

Symbol	Typ	Titel
C	Sektion	CHEMISTRY; METALLURGY
C23	Klasse	COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL (by metallising textiles D06M 11/83; decorating textiles by locally metallising D06Q 1/04); CHEMICAL SURFACE TREATMENT; DIFFUSION TREATMENT OF METALLIC MATERIAL; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL (for specific applications, see the relevant places, e.g. for manufacturing resistors H01C 17/06); INHIBITING CORROSION OF METALLIC MATERIAL OR INCRUSTATION IN GENERAL (treating metal surfaces or coating of metals by electrolysis or electrophoresis C25D , C25F) [2]
C23C	Unterklasse	COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL; SURFACE TREATMENT OF METALLIC MATERIAL BY DIFFUSION INTO THE SURFACE, BY CHEMICAL CONVERSION OR SUBSTITUTION; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL (applying liquids or other fluent materials to surfaces in general B05; making metal-coated products by extrusion B21C 23/22; covering with metal by connecting pre-existing layers to articles, see the relevant places, e.g. B21D 39/00 , B23K; working of metal by the action of a high concentration of electric current on a workpiece using an electrode B23H; metallising of glass C03C; metallising mortars, concrete, artificial stone, ceramics or natural stone C04B 41/00; paints, varnishes, laquers C09D; enamelling of, or applying a vitreous layer to, metals C23D; inhibiting corrosion of metallic material or incrustation in general C23F; single-crystal film growth C30B; details of scanning-probe apparatus, in general G12B 21/00; manufacture of semiconductor devices H01L; manufacture of printed circuits H05K) [4] <u>Coating by applying the coating material in the molten state (casting B22D , e.g. B22D 19/08 , B22D 23/04 , B29; built-up welding B23K , e.g. B23K 5/18 , B23K 9/04) [4]</u>
C23C 2/00	Hauptgruppe	Hot-dipping or immersion processes for applying the coating material in the molten state without affecting the shape; Apparatus therefor [4]
C23C 2/02	1-Punkt Untergruppe	. Pretreatment of the material to be coated, e.g. for coating on selected surface areas (C23C 2/30 takes precedence) [4]
C23C 2/04	1-Punkt Untergruppe	. characterised by the coating material [4]
C23C 2/06	2-Punkt Untergruppe	. . Zinc or cadmium or alloys based thereon [4]
C23C 2/08	2-Punkt Untergruppe	. . Tin or alloys based thereon [4]
C23C 2/10	2-Punkt Untergruppe	. . Lead or alloys based thereon [4]
C23C 2/12	2-Punkt Untergruppe	. . Aluminium or alloys based thereon [4]
C23C 2/14	1-Punkt Untergruppe	. Removing excess of molten coatings; Controlling or regulating the coating thickness (controlling or regulating thickness in general G05D 5/02) [4]
C23C 2/16	2-Punkt Untergruppe	. . using fluids under pressure, e.g. air knives [4]
C23C 2/18	3-Punkt Untergruppe	. . . Removing excess of molten coatings from elongated material [4]
C23C 2/20	4-Punkt Untergruppe	 Strips; Plates [4]
C23C 2/22	2-Punkt Untergruppe	. . by rubbing, e.g. using knives [4]
C23C 2/24	2-Punkt Untergruppe	. . using magnetic or electric fields [4]
C23C 2/26	1-Punkt Untergruppe	. After-treatment (C23C 2/14 takes precedence) [4]

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C23C 2/28	2-Punkt Untergruppe	. . Thermal after-treatment, e.g. treatment in oil bath [4]
C23C 2/30	1-Punkt Untergruppe	. Fluxes or coverings on molten baths (C23C 2/22 takes precedence) [4]
C23C 2/32	1-Punkt Untergruppe	. using vibratory energy applied to the bath or substrate (C23C 2/14 takes precedence) [4]
C23C 2/34	1-Punkt Untergruppe	. characterised by the shape of the material to be treated (C23C 2/14 takes precedence) [4]
C23C 2/36	2-Punkt Untergruppe	. . Elongated material [4]
