers B2ID 22/16 2-Punkt Untergruppe using tools guided to produce the required profile B2ID 22/18 2-Punkt Untergruppe using tools guided to produce the required profile B2ID 22/20 1-Punkt Untergruppe without fixing the border of the blank [2] B2ID 22/21 2-Punkt Untergruppe with devices for holding the edge of the blanks (B2ID 22/24-B2ID 22/30 take precedence; shaping over a die without external former B2ID 11/02) B2ID 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank B2ID 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles B2ID 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies B2ID 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing B2ID 22/30 4-Punkt Untergruppe to finish articles formed by deep-drawing			
2-Punkt Untergruppe for dimpling (combined with perforating B21D 28/24)  2-Punkt Untergruppe having relatively-movable die parts  2-Punkt Untergruppe with die parts on rotating carriers  2-Punkt Untergruppe with die parts on rotating carriers  2-Punkt Untergruppe stamping using yieldable or resilient pads  2-Punkt Untergruppe using enclosed flexible chambers  2-Punkt Untergruppe over shaping mandrels or formers  2-Punkt Untergruppe over shaping mandrels or formers  2-Punkt Untergruppe using tools guided to produce the required profile  2-Punkt Untergruppe beep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  2-Punkt Untergruppe without fixing the border of the blank [2]  2-Punkt Untergruppe without fixing the border of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank 21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  2-Punkt Untergruppe of cylindrical articles using consecutive dies  2-Punkt Untergruppe to finish articles formed by deep-drawing  3-Punkt Untergruppe to finish articles formed by deep-drawing	B21D 22/00	Hauptgruppe	
2-Punkt Untergruppe having relatively-movable die parts  2-Punkt Untergruppe with die parts on rotating carriers  2-Punkt Untergruppe with die parts on rotating carriers  2-Punkt Untergruppe using enclosed flexible chambers  2-Punkt Untergruppe over shaping mandrels or formers  2-Punkt Untergruppe over shaping mandrels or formers  2-Punkt Untergruppe using tools guided to produce the required profile  2-Punkt Untergruppe using tools guided to produce the required profile  2-Punkt Untergruppe beep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  2-Punkt Untergruppe without fixing the border of the blank [2]  2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  2-Punkt Untergruppe of cylindrical articles using consecutive dies  2-Punkt Untergruppe to finish articles formed by deep-drawing  3-Punkt Untergruppe to finish articles formed by deep-drawing  4-Punkt Untergruppe to finish articles formed by deep-drawing	B21D 22/02	1-Punkt Untergruppe	. Stamping using rigid devices or tools
2-Punkt Untergruppe with die parts on rotating carriers  2-Punkt Untergruppe using enclosed flexible chambers  2-Punkt Untergruppe using enclosed flexible chambers  2-Punkt Untergruppe over shaping mandrels or formers  2-Punkt Untergruppe using tools guided to produce the required profile  2-Punkt Untergruppe using tools guided to produce the required profile  2-Punkt Untergruppe beep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  2-Punkt Untergruppe without fixing the border of the blank [2]  2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  2-Punkt Untergruppe of cylindrical articles using consecutive dies  2-Punkt Untergruppe to finish articles formed by deep-drawing  3-Punkt Untergruppe to finish articles formed by deep-drawing  3-Punkt Untergruppe to finish articles formed by deep-drawing	B21D 22/04	2-Punkt Untergruppe	for dimpling (combined with perforating B21D 28/24)
