

| Symbol           | Typ                 | Titel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>B</b>         | <b>Sektion</b>      | <b>SECTION B — PERFORMING OPERATIONS; TRANSPORTING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>B23</b>       | <b>Klasse</b>       | <b>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)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>B23K</b>      | <b>Unterklasse</b>  | <b>SOLDERING OR UNSOLDERING; WELDING; CLADDING OR PLATING BY SOLDERING OR WELDING; CUTTING BY APPLYING HEAT LOCALLY, e.g. FLAME CUTTING; WORKING BY LASER BEAM (making metal-coated products by extruding metal B21C 23/22; building up linings or coverings by casting B22D 19/08; casting by dipping B22D 23/04; manufacture of composite layers by sintering metal powder B22F 7/00; arrangements on machine tools for copying or controlling B23Q; covering metals or covering materials with metals, not otherwise provided for C23C; burners F23D)</b><br><b><u>Soldering, e.g. brazing, or unsoldering (essentially requiring the use of welding machines or welding equipment, see the relevant groups for the welding machines or welding equipment)</u></b> |
| <b>B23K 1/00</b> | <b>Hauptgruppe</b>  | <b>Soldering, e.g. brazing, or unsoldering (B23K 3/00 takes precedence; characterised only by the use of special materials or media B23K 35/00; dip or wave soldering in the manufacture of printed circuits H05K 3/34) [5]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| B23K 1/002       | 1-Punkt Untergruppe | . Soldering by means of induction heating [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| B23K 1/005       | 1-Punkt Untergruppe | . Soldering by means of radiant energy [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| B23K 1/008       | 1-Punkt Untergruppe | . Soldering within a furnace (B23K 1/012 takes precedence) [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| B23K 1/012       | 1-Punkt Untergruppe | . Soldering with the use of hot gas [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| B23K 1/015       | 2-Punkt Untergruppe | . . Vapour-condensation soldering [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| B23K 1/018       | 1-Punkt Untergruppe | . Unsoldering; Removal of melted solder or other residues [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| B23K 1/06        | 1-Punkt Untergruppe | . making use of vibrations, e.g. supersonic vibrations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| B23K 1/08        | 1-Punkt Untergruppe | . Soldering by means of dipping in molten solder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| B23K 1/14        | 1-Punkt Untergruppe | . specially adapted for soldering seams (making tubes involving operations other than soldering B21C) [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| B23K 1/16        | 2-Punkt Untergruppe | . . longitudinal seams, e.g. of shells [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| B23K 1/18        | 2-Punkt Untergruppe | . . circumferential seams, e.g. of shells [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| B23K 1/19        | 1-Punkt Untergruppe | . taking account of the properties of the materials to be soldered [3]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| B23K 1/20        | 1-Punkt Untergruppe | . Preliminary treatment of work or areas to be soldered, e.g. in respect of a galvanic coating (preparation of surfaces in particular ways, <u>see</u> the relevant classes for the treatments or the materials treated, e.g. C04B, C23C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>B23K 3/00</b> | <b>Hauptgruppe</b>  | <b>Tools, devices, or special appurtenances for soldering, e.g. brazing, or unsoldering, not specially adapted for particular methods (materials used for soldering B23K 35/00) [5]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| B23K 3/02        | 1-Punkt Untergruppe | . Soldering irons; Bits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| B23K 3/03        | 2-Punkt Untergruppe | . . electrically heated [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| B23K 3/04        | 1-Punkt Untergruppe | . Heating appliances (soldering lamps or blow-pipes F23D; electric heating in general H05B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| B23K 3/047       | 2-Punkt Untergruppe | . . electric [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| B23K 3/053       | 3-Punkt Untergruppe | . . . using resistance wires [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Symbol                                    | Typ                 | Titel                                                                                                                         |
|-------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------|
| B23K 3/06                                 | 1-Punkt Untergruppe | . Solder feeding devices; Solder melting pans                                                                                 |
| B23K 3/08                                 | 1-Punkt Untergruppe | . Auxiliary devices therefor (cleaning pipes or tubes or systems of pipes or tubes, e.g. before soldering, B08B 9/02) [5]     |
| <b><u>Flame welding or cutting</u></b>    |                     |                                                                                                                               |
| <b>B23K 5/00</b>                          | <b>Hauptgruppe</b>  | <b>Gas flame welding</b>                                                                                                      |
| B23K 5/02                                 | 1-Punkt Untergruppe | . Seam welding (making tubes involving operations other than welding B21C)                                                    |
| B23K 5/04                                 | 2-Punkt Untergruppe | . . using additional profiled strips or like of welding metal along seam edges                                                |
| B23K 5/06                                 | 2-Punkt Untergruppe | . . Welding longitudinal seams                                                                                                |
| B23K 5/08                                 | 2-Punkt Untergruppe | . . Welding circumferential seams                                                                                             |
| B23K 5/10                                 | 1-Punkt Untergruppe | . Welding workpieces essentially comprising layers of different metals, e.g. plated workpieces                                |
| B23K 5/12                                 | 1-Punkt Untergruppe | . taking account of the properties of the material to be welded                                                               |
| B23K 5/14                                 | 2-Punkt Untergruppe | . . of non-ferrous metals (B23K 5/16 takes precedence)                                                                        |