C23C 2/38	3-Punkt Untergruppe	. . . Wires; Tubes [4]
C23C 2/40	3-Punkt Untergruppe	. . . Plates; Strips [4]
C23C 4/00	Hauptgruppe	Coating by spraying the coating material in the molten state, e.g. by flame, plasma or electric discharge (spraying guns B05B; making alloys containing fibres or filaments by thermal spraying of metal C22C 47/16; plasma guns H05H) [4]
C23C 4/02	1-Punkt Untergruppe	. Pretreatment of the material to be coated, e.g. for coating on selected surface areas [4]
C23C 4/04	1-Punkt Untergruppe	. characterised by the coating material [4]
C23C 4/06	2-Punkt Untergruppe	. . Metallic material [4]
C23C 4/08	3-Punkt Untergruppe	. . . containing only metal elements [4]
C23C 4/10	2-Punkt Untergruppe	. . Oxides, borides, carbides, nitrides, silicides or mixtures thereof [4]
C23C 4/12	1-Punkt Untergruppe	. characterised by the method of spraying [4]
C23C 4/14	2-Punkt Untergruppe	. . for covering elongated material [4]
C23C 4/16	3-Punkt Untergruppe	. . . Wires; Tubes [4]
C23C 4/18	1-Punkt Untergruppe	. After-treatment [4]
C23C 6/00	Hauptgruppe	Coating by casting molten material on the substrate [4] <u>Solid state diffusion into metallic material surfaces [4]</u>
C23C 8/00	Hauptgruppe	Solid state diffusion of only non-metal elements into metallic material surfaces (diffusion of silicon C23C 10/00); Chemical surface treatment of metallic material by reaction of the surface with a reactive gas, leaving reaction products of surface material in the coating, e.g. conversion coatings, passivation of metals (C23C 14/00 takes precedence) [4]
C23C 8/02	1-Punkt Untergruppe	. Pretreatment of the material to be coated (C23C 8/04 takes precedence) [4]
C23C 8/04	1-Punkt Untergruppe	. Treatment of selected surface areas, e.g. using masks [4]
C23C 8/06	1-Punkt Untergruppe	. using gases (C23C 8/36 takes precedence) [4]
C23C 8/08	2-Punkt Untergruppe	. . only one element being applied [4]
C23C 8/10	3-Punkt Untergruppe	. . . Oxidising [4]
C23C 8/12	4-Punkt Untergruppe	 using elemental oxygen or ozone [4]
C23C 8/14	5-Punkt Untergruppe	 Oxidising of ferrous surfaces [4]
C23C 8/16	4-Punkt Untergruppe	 using oxygen-containing compounds, e.g. H ₂ O, CO ₂ [4]
C23C 8/18	5-Punkt Untergruppe	 Oxidising of ferrous surfaces [4]
C23C 8/20	3-Punkt Untergruppe	. . . Carburising [4]
C23C 8/22	4-Punkt Untergruppe	 of ferrous surfaces [4]

Symbol	Typ	Titel
C23C 8/24	3-Punkt Untergruppe	. . . Nitriding [4]
C23C 8/26	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/28	2-Punkt Untergruppe	. . more than one element being applied in one step [4]
C23C 8/30	3-Punkt Untergruppe	. . . Carbo-nitriding [4]
C23C 8/32	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/34	2-Punkt Untergruppe	. . more than one element being applied in more than one step [4]
C23C 8/36	2-Punkt Untergruppe	. . using ionised gases, e.g. ionitriding (discharge tubes with provision for introducing objects or material to be exposed to the discharge H01J 37/00) [4]
C23C 8/38	3-Punkt Untergruppe	. . . Treatment of ferrous surfaces [4]
C23C 8/40	1-Punkt Untergruppe	. using liquids, e.g. salt baths, liquid suspensions [4]
C23C 8/42	2-Punkt Untergruppe	. . only one element being applied [4]
C23C 8/44	3-Punkt Untergruppe	. . . Carburising [4]
C23C 8/46	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/48	3-Punkt Untergruppe	. . . Nitriding [4]
C23C 8/50	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/52	2-Punkt Untergruppe	. . more than one element being applied in one step [4]
C23C 8/54	3-Punkt Untergruppe	. . . Carbo-nitriding [4]
C23C 8/56	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/58	2-Punkt Untergruppe	. . more than one element being applied in more than one step [4]