1-Punkt Untergruppe . Stamping using yieldable or resilient pads 2-Punkt Untergruppe using enclosed flexible chambers  1-Punkt Untergruppe Spinning  2-Punkt Untergruppe over shaping mandrels or formers  1-Punkt Untergruppe over shaping mandrels or formers  1-Punkt Untergruppe using tools guided to produce the required profile  1-Punkt Untergruppe Deep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  1-Punkt Untergruppe without fixing the border of the blank [2]  2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  1-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  2-Punkt Untergruppe of cylindrical articles using consecutive dies  2-Punkt Untergruppe to finish articles formed by deep-drawing  3-Punkt Untergruppe to finish articles formed by deep-drawing  4-Punkt Untergruppe of cylindrical articles formed by deep-drawing  5-Punkt Untergruppe of cylindrical articles formed by deep-drawing	B21D 22/06	2-Punkt Untergruppe	having relatively-movable die parts
B21D 22/14 1-Punkt Untergruppe using enclosed flexible chambers  B21D 22/14 1-Punkt Untergruppe Spinning  B21D 22/16 2-Punkt Untergruppe over shaping mandrels or formers  B21D 22/18 2-Punkt Untergruppe using tools guided to produce the required profile  B21D 22/20 1-Punkt Untergruppe Deep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  B21D 22/21 2-Punkt Untergruppe without fixing the border of the blank [2]  B21D 22/22 2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  B21D 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  B21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  B21D 22/30 2-Punkt Untergruppe of cylindrical articles using consecutive dies  B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/08	2-Punkt Untergruppe	with die parts on rotating carriers
B21D 22/14 1-Punkt Untergruppe . Spinning  B21D 22/16 2-Punkt Untergruppe over shaping mandrels or formers  B21D 22/18 2-Punkt Untergruppe using tools guided to produce the required profile  B21D 22/20 1-Punkt Untergruppe beep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  B21D 22/21 2-Punkt Untergruppe without fixing the border of the blank [2]  B21D 22/22 2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  B21D 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  B21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  B21D 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies  B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/10	1-Punkt Untergruppe	. Stamping using yieldable or resilient pads
B21D 22/16 2-Punkt Untergruppe over shaping mandrels or formers  B21D 22/18 2-Punkt Untergruppe using tools guided to produce the required profile  B21D 22/20 1-Punkt Untergruppe Deep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  B21D 22/21 2-Punkt Untergruppe without fixing the border of the blank [2]  B21D 22/22 2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  B21D 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  B21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  B21D 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies  B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/12	2-Punkt Untergruppe	using enclosed flexible chambers
2-Punkt Untergruppe using tools guided to produce the required profile  1-Punkt Untergruppe Deep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  2-Punkt Untergruppe without fixing the border of the blank [2]  2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  2-Punkt Untergruppe of cylindrical articles using consecutive dies  2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 22/30	B21D 22/14	1-Punkt Untergruppe	. Spinning