| B23K 5/16                                 | 2-Punkt Untergruppe | . . of different metals                                                                                                       |
| B23K 5/18                                 | 1-Punkt Untergruppe | . for purposes other than joining parts, e.g. built-up welding                                                                |
| B23K 5/20                                 | 1-Punkt Untergruppe | . making use of vibrations, e.g. supersonic vibrations                                                                        |
| B23K 5/213                                | 1-Punkt Untergruppe | . Preliminary treatment [3]                                                                                                   |
| B23K 5/22                                 | 1-Punkt Untergruppe | . Auxiliary equipment, e.g. backings, guides                                                                                  |
| B23K 5/24                                 | 2-Punkt Untergruppe | . . Arrangements for supporting torches (not restricted to flame welding B23K 37/02)                                          |
| <b>B23K 7/00</b>                          | <b>Hauptgruppe</b>  | <b>Cutting, scarfing, or desurfacing by applying flames</b>                                                                   |
| B23K 7/06                                 | 1-Punkt Untergruppe | . Machines, apparatus, or equipment specially designed for scarfing or desurfacing                                            |
| B23K 7/08                                 | 1-Punkt Untergruppe | . by applying additional compounds or means favouring the cutting, scarfing, or desurfacing procedure                         |
| B23K 7/10                                 | 1-Punkt Untergruppe | . Auxiliary devices, e.g. for guiding or supporting the torch (guiding means applicable to other metal-working machines B23Q) |
| <b><u>Electric welding or cutting</u></b> |                     |                                                                                                                               |
| <b>B23K 9/00</b>                          | <b>Hauptgruppe</b>  | <b>Arc welding or cutting (electro-slag welding B23K 25/00; welding transformers H01F; welding generators H02K)</b>           |
| B23K 9/007                                | 1-Punkt Untergruppe | . Spot arc welding [5]                                                                                                        |
| B23K 9/013                                | 1-Punkt Untergruppe | . Arc cutting, gouging, scarfing or desurfacing [5]                                                                           |
| B23K 9/02                                 | 1-Punkt Untergruppe | . Seam welding; Backing means; Inserts                                                                                        |
| B23K 9/022                                | 2-Punkt Untergruppe | . . Welding by making use of electrode vibrations [5]                                                                         |
| B23K 9/025                                | 2-Punkt Untergruppe | . . for rectilinear seams [5]                                                                                                 |
| B23K 9/028                                | 2-Punkt Untergruppe | . . for curved planar seams [5]                                                                                               |
| B23K 9/032                                | 2-Punkt Untergruppe | . . for three-dimensional seams [5]                                                                                           |
| B23K 9/035                                | 2-Punkt Untergruppe | . . with backing means disposed under the seam [5]                                                                            |
| B23K 9/038                                | 2-Punkt Untergruppe | . . using moulding means (not restricted to arc welding B23K 37/06) [5]                                                       |

| Symbol            | Typ                 | Titel                                                                                                                |
|-------------------|---------------------|----------------------------------------------------------------------------------------------------------------------|
| B23K 9/04         | 1-Punkt Untergruppe | . Welding for other purposes than joining, e.g. built-up welding                                                     |
| B23K 9/06         | 1-Punkt Untergruppe | . Arrangements or circuits for starting the arc, e.g. by generating ignition voltage, or for stabilising the arc [5] |
| B23K 9/067        | 2-Punkt Untergruppe | . . Starting the arc [5]                                                                                             |
| B23K 9/073        | 2-Punkt Untergruppe | . . Stabilising the arc [5]                                                                                          |
| B23K 9/08         | 1-Punkt Untergruppe | . Arrangements or circuits for magnetic control of the arc                                                           |
| B23K 9/09         | 1-Punkt Untergruppe | . Arrangements or circuits for arc welding with pulsed current or voltage [3]                                        |
| B23K 9/095        | 1-Punkt Untergruppe | . Monitoring or automatic control of welding parameters [5]                                                          |
| B23K 9/10         | 1-Punkt Untergruppe | . Other electric circuits therefor; Protective circuits; Remote controls                                             |
| B23K 9/12         | 1-Punkt Untergruppe | . Automatic feeding or moving of electrodes or work for spot or seam welding or cutting                              |
| B23K 9/127        | 2-Punkt Untergruppe | . . Means for tracking lines during arc welding or cutting (copying in general B23Q 35/00) [5]                       |
| B23K 9/133        | 2-Punkt Untergruppe | . . Means for feeding electrodes, e.g. drums, rolls, motors [5]                                                      |
| B23K 9/14         | 1-Punkt Untergruppe | . making use of insulated electrodes                                                                                 |
| B23K 9/16         | 1-Punkt Untergruppe | . making use of shielding gas                                                                                        |
| B23K 9/167        | 2-Punkt Untergruppe | . . and of a non-consumable electrode [5]                                                                            |
| B23K 9/173        | 2-Punkt Untergruppe | . . and of consumable electrode [5]                                                                                  |