C23C 8/60	1-Punkt Untergruppe	. using solids, e.g. powders, pastes (using liquid suspensions of solids C23C 8/40) [4]
C23C 8/62	2-Punkt Untergruppe	. . only one element being applied [4]
C23C 8/64	3-Punkt Untergruppe	. . . Carburising [4]
C23C 8/66	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/68	3-Punkt Untergruppe	. . . Boronising [4]
C23C 8/70	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/72	2-Punkt Untergruppe	. . more than one element being applied in one step [4]
C23C 8/74	3-Punkt Untergruppe	. . . Carbo-nitriding [4]
C23C 8/76	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 8/78	2-Punkt Untergruppe	. . more than one element being applied in more than one step [4]
C23C 8/80	1-Punkt Untergruppe	. After-treatment [4]
C23C 10/00	Hauptgruppe	Solid state diffusion of only metal elements or silicon into metallic material surfaces [4]
C23C 10/02	1-Punkt Untergruppe	. Pretreatment of the material to be coated (C23C 10/04 takes precedence) [4]
C23C 10/04	1-Punkt Untergruppe	. Diffusion into selected surface areas, e.g. using masks [4]

Symbol	Typ	Titel
C23C 10/06	1-Punkt Untergruppe	. using gases [4]
C23C 10/08	2-Punkt Untergruppe	. . only one element being diffused [4]
C23C 10/10	3-Punkt Untergruppe	. . . Chromising [4]
C23C 10/12	4-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 10/14	2-Punkt Untergruppe	. . more than one element being diffused in one step [4]
C23C 10/16	2-Punkt Untergruppe	. . more than one element being diffused in more than one step [4]
C23C 10/18	1-Punkt Untergruppe	. using liquids, e.g. salt baths, liquid suspensions [4]
C23C 10/20	2-Punkt Untergruppe	. . only one element being diffused [4]
C23C 10/22	3-Punkt Untergruppe	. . . Metal melt containing the element to be diffused [4]
C23C 10/24	3-Punkt Untergruppe	. . . Salt bath containing the element to be diffused [4]
C23C 10/26	2-Punkt Untergruppe	. . more than one element being diffused [4]
C23C 10/28	1-Punkt Untergruppe	. using solids, e.g. powders, pastes [4]
C23C 10/30	2-Punkt Untergruppe	. . using a layer of powder or paste on the surface (using liquid suspensions of solids C23C 10/18) [4]
C23C 10/32	3-Punkt Untergruppe	. . . Chromising [4]
C23C 10/34	2-Punkt Untergruppe	. . Embedding in a powder mixture, i.e. pack cementation [4]
C23C 10/36	3-Punkt Untergruppe	. . . only one element being diffused [4]
C23C 10/38	4-Punkt Untergruppe	 Chromising [4]
C23C 10/40	5-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 10/42	6-Punkt Untergruppe	 in the presence of volatile transport additives, e.g. halogenated substances [4]
C23C 10/44	4-Punkt Untergruppe	 Siliconising [4]
C23C 10/46	5-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 10/48	4-Punkt Untergruppe	 Aluminising [4]
C23C 10/50	5-Punkt Untergruppe	 of ferrous surfaces [4]
C23C 10/52	3-Punkt Untergruppe	. . . more than one element being diffused in one step [4]
C23C 10/54	4-Punkt Untergruppe	 Diffusion of at least chromium [4]
C23C 10/56	5-Punkt Untergruppe	 and at least aluminium [4]
C23C 10/58	3-Punkt Untergruppe	. . . more than one element being diffused in more than one step [4]
C23C 10/60	1-Punkt Untergruppe	. After-treatment [4]
C23C 12/00	Hauptgruppe	Solid state diffusion of at least one non-metal element other than silicon and at least one metal element or silicon into metallic material surfaces [4]
C23C 12/02	1-Punkt Untergruppe	. Diffusion in one step [4]
		<u>Coating by vacuum evaporation, by sputtering or by ion implantation [4]</u>
C23C 14/00	Hauptgruppe	Coating by vacuum evaporation, by sputtering or by ion implantation of the coating forming material (discharge tubes with provision for introducing objects or material to be exposed to the

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discharge H01J 37/00) [4]		