B21D 22/20 1-Punkt Untergruppe . Deep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)  B21D 22/21 2-Punkt Untergruppe without fixing the border of the blank [2]  B21D 22/22 2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  B21D 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  B21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  B21D 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies  B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00  Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/16	2-Punkt Untergruppe	over shaping mandrels or formers
B21D 22/21  2-Punkt Untergruppe  with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  B21D 22/24  2-Punkt Untergruppe  involving two drawing operations having effects in opposite directions with respect to the blank  2-Punkt Untergruppe  for making peculiarly, e.g. irregularly, shaped articles  2-Punkt Untergruppe  of cylindrical articles using consecutive dies  2-Punkt Untergruppe  to finish articles formed by deep-drawing  B21D 24/00  Hauptgruppe  Special deep-drawing arrangements in, or in connection with, presses	B21D 22/18	2-Punkt Untergruppe	using tools guided to produce the required profile
B21D 22/22 2-Punkt Untergruppe with devices for holding the edge of the blanks (B21D 22/24-B21D 22/30 take precedence; shaping over a die without external former B21D 11/02)  B21D 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  B21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  B21D 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies  B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/20	1-Punkt Untergruppe	. Deep-drawing (special deep-drawing arrangements in, or in connection with, presses B21D 24/00)
die without external former B21D 11/02)  B21D 22/24 2-Punkt Untergruppe involving two drawing operations having effects in opposite directions with respect to the blank  B21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles  B21D 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies  B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/21	2-Punkt Untergruppe	without fixing the border of the blank [2]
B21D 22/26 2-Punkt Untergruppe for making peculiarly, e.g. irregularly, shaped articles B21D 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/22	2-Punkt Untergruppe	
B21D 22/28 2-Punkt Untergruppe of cylindrical articles using consecutive dies  B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/24	2-Punkt Untergruppe	involving two drawing operations having effects in opposite directions with respect to the blank
B21D 22/30 2-Punkt Untergruppe to finish articles formed by deep-drawing  B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/26	2-Punkt Untergruppe	for making peculiarly, e.g. irregularly, shaped articles
B21D 24/00 Hauptgruppe Special deep-drawing arrangements in, or in connection with, presses	B21D 22/28	2-Punkt Untergruppe	of cylindrical articles using consecutive dies
	B21D 22/30	2-Punkt Untergruppe	to finish articles formed by deep-drawing
B21D 24/02 1-Punkt Untergruppe . Die-cushions	B21D 24/00	Hauptgruppe	Special deep-drawing arrangements in, or in connection with, presses
	B21D 24/02	1-Punkt Untergruppe	. Die-cushions

Symbol	Тур	Titel
B21D 24/04	1-Punkt Untergruppe	. Blank holders; Mounting means therefor
B21D 24/06	2-Punkt Untergruppe	Mechanically spring-loaded blank holders
B21D 24/08	2-Punkt Untergruppe	Pneumatically or hydraulically loaded blank holders
B21D 24/10	1-Punkt Untergruppe	. Devices controlling or operating blank holders independently, or in conjunction with dies
B21D 24/12	2-Punkt Untergruppe	mechanically
B21D 24/14	2-Punkt Untergruppe	pneumatically or hydraulically