| B23K 9/18         | 1-Punkt Untergruppe | . Submerged-arc welding                                                                                              |
| B23K 9/20         | 1-Punkt Untergruppe | . Stud welding                                                                                                       |
| B23K 9/22         | 1-Punkt Untergruppe | . Percussion welding                                                                                                 |
| B23K 9/23         | 1-Punkt Untergruppe | . taking account of the properties of the materials to be welded [3]                                                 |
| B23K 9/235        | 1-Punkt Untergruppe | . Preliminary treatment [3]                                                                                          |
| B23K 9/24         | 1-Punkt Untergruppe | . Features related to electrodes (form or composition of electrodes B23K 35/00)                                      |
| B23K 9/26         | 2-Punkt Untergruppe | . . Accessories for electrodes, e.g. ignition tips                                                                   |
| B23K 9/28         | 2-Punkt Untergruppe | . . Supporting devices for electrodes (not restricted to arc welding or cutting B23K 37/02)                          |
| B23K 9/29         | 3-Punkt Untergruppe | . . . Supporting devices adapted for making use of shielding means [5]                                               |
| B23K 9/30         | 3-Punkt Untergruppe | . . . Vibrating holders for electrodes (B23K 9/022 takes precedence) [5]                                             |
| B23K 9/32         | 1-Punkt Untergruppe | . Accessories (earthing connections H01R)                                                                            |
| <b>B23K 10/00</b> | <b>Hauptgruppe</b>  | <b>Welding or cutting by means of a plasma [5]</b>                                                                   |
| B23K 10/02        | 1-Punkt Untergruppe | . Plasma welding [5]                                                                                                 |
| <b>B23K 11/00</b> | <b>Hauptgruppe</b>  | <b>Resistance welding; Severing by resistance heating</b>                                                            |
| B23K 11/02        | 1-Punkt Untergruppe | . Pressure butt welding                                                                                              |
| B23K 11/04        | 1-Punkt Untergruppe | . Flash butt welding                                                                                                 |
| B23K 11/06        | 1-Punkt Untergruppe | . using roller electrodes                                                                                            |
| B23K 11/08        | 1-Punkt Untergruppe | . Seam welding not restricted to one of the preceding subgroups                                                      |

| Symbol            | Typ                 | Titel                                                                                                                                    |
|-------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| B23K 11/087       | 2-Punkt Untergruppe | . . for rectilinear seams [5]                                                                                                            |
| B23K 11/093       | 2-Punkt Untergruppe | . . for curved planar seams [5]                                                                                                          |
| B23K 11/10        | 1-Punkt Untergruppe | . Spot welding; Stitch welding                                                                                                           |
| B23K 11/11        | 2-Punkt Untergruppe | . . Spot welding [5]                                                                                                                     |
| B23K 11/12        | 2-Punkt Untergruppe | . . making use of vibrations                                                                                                             |
| B23K 11/14        | 1-Punkt Untergruppe | . Projection welding                                                                                                                     |
| B23K 11/16        | 1-Punkt Untergruppe | . taking account of the properties of the material to be welded                                                                          |
| B23K 11/18        | 2-Punkt Untergruppe | . . of non-ferrous metals (B23K 11/20 takes precedence)                                                                                  |
| B23K 11/20        | 2-Punkt Untergruppe | . . of different metals                                                                                                                  |
| B23K 11/22        | 1-Punkt Untergruppe | . Severing by resistance heating                                                                                                         |
| B23K 11/24        | 1-Punkt Untergruppe | . Electric supply or control circuits therefor                                                                                           |
| B23K 11/25        | 2-Punkt Untergruppe | . . Monitoring devices [5]                                                                                                               |
| B23K 11/26        | 2-Punkt Untergruppe | . . Storage discharge welding                                                                                                            |
| B23K 11/28        | 1-Punkt Untergruppe | . Portable welding equipment                                                                                                             |
| B23K 11/30        | 1-Punkt Untergruppe | . Features relating to electrodes (form or composition of electrodes B23K 35/00)                                                         |
| B23K 11/31        | 2-Punkt Untergruppe | . . Electrode holders (not restricted to resistance welding or severing by resistance heating B23K 37/02) [5]                            |
| B23K 11/34        | 1-Punkt Untergruppe | . Preliminary treatment [3]                                                                                                              |
| B23K 11/36        | 1-Punkt Untergruppe | . Auxiliary equipment (B23K 11/31 takes precedence) [3, 5]                                                                               |
| <b>B23K 13/00</b> | <b>Hauptgruppe</b>  | <b>Welding by high-frequency current heating [5]</b>                                                                                     |
| B23K 13/01        | 1-Punkt Untergruppe | . by induction heating [5]                                                                                                               |