C23C 14/02	1-Punkt Untergruppe	. Pretreatment of the material to be coated (C23C 14/04 takes precedence) [4]
C23C 14/04	1-Punkt Untergruppe	. Coating on selected surface areas, e.g. using masks [4]
C23C 14/06	1-Punkt Untergruppe	. characterised by the coating material (C23C 14/04 takes precedence) [4]
C23C 14/08	2-Punkt Untergruppe	. . Oxides (C23C 14/10 takes precedence) [4]
C23C 14/10	2-Punkt Untergruppe	. . Glass or silica [4]
C23C 14/12	2-Punkt Untergruppe	. . Organic material [4]
C23C 14/14	2-Punkt Untergruppe	. . Metallic material, boron or silicon [4]
C23C 14/16	3-Punkt Untergruppe	. . . on metallic substrates or on substrates of boron or silicon [4]
C23C 14/18	3-Punkt Untergruppe	. . . on other inorganic substrates [4]
C23C 14/20	3-Punkt Untergruppe	. . . on organic substrates [4]
C23C 14/22	1-Punkt Untergruppe	. characterised by the process of coating [4]
C23C 14/24	2-Punkt Untergruppe	. . Vacuum evaporation [4]
C23C 14/26	3-Punkt Untergruppe	. . . by resistance or inductive heating of the source [4]
C23C 14/28	3-Punkt Untergruppe	. . . by wave energy or particle radiation (C23C 14/32 to C23C 14/48 take precedence) [4]
C23C 14/30	4-Punkt Untergruppe	 by electron bombardment [4]
C23C 14/32	3-Punkt Untergruppe	. . . by explosion; by evaporation and subsequent ionisation of the vapours (C23C 14/34 to C23C 14/48 take precedence) [4]
C23C 14/34	2-Punkt Untergruppe	. . Sputtering [4]
C23C 14/35	3-Punkt Untergruppe	. . . by application of a magnetic field, e.g. magnetron sputtering [5]
C23C 14/36	3-Punkt Untergruppe	. . . Diode sputtering (C23C 14/35 takes precedence) [4, 5]
C23C 14/38	4-Punkt Untergruppe	 by direct current glow discharge [4]
C23C 14/40	4-Punkt Untergruppe	 with alternating current discharge, e.g. high-frequency discharge [4]
C23C 14/42	3-Punkt Untergruppe	. . . Triode sputtering (C23C 14/35 takes precedence) [4, 5]
C23C 14/44	4-Punkt Untergruppe	 by application of high frequencies and additional direct voltages [4]
C23C 14/46	3-Punkt Untergruppe	. . . by ion beam produced by an external ion source (C23C 14/40 takes precedence) [4]
C23C 14/48	2-Punkt Untergruppe	. . Ion implantation [4]
C23C 14/50	2-Punkt Untergruppe	. . Substrate holders [4]
C23C 14/52	2-Punkt Untergruppe	. . Means for observation of the coating process [4]
C23C 14/54	2-Punkt Untergruppe	. . Controlling or regulating the coating process (controlling or regulating in general G05) [4]
C23C 14/56	2-Punkt Untergruppe	. . Apparatus specially adapted for continuous coating; Arrangements for maintaining the vacuum, e.g. vacuum locks [4]
C23C 14/58	1-Punkt Untergruppe	. After-treatment [4]
Chemical deposition or plating by decomposition; Contact plating (solid state diffusion C23C 8/00		

Symbol	Typ	Titel
		to C23C 12/00) [4]
C23C 16/00	Hauptgruppe	Chemical coating by decomposition of gaseous compounds, without leaving reaction products of surface material in the coating, i.e. chemical vapour deposition (CVD) processes (reactive sputtering or vacuum evaporation C23C 14/00) [4]
<i>C23C 16/01</i>	<i>1-Punkt Untergruppe</i>	<i>. . on temporary substrates, e.g. on substrates subsequently removed by etching [7]</i>
C23C 16/02	1-Punkt Untergruppe	. Pretreatment of the material to be coated (C23C 16/04 takes precedence) [4]
C23C 16/04	1-Punkt Untergruppe	. Coating on selected surface areas, e.g. using masks [4]
C23C 16/06	1-Punkt Untergruppe	. characterised by the deposition of metallic material [4]
C23C 16/08	2-Punkt Untergruppe	. . from metal halides [4]
C23C 16/10	3-Punkt Untergruppe	. . . Deposition of chromium only [4]
C23C 16/12	3-Punkt Untergruppe	. . . Deposition of aluminium only [4]
C23C 16/14	3-Punkt Untergruppe	. . . Deposition of only one other metal element [4]