B21D 24/16	1-Punkt Untergruppe	. Additional equipment in association with the tools, e.g. for shearing, for trimming
B21D 25/00	Hauptgruppe	Working sheet metal of limited length by stretching, e.g. for straightening [2]
B21D 25/02	1-Punkt Untergruppe	. by pulling over a die [2]
B21D 25/04	1-Punkt Untergruppe	. Clamping arrangements [2]
B21D 26/00	Hauptgruppe	Shaping without cutting otherwise than using rigid devices or tools or yieldable or resilient pads, i.e. applying fluid pressure or magnetic forces (stamping using resilient pads B21D 22/10)
B21D 26/02	1-Punkt Untergruppe	. by applying fluid pressure [2]
B21D 26/06	2-Punkt Untergruppe	by shock waves
B21D 26/08	3-Punkt Untergruppe	generated by explosives, e.g. chemical explosives
B21D 26/10	3-Punkt Untergruppe	generated by evaporation, e.g. of wire, of liquids
B21D 26/12	3-Punkt Untergruppe	initiated by spark discharge [2]
B21D 26/14	1-Punkt Untergruppe	. applying magnetic forces
B21D 28/00	Hauptgruppe	Shaping by press-cutting; Perforating
B21D 28/02	1-Punkt Untergruppe	. Punching blanks or articles with or without obtaining scrap (cutting nails or pins from strips or sheet material B21G 3/26); Notching
B21D 28/04	2-Punkt Untergruppe	Centering the work; Positioning the tools
B21D 28/06	2-Punkt Untergruppe	Making more than one part out of the same blank; Scrapless working
B21D 28/08	3-Punkt Untergruppe	Zig-zag sequence working
B21D 28/10	2-Punkt Untergruppe	Incompletely punching in such a manner that the parts are still coherent with the work
B21D 28/12	2-Punkt Untergruppe	Punching using rotatable carriers
B21D 28/14	2-Punkt Untergruppe	Dies (ejecting or stripping-off devices arranged in punching machines or tools B21D 45/00)
B21D 28/16	2-Punkt Untergruppe	Shoulder or burr prevention
B21D 28/18	2-Punkt Untergruppe	Yieldable, e.g. rubber, punching pads
B21D 28/20	2-Punkt Untergruppe	Applications of drives
B21D 28/22	2-Punkt Untergruppe	Notching the peripheries of circular blanks, e.g. laminations for dynamo-electric machines
B21D 28/24	1-Punkt Untergruppe	. Perforating, i.e. punching holes
B21D 28/26	2-Punkt Untergruppe	in sheets or flat parts
B21D 28/28	2-Punkt Untergruppe	in tubes or other hollow bodies

Symbol	Тур	Titel
B21D 28/30	2-Punkt Untergruppe	in annular parts, e.g. rims
B21D 28/32	2-Punkt Untergruppe	in other articles of special shape
B21D 28/34	2-Punkt Untergruppe	Perforating tools; Die holders
B21D 28/36	2-Punkt Untergruppe	using rotatable work or tool holders
B21D 31/00	Hauptgruppe	Other methods for working sheet metal, metal tubes, metal profiles (deforming one surface of tubes helically by rolling B21H 3/00; upsetting B21J 5/08; working metal by removing material therefrom B23; embossing B44B)
B21D 31/02	1-Punkt Untergruppe	. Stabbing or piercing, e.g. for making sieves (dimpling B21D 22/04; perforating by punching B21D 28/24)
B21D 31/04	1-Punkt Untergruppe	. Expanding other than provided for in groups B21D 1/00-B21D 28/00, e.g. for making expanded metal (B21D 47/00 takes precedence; enlarging tube ends B21D 41/02) [2]
B21D 31/06	1-Punkt Untergruppe	. Deforming sheet metal, tubes or profiles by sequential impacts, e.g. hammering, beating, peen forming ( forging hammers B21J 7/00)
B21D 33/00	Hauptgruppe	Special measures in connection with working metal foils, e.g. gold foils (cutting or perforating of metal foil analogous to paper B26)
B21D 35/00	Hauptgruppe	Combined processes according to methods covered by groups B21D $1/00$ -B21D $31/00$ (B21D $21/00$ takes precedence)
B21D 37/00	Hauptgruppe	Tools as parts of machines covered by this subclass (forms or constructions of tools uniquely
		adapted for particular operations, <u>see</u> in the relevant groups for the operations)