| B23K 13/02        | 2-Punkt Untergruppe | . . Seam welding                                                                                                                         |
| B23K 13/04        | 1-Punkt Untergruppe | . by conduction heating [5]                                                                                                              |
| B23K 13/06        | 1-Punkt Untergruppe | . characterised by the shielding of the welding zone against influence of the surrounding atmosphere (selection of media B23K 35/38) [5] |
| B23K 13/08        | 1-Punkt Untergruppe | . Electric supply or control circuits therefor [5]                                                                                       |
|                   |                     | <b><u>Other welding or cutting; Working by laser beam [3]</u></b>                                                                        |
| <b>B23K 15/00</b> | <b>Hauptgruppe</b>  | <b>Electron-beam welding or cutting (electron- or ion-beam tubes H01J 37/00)</b>                                                         |
| B23K 15/02        | 1-Punkt Untergruppe | . Control circuits therefor [5]                                                                                                          |
| B23K 15/04        | 1-Punkt Untergruppe | . for welding annular seams [5]                                                                                                          |
| B23K 15/06        | 1-Punkt Untergruppe | . within a vacuum chamber (B23K 15/04 takes precedence) [5]                                                                              |
| B23K 15/08        | 1-Punkt Untergruppe | . Removing material, e.g. by cutting, by hole drilling [5]                                                                               |
| B23K 15/10        | 1-Punkt Untergruppe | . Non-vacuum electron beam-welding or cutting [5]                                                                                        |
| <b>B23K 17/00</b> | <b>Hauptgruppe</b>  | <b>Use of the energy of nuclear particles in welding or related techniques</b>                                                           |
| <b>B23K 20/00</b> | <b>Hauptgruppe</b>  | <b>Non-electric welding by applying impact or other pressure, with or without the application of heat, e.g. cladding or plating [3]</b>  |

| Symbol            | Typ                 | Titel                                                                                                                                                                                        |
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| B23K 20/02        | 1-Punkt Untergruppe | . by means of a press [3]                                                                                                                                                                    |
| B23K 20/04        | 1-Punkt Untergruppe | . by means of a rolling mill [3]                                                                                                                                                             |
| B23K 20/06        | 1-Punkt Untergruppe | . by means of high energy impulses, e.g. magnetic energy [3]                                                                                                                                 |
| B23K 20/08        | 2-Punkt Untergruppe | . . Explosive welding [3]                                                                                                                                                                    |
| B23K 20/10        | 1-Punkt Untergruppe | . making use of vibrations, e.g. ultrasonic welding [3]                                                                                                                                      |
| B23K 20/12        | 1-Punkt Untergruppe | . the heat being generated by friction; Friction welding [3]                                                                                                                                 |
| B23K 20/14        | 1-Punkt Untergruppe | . Preventing or minimising gas access, or using protective gases or vacuum during welding (formed by material interposed between workpieces B23K 20/18) [3]                                  |
| B23K 20/16        | 1-Punkt Untergruppe | . with interposition of special material to facilitate connection of the parts, e.g. material for absorbing or producing gas [3]                                                             |
| B23K 20/18        | 1-Punkt Untergruppe | . Zonal welding by interposing weld-preventing substances between zones not to be welded [3]                                                                                                 |
| B23K 20/20        | 1-Punkt Untergruppe | . Special methods allowing subsequent separation, e.g. of metals of high quality from scrap material [3]                                                                                     |
| B23K 20/22        | 1-Punkt Untergruppe | . taking account of the properties of the materials to be welded [3]                                                                                                                         |
| B23K 20/227       | 2-Punkt Untergruppe | . . with ferrous layer [5]                                                                                                                                                                   |
| B23K 20/233       | 2-Punkt Untergruppe | . . without ferrous layer [5]                                                                                                                                                                |
| B23K 20/24        | 1-Punkt Untergruppe | . Preliminary treatment [3]                                                                                                                                                                  |
| B23K 20/26        | 1-Punkt Untergruppe | . Auxiliary equipment [3]                                                                                                                                                                    |
| <b>B23K 23/00</b> | <b>Hauptgruppe</b>  | <b>Alumino-thermic welding</b>                                                                                                                                                               |
| <b>B23K 25/00</b> | <b>Hauptgruppe</b>  | <b>Slag welding, i.e. using a heated layer or mass of powder, slag, or the like in contact with the material to be joined (B23K 23/00 takes precedence; submerged-arc welding B23K 9/18)</b> |
| <b>B23K 26/00</b> | <b>Hauptgruppe</b>  | <b>Working by laser beam, e.g. welding, cutting, boring (lasers H01S 3/00) [2, 3]</b>                                                                                                        |