C23C 16/16	2-Punkt Untergruppe	. . from metal carbonyl compounds [4]
C23C 16/18	2-Punkt Untergruppe	. . from metallo-organic compounds [4]
C23C 16/20	3-Punkt Untergruppe	. . . Deposition of aluminium only [4]
C23C 16/22	1-Punkt Untergruppe	. characterised by the deposition of inorganic material, other than metallic material [4]
C23C 16/24	2-Punkt Untergruppe	. . Deposition of silicon only [4]
C23C 16/26	2-Punkt Untergruppe	. . Deposition of carbon only [4]
<i>C23C 16/27</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Diamond only [7]</i>
C23C 16/28	2-Punkt Untergruppe	. . Deposition of only one other non-metal element [4]
C23C 16/30	2-Punkt Untergruppe	. . Deposition of compounds, mixtures or solid solutions, e.g. borides, carbides, nitrides [4]
C23C 16/32	3-Punkt Untergruppe	. . . Carbides [4]
C23C 16/34	3-Punkt Untergruppe	. . . Nitrides [4]
C23C 16/36	3-Punkt Untergruppe	. . . Carbo-nitrides [4]
C23C 16/38	3-Punkt Untergruppe	. . . Borides [4]
C23C 16/40	3-Punkt Untergruppe	. . . Oxides [4]
C23C 16/42	3-Punkt Untergruppe	. . . Silicides [4]
C23C 16/44	1-Punkt Untergruppe	. characterised by the method of coating (C23C 16/04 takes precedence) [4]
<i>C23C 16/442</i>	<i>2-Punkt Untergruppe</i>	<i>. . using fluidised bed processes [7]</i>
<i>C23C 16/448</i>	<i>2-Punkt Untergruppe</i>	<i>. . characterised by the method used for generating reactive gas streams, e.g. by evaporation or sublimation of precursor materials [7]</i>
<i>C23C 16/452</i>	<i>3-Punkt Untergruppe</i>	<i>. . . by activating reactive gas streams before introduction into the reaction chamber, e.g. by ionization or by addition of reactive species [7]</i>
<i>C23C 16/453</i>	<i>2-Punkt Untergruppe</i>	<i>. . passing the reaction gases through burners or torches, e.g. atmospheric pressure CVD (C23C 16/513 takes precedence ; for flame or plasma spraying of coating material in the molten state C23C 4/00) [7]</i>

Symbol	Typ	Titel
C23C 16/455	2-Punkt Untergruppe	. . . characterised by the method used for introducing gases into the reaction chamber or for modifying gas flows in the reaction chamber [7]
C23C 16/458	2-Punkt Untergruppe	. . . characterised by the method used for supporting substrates in the reaction chamber [7]
C23C 16/46	2-Punkt Untergruppe	. . . characterised by the method used for heating the substrate (C23C 16/48 , C23C 16/50 take precedence) [4]
C23C 16/48	2-Punkt Untergruppe	. . . by irradiation, e.g. photolysis, radiolysis, particle radiation [4]
C23C 16/50	2-Punkt Untergruppe	. . . using electric discharges [4]
C23C 16/503	3-Punkt Untergruppe	 using dc or ac discharges [7]
C23C 16/505	3-Punkt Untergruppe	 using radio frequency discharges [7]
C23C 16/507	4-Punkt Untergruppe	 using external electrodes, e.g. in tunnel type reactors [7]
C23C 16/509	4-Punkt Untergruppe	 using internal electrodes [7]
C23C 16/511	3-Punkt Untergruppe	 using microwave discharges [7]
C23C 16/513	3-Punkt Untergruppe	 using plasma jets [7]
C23C 16/515	3-Punkt Untergruppe	 using pulsed discharges [7]
C23C 16/517	3-Punkt Untergruppe	 using a combination of discharges covered by two or more of groups C23C 16/503 to C23C 16/515 [7]
C23C 16/52	2-Punkt Untergruppe	. . Controlling or regulating the coating process (controlling or regulating in general G05) [4]
C23C 16/54	2-Punkt Untergruppe	. . Apparatus specially adapted for continuous coating [4]
C23C 16/56	1-Punkt Untergruppe	. After-treatment [4]
C23C 18/00	Hauptgruppe	Chemical coating by decomposition of either liquid compounds or solutions of the coating forming compounds, without leaving reaction products of surface material in the coating (chemical surface reaction C23C 8/00 , C23C 22/00); Contact plating [4]