B21D 37/01	1-Punkt Untergruppe	. Selection of materials [2]
B21D 37/02	1-Punkt Untergruppe	. Die constructions enabling assembly of the die parts in different ways (B21D 37/06 takes precedence)
B21D 37/04	1-Punkt Untergruppe	. Movable or exchangeable mountings for tools
B21D 37/06	2-Punkt Untergruppe	Pivotally-arranged tools, e.g. disengageable (die sets with dies pivoted to one another B21D 37/12)
B21D 37/08	1-Punkt Untergruppe	. Dies with different parts for several steps in a process
B21D 37/10	1-Punkt Untergruppe	. Die sets; Pillar guides
B21D 37/12	2-Punkt Untergruppe	Particular guiding equipment; Special arrangements for interconnection or cooperation of dies
B21D 37/14	1-Punkt Untergruppe	. Particular arrangements for handling and holding in place complete dies
B21D 37/16	1-Punkt Untergruppe	. Heating or cooling
B21D 37/18	1-Punkt Untergruppe	. Lubricating
B21D 37/20	1-Punkt Untergruppe	. Making tools by operations not covered a single other subclass
B21D 39/00	Hauptgruppe	Application of procedures in order to connect objects or parts, e.g. coating with sheet metal otherwise than by plating (riveting B21J; uniting components by forging or pressing to form integral members B21K 25/00; welding B23K; press-fitting, force-fitting, or shrinking in general B23P 11/00, B23P 19/00; by adhesives F16B 11/00); Tube expanders
B21D 39/02	1-Punkt Untergruppe	. of sheet metal by folding, e.g. connecting edges of a sheet to form a cylinder
B21D 39/03	1-Punkt Untergruppe	. of sheet metal otherwise than by folding [2]
B21D 39/04	1-Punkt Untergruppe	. of tubes with tubes; of tubes with rods
B21D 39/06	1-Punkt Untergruppe	. of tubes in openings, e.g. rolling-in
B21D 39/08	1-Punkt Untergruppe	. Tube expanders

		B21D 3/00
Symbol	Тур	Titel
B21D 39/10	2-Punkt Untergruppe	with rollers for expanding only
B21D 39/12	2-Punkt Untergruppe	with rollers for expanding and flanging
B21D 39/14	2-Punkt Untergruppe	with balls
B21D 39/16	2-Punkt Untergruppe	with torque limiting devices
B21D 39/18	2-Punkt Untergruppe	Rollers of special shape
B21D 39/20	2-Punkt Untergruppe	with mandrels, e.g. expandable [2]
B21D 41/00	Hauptgruppe	Application of procedures in order to alter the diameter of tube ends (B21D 39/00 takes precedence)
B21D 41/02	1-Punkt Untergruppe	. Enlarging
B21D 41/04	1-Punkt Untergruppe	. Reducing; Closing
B21D 43/00	Hauptgruppe	Feeding, positioning or storing devices combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal, metal tubes or metal
		profiles; Associations therewith of cutting devices (cutting devices associated with the tool, $\underline{see}$
		the relevant group for the tool)
B21D 43/02	1-Punkt Untergruppe	. Advancing work in relation to the stroke of the die or tool
B21D 43/04	2-Punkt Untergruppe	by means in mechanical engagement with the work
B21D 43/05	3-Punkt Untergruppe	specially adapted for multi-stage presses
B21D 43/06	3-Punkt Untergruppe	by positive or negative engaging parts co-operating with corresponding parts of the sheet or the like to be processed, e.g. carrier bolts or grooved section in the carriers
B21D 43/08	3-Punkt Untergruppe	by rollers
B21D 43/09	4-Punkt Untergruppe	by one or more pairs of rollers for feeding sheet or strip material [2]
B21D 43/10	3-Punkt Untergruppe	by grippers
B21D 43/11	4-Punkt Untergruppe	for feeding sheet or strip material [2]
B21D 43/12	3-Punkt Untergruppe	by chains or belts
B21D 43/13	3-Punkt Untergruppe	by linearly moving tables [2]
B21D 43/14	3-Punkt Untergruppe	by turning devices, e.g. turn-tables
B21D 43/16	2-Punkt Untergruppe	by gravity, e.g. chutes
B21D 43/18	2-Punkt Untergruppe	by means in pneumatic or magnetic engagement with the work