| B23K 26/02        | 1-Punkt Untergruppe | . Positioning or observing the workpiece, e.g. with respect to the point of impact; Aligning, aiming or focusing the laser beam [3]                                                          |
| B23K 26/03        | 2-Punkt Untergruppe | . . Observing the workpiece [7]                                                                                                                                                              |
| B23K 26/04        | 2-Punkt Untergruppe | . . Automatically aligning, aiming or focusing the laser beam, e.g. using the back-scattered light [3]                                                                                       |
| B23K 26/06        | 2-Punkt Untergruppe | . . Shaping the laser beam, e.g. by masks or multi-focusing (optical elements, systems, or apparatus, in general G02B) [3]                                                                   |
| B23K 26/067       | 3-Punkt Untergruppe | . . . Dividing the beam into multiple beams, e.g. multi-focusing [7]                                                                                                                         |
| B23K 26/073       | 3-Punkt Untergruppe | . . . Shaping the laser spot [7]                                                                                                                                                             |
| B23K 26/08        | 1-Punkt Untergruppe | . Devices involving relative movement between laser beam and workpiece [3]                                                                                                                   |
| B23K 26/10        | 2-Punkt Untergruppe | . . using a fixed support [3]                                                                                                                                                                |
| B23K 26/12        | 1-Punkt Untergruppe | . in a special atmosphere, e.g. in an enclosure [3]                                                                                                                                          |
| B23K 26/14        | 1-Punkt Untergruppe | . using a flow, e.g. a jet of gas, in conjunction with the laser beam (B23K 26/12 takes precedence) [3]                                                                                      |
| B23K 26/16        | 1-Punkt Untergruppe | . Removing of by-products, e.g. particles or vapours produced during treatment of a workpiece (by a flow of gas B23K 26/14) [3]                                                              |
| B23K 26/18        | 1-Punkt Untergruppe | . using absorbing layers on the material being worked, e.g. for marking or protecting purposes [3]                                                                                           |

| Symbol            | Typ                 | Titel                                                                                                                                                                                                                                                                                |
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| B23K 26/20        | 1-Punkt Untergruppe | . Bonding, e.g. welding (soldering by means of radiant energy B23K 1/005; joining of preformed plastics parts by heating using laser beam B29C 65/16) [7]                                                                                                                            |
| B23K 26/22        | 2-Punkt Untergruppe | . . Spot welding [7]                                                                                                                                                                                                                                                                 |
| B23K 26/24        | 2-Punkt Untergruppe | . . Seam welding [7]                                                                                                                                                                                                                                                                 |
| B23K 26/26        | 3-Punkt Untergruppe | . . . of rectilinear seams [7]                                                                                                                                                                                                                                                       |
| B23K 26/28        | 3-Punkt Untergruppe | . . . of curved planar seams [7]                                                                                                                                                                                                                                                     |
| B23K 26/30        | 3-Punkt Untergruppe | . . . of three-dimensional seams [7]                                                                                                                                                                                                                                                 |
| B23K 26/32        | 2-Punkt Untergruppe | . . taking account of the properties of the material involved [7]                                                                                                                                                                                                                    |
| B23K 26/34        | 1-Punkt Untergruppe | . Welding for purposes other than joining, e.g. build-up welding [7]                                                                                                                                                                                                                 |
| B23K 26/36        | 1-Punkt Untergruppe | . Removing material [7]                                                                                                                                                                                                                                                              |
| B23K 26/38        | 2-Punkt Untergruppe | . . by boring or cutting [7]                                                                                                                                                                                                                                                         |
| B23K 26/40        | 2-Punkt Untergruppe | . . taking account of the properties of the material involved [7]                                                                                                                                                                                                                    |
| B23K 26/42        | 1-Punkt Untergruppe | . Preliminary treatment; Auxiliary operations or equipment (B23K 26/16 takes precedence) [7]                                                                                                                                                                                         |
| <b>B23K 28/00</b> | <b>Hauptgruppe</b>  | <b>Welding or cutting not covered by groups B23K 5/00-B23K 26/00 (joining workpieces by electrolysis C25D 2/00; electrolytic removal of materials C25F) [2]</b>                                                                                                                      |
| B23K 28/02        | 1-Punkt Untergruppe | . Combined welding or cutting procedures or apparatus [2]                                                                                                                                                                                                                            |
| <b>B23K 31/00</b> | <b>Hauptgruppe</b>  | <b>Processes relevant to this subclass, specially adapted for particular articles or purposes, but not covered by any single one of main groups B23K 1/00-B23K 28/00 (making tubes or profiled bars involving operations other than soldering or welding B21C 37/04, B21C 37/08)</b> |
| B23K 31/02        | 1-Punkt Untergruppe | . relating to soldering or welding (dip or wave soldering in the manufacture of printed circuits H05K 3/34)                                                                                                                                                                          |
| B23K 31/10        | 1-Punkt Untergruppe | . relating to cutting or desurfacing                                                                                                                                                                                                                                                 |
| B23K 31/12        | 1-Punkt Untergruppe | . relating to investigating the properties, e.g. the weldability, of materials [5]                                                                                                                                                                                                   |
| <b>B23K 33/00</b> | <b>Hauptgruppe</b>  | <b>Specially-profiled edge portions of workpieces for making soldering or welding connections; Filling the seams formed thereby</b>                                                                                                                                                  |
| <b>B23K 35/00</b> | <b>Hauptgruppe</b>  | <b>Rods, electrodes, materials, or media, for use in soldering, welding, or cutting</b>                                                                                                                                                                                              |
| B23K 35/02        | 1-Punkt Untergruppe | . characterised by mechanical features, e.g. shape                                                                                                                                                                                                                                   |
| B23K 35/04        | 2-Punkt Untergruppe | . . specially designed for use as electrodes (ignition tips for arc welding or cutting B23K 9/26)                                                                                                                                                                                    |
| B23K 35/06        | 3-Punkt Untergruppe | . . . of non-circular cross-section; with special arrangement, e.g. internal                                                                                                                                                                                                         |
| B23K 35/08        | 4-Punkt Untergruppe | . . . . multi-cored; multiple                                                                                                                                                                                                                                                        |
| B23K 35/10        | 4-Punkt Untergruppe | . . . . with more than one layer of coating or sheathing material                                                                                                                                                                                                                    |
| B23K 35/12        | 2-Punkt Untergruppe | . . not specially designed for use as electrodes                                                                                                                                                                                                                                     |
| B23K 35/14        | 3-Punkt Untergruppe | . . . for soldering                                                                                                                                                                                                                                                                  |
| B23K 35/16        | 3-Punkt Untergruppe | . . . of non-circular cross-section; with special arrangement, e.g. internal (B23K 35/14 takes precedence)                                                                                                                                                                           |
| B23K 35/18        | 4-Punkt Untergruppe | . . . . multi-cored; multiple                                                                                                                                                                                                                                                        |
| B23K 35/20        | 4-Punkt Untergruppe | . . . . with more than one layer of coating or sheathing material                                                                                                                                                                                                                    |
| B23K 35/22        | 1-Punkt Untergruppe | . characterised by the composition or nature of the material                                                                                                                                                                                                                         |

| Symbol             | Typ                 | Titel                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B23K 35/24         | 2-Punkt Untergruppe | . . Selection of soldering or welding materials proper (B23K 35/34 takes precedence)                                                                                                                                                                                                                                                                                     |
| B23K 35/26         | 3-Punkt Untergruppe | . . . with the principal constituent melting at less than 400°C                                                                                                                                                                                                                                                                                                          |