B21D 43/20	1-Punkt Untergruppe	. Storage arrangements; Piling or unpiling (in general B65G)
B21D 43/22	2-Punkt Untergruppe	Devices for piling sheets
B21D 43/24	2-Punkt Untergruppe	Devices for removing sheets from a stack
B21D 43/26	1-Punkt Untergruppe	. Stops
B21D 43/28	1-Punkt Untergruppe	. Associations of cutting devices therewith
B21D 45/00	Hauptgruppe	Ejecting or stripping-off devices arranged in machines or tools dealt with in this subclass
B21D 45/02	1-Punkt Untergruppe	. Ejecting devices [2]

Symbol	Тур	Titel
B21D 45/04	2-Punkt Untergruppe	interrelated with motion of tool [2]
B21D 45/06	1-Punkt Untergruppe	. Stripping-off devices [2]
B21D 45/08	2-Punkt Untergruppe	interrelated with motion of tool [2]
B21D 45/10	1-Punkt Untergruppe	. Combined ejecting and stripping-off devices [2]
		Processing sheet metal or metal tubes, or processing metal profiles according to any of groups B21D 1/00-B21D 45/00, in the manufacture of finished or semi-finished articles
B21D 47/00	Hauptgruppe	Making rigid structural elements or units, e.g. honeycomb structures
B21D 47/01	1-Punkt Untergruppe	. beams or pillars [2]
B21D 47/02	2-Punkt Untergruppe	by expanding [2]
B21D 47/04	1-Punkt Untergruppe	. composite sheet metal profiles
B21D 49/00	Hauptgruppe	Sheathing or stiffening objects (by winding wire or tape thereon B65H 54/00, B65H 81/00; specially adapted for manufacturing conductors or cables H01B 13/26)
B21D 51/00	Hauptgruppe	Making hollow objects (from thick-walled or non-uniform tubes B21K 21/00)
B21D 51/02	1-Punkt Untergruppe	. not characterised by the particular use (cans or tins B21D 51/26)
B21D 51/04	2-Punkt Untergruppe	built-up objects, e.g. objects with rigidly-attached bottom or cover
B21D 51/06	2-Punkt Untergruppe	folded objects
B21D 51/08	2-Punkt Untergruppe	ball-shaped objects
B21D 51/10	2-Punkt Untergruppe	conically or cylindrically shaped objects
B21D 51/12	2-Punkt Untergruppe	objects with corrugated walls
B21D 51/14	2-Punkt Untergruppe	Flattening hollow objects for transport or storage; Re-forming same (making tubes from doubled flat material B21C 37/14)
B21D 51/16	1-Punkt Untergruppe	. characterised by the particular structure or use (making heat exchangers B21D 53/02)
B21D 51/18	2-Punkt Untergruppe	vessels, e.g. tubs, vats, tanks, sinks, or the like
B21D 51/20	3-Punkt Untergruppe	barrels
B21D 51/22	3-Punkt Untergruppe	pots, e.g. for cooking
B21D 51/24	2-Punkt Untergruppe	high-pressure containers, e.g. boilers, bottles
B21D 51/26	2-Punkt Untergruppe	cans or tins; Closing same in a permanent manner (making outlet arrangements B21D 51/38; welding or soldering B23K) [2]
B21D 51/28	3-Punkt Untergruppe	Folding the longitudinal seam
B21D 51/30	3-Punkt Untergruppe	Folding the circumferential seam
B21D 51/32	4-Punkt Untergruppe	by rolling
B21D 51/34	4-Punkt Untergruppe	by pressing
B21D 51/36	2-Punkt Untergruppe	collapsible or like thin-walled tubes, e.g. for toothpaste
B21D 51/38	2-Punkt Untergruppe	Making inlet or outlet arrangements of cans, tins, baths, bottles, or other vessels
B21D 51/40	3-Punkt Untergruppe	Making outlet openings, e.g. bung holes

Symbol	Тур	Titel
B21D 51/42	4-Punkt Untergruppe	Making or attaching spouts
B21D 51/44	3-Punkt Untergruppe	Making closures, e.g. caps (folded of thin metal foils in the way of making paper caps B31D 5/00; making closures in conjunction with applying same B67B)
B21D 51/46	4-Punkt Untergruppe	Placing sealings or sealing material
B21D 51/48	4-Punkt Untergruppe	Making crown caps
B21D 51/50	4-Punkt Untergruppe	Making screw caps
B21D 51/52	2-Punkt Untergruppe	boxes, cigarette cases, or the like
B21D 51/54	2-Punkt Untergruppe	cartridge cases, e.g. for ammunition, for letter carriers in pneumatic-tube plants