| B23K 35/28         | 3-Punkt Untergruppe | . . . with the principal constituent melting at less than 950°C                                                                                                                                                                                                                                                                                                          |
| B23K 35/30         | 3-Punkt Untergruppe | . . . with the principal constituent melting at less than 1550°C                                                                                                                                                                                                                                                                                                         |
| B23K 35/32         | 3-Punkt Untergruppe | . . . with the principal constituent melting at more than 1550°C                                                                                                                                                                                                                                                                                                         |
| B23K 35/34         | 2-Punkt Untergruppe | . . comprising compounds which yield metals when heated                                                                                                                                                                                                                                                                                                                  |
| B23K 35/36         | 2-Punkt Untergruppe | . . Selection of non-metallic compositions, e.g. coatings, fluxes (B23K 35/34 takes precedence); Selection of soldering or welding materials, conjoint with selection of non-metallic compositions, both selections being of interest (selection of soldering or welding materials proper B23K 35/24) [2]                                                                |
| B23K 35/362        | 3-Punkt Untergruppe | . . . Selection of compositions of fluxes (B23K 35/365, B23K 35/368 take precedence) [2]                                                                                                                                                                                                                                                                                 |
| B23K 35/363        | 4-Punkt Untergruppe | . . . . for soldering or brazing [4]                                                                                                                                                                                                                                                                                                                                     |
| B23K 35/365        | 3-Punkt Untergruppe | . . . Selection of non-metallic compositions of coating materials either alone or conjoint with selection of soldering or welding materials [2]                                                                                                                                                                                                                          |
| B23K 35/368        | 3-Punkt Untergruppe | . . . Selection of non-metallic compositions of core materials either alone or conjoint with selection of soldering or welding materials [2]                                                                                                                                                                                                                             |
| B23K 35/38         | 2-Punkt Untergruppe | . . Selection of media, e.g. special atmospheres for surrounding the working area                                                                                                                                                                                                                                                                                        |
| B23K 35/40         | 1-Punkt Untergruppe | . Making wire or rods for soldering or welding (processes involving a single technical art, <u>see</u> the relevant subclasses, e.g. B05D, B21C)                                                                                                                                                                                                                         |
| <b>B23K 37/00</b>  | <b>Hauptgruppe</b>  | <b>Auxiliary devices or processes, not specially adapted to a procedure covered by only one of the other main groups of this subclass (eye-shields for welders worn on the operator's body or carried in the hand A61F 9/00; applicable to metal-working machines other than soldering, welding, or flame-cutting machines B23Q; other protective shields F16P 1/06)</b> |
| B23K 37/02         | 1-Punkt Untergruppe | . Carriages for supporting the welding or cutting element                                                                                                                                                                                                                                                                                                                |
| B23K 37/04         | 1-Punkt Untergruppe | . for holding or positioning work                                                                                                                                                                                                                                                                                                                                        |
| B23K 37/047        | 2-Punkt Untergruppe | . . moving work to adjust its position between soldering, welding or cutting steps (B23K 37/053 takes precedence) [5]                                                                                                                                                                                                                                                    |
| B23K 37/053        | 2-Punkt Untergruppe | . . aligning cylindrical work; Clamping devices therefor [5]                                                                                                                                                                                                                                                                                                             |
| B23K 37/06         | 1-Punkt Untergruppe | . for positioning the molten material, e.g. confining it to a desired area                                                                                                                                                                                                                                                                                               |