B21D 53/00	Hauptgruppe	Making other particular articles (making wire fabrics B21F; making chains or chain parts B21L)
B21D 53/02	1-Punkt Untergruppe	. heat exchangers, e.g. radiators, condensers (making finned or ribbed tubes by fixing strip material or the like to tubes B21C 37/22) [2]
B21D 53/04	2-Punkt Untergruppe	of sheet metal
B21D 53/06	2-Punkt Untergruppe	of metal tubes
B21D 53/08	2-Punkt Untergruppe	of both metal tubes and sheet metal (connecting tubes in openings B21D 39/06)
B21D 53/10	1-Punkt Untergruppe	. parts of bearings; sleeves; valve seats or the like
B21D 53/12	2-Punkt Untergruppe	cages for bearings
B21D 53/14	1-Punkt Untergruppe	. belts, e.g. machine-gun belts
B21D 53/16	1-Punkt Untergruppe	. rings, e.g. barrel hoops
B21D 53/18	2-Punkt Untergruppe	of hollow or C-shaped cross-section, e.g. for curtains, for eyelets
B21D 53/20	2-Punkt Untergruppe	washers, e.g. for sealing
B21D 53/22	3-Punkt Untergruppe	with means for preventing rotation
B21D 53/24	1-Punkt Untergruppe	. nuts or like thread-engaging members
B21D 53/26	1-Punkt Untergruppe	. wheels or the like
B21D 53/28	2-Punkt Untergruppe	gear wheels
B21D 53/30	2-Punkt Untergruppe	wheel rims
B21D 53/32	2-Punkt Untergruppe	wheel covers
B21D 53/34	2-Punkt Untergruppe	brake drums
B21D 53/36	1-Punkt Untergruppe	. clips, clamps, or like fastening or attaching devices, e.g. for electric installation
B21D 53/38	1-Punkt Untergruppe	. locksmith's goods, e.g. handles
B21D 53/40	2-Punkt Untergruppe	hinges, e.g. door hinge plates
B21D 53/42	2-Punkt Untergruppe	keys
B21D 53/44	1-Punkt Untergruppe	. fancy goods, e.g. jewellery products
B21D 53/46	1-Punkt Untergruppe	. haberdashery, e.g. buckles, combs; pronged fasteners, e.g. staples

Symbol	Тур	Titel
B21D 53/48	2-Punkt Untergruppe	buttons, e.g. press-buttons, snap fasteners
B21D 53/50	2-Punkt Untergruppe	metal slide-fastener parts
B21D 53/52	3-Punkt Untergruppe	fastener elements; Attaching such elements so far as this procedure is combined with the process for making the elements
B21D 53/54	3-Punkt Untergruppe	slides
B21D 53/56	3-Punkt Untergruppe	stops
B21D 53/58	1-Punkt Untergruppe	. end-pieces for laces or ropes
B21D 53/60	1-Punkt Untergruppe	. cutlery wares; garden tools or the like
B21D 53/62	2-Punkt Untergruppe	spoons; table forks
B21D 53/64	2-Punkt Untergruppe	knives; scissors; cutting blades (B21D 53/72 takes precedence; handle portions B21D 53/70)
B21D 53/66	2-Punkt Untergruppe	spades; shovels (handle portions B21D 53/70)
B21D 53/68	2-Punkt Untergruppe	rakes, garden forks, or the like (handle portions B21D 53/70)
B21D 53/70	2-Punkt Untergruppe	handle portions (B21D 53/72 takes precedence)
B21D 53/72	2-Punkt Untergruppe	sickles; scythes
B21D 53/74	1-Punkt Untergruppe	. frames for openings, e.g. for windows, doors, handbags
B21D 53/76	1-Punkt Untergruppe	. writing or drawing instruments, e.g. writing pens, erasing pens
B21D 53/78	1-Punkt Untergruppe	. propeller blades; turbine blades
B21D 53/80	1-Punkt Untergruppe	. dustproof covers; safety covers
B21D 53/82	1-Punkt Untergruppe	. perforated music sheets; pattern sheets, e.g. for control purposes, stencils
B21D 53/84	1-Punkt Untergruppe	. other parts for engines, e.g. connecting-rods
B21D 53/86	1-Punkt Untergruppe	. other parts for bicycles or motorcycles
B21D 53/88	1-Punkt Untergruppe	. other parts for vehicles, e.g. cowlings, mudguards
B21D 53/90	2-Punkt Untergruppe	axle-housings
B21D 53/92	1-Punkt Untergruppe	. other parts for aircraft
B21D 55/00	Hauptgruppe	Safety devices protecting the machine or the operator, specially adapted for apparatus or machines dealt with in this subclass (for presses in general B30B; safety devices in general F16P)