| B23K 37/08         | 1-Punkt Untergruppe | . for flash removal [5]                                                                                                                                                                                                                                                                                                                                                  |
|                    |                     | <b><u>Indexing scheme associated with groups B23K 1/00-B23K 31/00, relating to articles made by soldering, welding or cutting or to materials to be soldered, welded or cut. [5]</u></b>                                                                                                                                                                                 |
| <b>B23K 101/00</b> | <b>Hauptgruppe</b>  | <b>Articles made by soldering, welding or cutting [5]</b>                                                                                                                                                                                                                                                                                                                |
| B23K 101/02        | 1-Punkt Untergruppe | . Honeycomb structures [5]                                                                                                                                                                                                                                                                                                                                               |
| B23K 101/04        | 1-Punkt Untergruppe | . Tubular or hollow articles [5]                                                                                                                                                                                                                                                                                                                                         |
| B23K 101/06        | 2-Punkt Untergruppe | . . Tubes [5]                                                                                                                                                                                                                                                                                                                                                            |
| B23K 101/08        | 3-Punkt Untergruppe | . . . finned or ribbed [5]                                                                                                                                                                                                                                                                                                                                               |
| B23K 101/10        | 2-Punkt Untergruppe | . . Pipe-lines [5]                                                                                                                                                                                                                                                                                                                                                       |
| B23K 101/12        | 2-Punkt Untergruppe | . . Vessels [5]                                                                                                                                                                                                                                                                                                                                                          |

| Symbol             | Typ                 | Titel                                                  |
|--------------------|---------------------|--------------------------------------------------------|
| B23K 101/14        | 2-Punkt Untergruppe | . . Heat exchangers [5]                                |
| B23K 101/16        | 1-Punkt Untergruppe | . Bands or sheets of indefinite length [5]             |
| B23K 101/18        | 1-Punkt Untergruppe | . Sheet panels [5]                                     |
| B23K 101/20        | 1-Punkt Untergruppe | . Tools [5]                                            |
| B23K 101/22        | 1-Punkt Untergruppe | . Nets, wire fabrics or the like [5]                   |
| B23K 101/24        | 1-Punkt Untergruppe | . Frameworks [5]                                       |
| B23K 101/26        | 1-Punkt Untergruppe | . Railway- or like rails [5]                           |
| B23K 101/28        | 1-Punkt Untergruppe | . Beams [5]                                            |
| B23K 101/30        | 1-Punkt Untergruppe | . Chains, hoops or rings [5]                           |
| B23K 101/32        | 1-Punkt Untergruppe | . Wires [5]                                            |
| B23K 101/34        | 1-Punkt Untergruppe | . Coated articles [5]                                  |
| B23K 101/36        | 1-Punkt Untergruppe | . Electric or electronic devices [5]                   |
| B23K 101/38        | 2-Punkt Untergruppe | . . Conductors [5]                                     |
| B23K 101/40        | 2-Punkt Untergruppe | . . Semiconductor devices [5]                          |
| B23K 101/42        | 2-Punkt Untergruppe | . . Printed circuits [5]                               |
| <b>B23K 103/00</b> | <b>Hauptgruppe</b>  | <b>Materials to be soldered, welded or cut [5]</b>     |
| B23K 103/02        | 1-Punkt Untergruppe | . Iron or ferrous alloys [5]                           |
| B23K 103/04        | 2-Punkt Untergruppe | . . Steel alloys [5]                                   |
| B23K 103/06        | 2-Punkt Untergruppe | . . Cast-iron alloys [5]                               |
| B23K 103/08        | 1-Punkt Untergruppe | . Non-ferrous metals or alloys [5]                     |
| B23K 103/10        | 2-Punkt Untergruppe | . . Aluminium or alloys thereof [5]                    |
| B23K 103/12        | 2-Punkt Untergruppe | . . Copper or alloys thereof [5]                       |
| B23K 103/14        | 2-Punkt Untergruppe | . . Titanium or alloys thereof [5]                     |
| B23K 103/16        | 1-Punkt Untergruppe | . Composite materials [5]                              |
| B23K 103/18        | 1-Punkt Untergruppe | . Dissimilar materials [5]                             |
| B23K 103/20        | 2-Punkt Untergruppe | . . Ferrous alloys and aluminium or alloys thereof [5] |
| B23K 103/22        | 2-Punkt Untergruppe | . . Ferrous alloys and copper or alloys thereof [5]    |
| B23K 103/24        | 2-Punkt Untergruppe | . . Ferrous alloys and titanium or alloys thereof [5]  |