C23C 18/02	1-Punkt Untergruppe	. by thermal decomposition [4]
C23C 18/04	2-Punkt Untergruppe	. . Pretreatment of the material to be coated (C23C 18/06 takes precedence) [4]
C23C 18/06	2-Punkt Untergruppe	. . Coating on selected surface areas, e.g. using masks [4]
C23C 18/08	2-Punkt Untergruppe	. . . characterised by the deposition of metallic material [4]
C23C 18/10	3-Punkt Untergruppe	 Deposition of aluminium only [4]
C23C 18/12	2-Punkt Untergruppe	. . . characterised by the deposition of inorganic material other than metallic material [4]
C23C 18/14	1-Punkt Untergruppe	. Decomposition by irradiation, e.g. photolysis, particle radiation [4]
C23C 18/16	1-Punkt Untergruppe	. by reduction or substitution, i.e. electroless plating (C23C 18/54 takes precedence) [4]
C23C 18/18	2-Punkt Untergruppe	. . Pretreatment of the material to be coated [4]
C23C 18/20	3-Punkt Untergruppe	 of organic surfaces, e.g. resins [4]
C23C 18/22	4-Punkt Untergruppe	 Roughening, e.g. by etching [4]
C23C 18/24	5-Punkt Untergruppe	 using acid aqueous solutions [4]
C23C 18/26	5-Punkt Untergruppe	 using organic liquids [4]

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C23C 18/28	4-Punkt Untergruppe	 Sensitising or activating [4]
C23C 18/30	5-Punkt Untergruppe	 Activating [4]
C23C 18/31	2-Punkt Untergruppe	. . Coating with metals [5]
C23C 18/32	3-Punkt Untergruppe	. . . Coating with one of iron, cobalt or nickel; Coating with mixtures of phosphorus or boron with one of these metals [4, 5]
C23C 18/34	4-Punkt Untergruppe	 using reducing agents [4, 5]
C23C 18/36	5-Punkt Untergruppe	 using hypophosphites [4, 5]
C23C 18/38	3-Punkt Untergruppe	. . . Coating with copper [4, 5]
C23C 18/40	4-Punkt Untergruppe	 using reducing agents [4, 5]
C23C 18/42	3-Punkt Untergruppe	. . . Coating with noble metals [4, 5]
C23C 18/44	4-Punkt Untergruppe	 using reducing agents [4, 5]
C23C 18/48	2-Punkt Untergruppe	. . Coating with alloys [4, 5]
C23C 18/50	3-Punkt Untergruppe	. . . with alloys based on iron, cobalt or nickel (C23C 18/32 takes precedence) [4, 5]
C23C 18/52	2-Punkt Untergruppe	. . using reducing agents for coating with metallic material not provided for in a single one of groups C23C 18/32 to C23C 18/50 [4]
C23C 18/54	1-Punkt Untergruppe	. Contact plating, i.e. electroless electrochemical plating [4]
C23C 20/00	Hauptgruppe	Chemical coating by decomposition of either solid compounds or suspensions of the coating forming compounds, without leaving reaction products of surface material in the coating (chemical surface reaction C23C 8/00 , C23C 22/00) [4]
C23C 20/02	1-Punkt Untergruppe	. Coating with metallic material [4]
C23C 20/04	2-Punkt Untergruppe	. . with metals [4]
C23C 20/06	1-Punkt Untergruppe	. Coating with inorganic material, other than metallic material [4]
C23C 20/08	2-Punkt Untergruppe	. . with compounds, mixtures or solid solutions, e.g. borides, carbides, nitrides [4]
		<u>Chemical surface treatment of metallic material by reaction of the surface with a reactive medium (with a reactive gas C23C 8/00) [4]</u>
C23C 22/00	Hauptgruppe	Chemical surface treatment of metallic material by reaction of the surface with a reactive liquid, leaving reaction products of surface material in the coating, e.g. conversion coatings, passivation of metals (wash primers C09D 5/12) [4]
C23C 22/02	1-Punkt Untergruppe	. using non-aqueous solutions [4]
C23C 22/03	2-Punkt Untergruppe	. . containing phosphorus compounds [4]
C23C 22/04	2-Punkt Untergruppe	. . containing hexavalent chromium compounds [4]
C23C 22/05	1-Punkt Untergruppe	. using aqueous solutions [5]
C23C 22/06	2-Punkt Untergruppe	. . using aqueous acidic solutions with pH < 6 [4, 5]
C23C 22/07	3-Punkt Untergruppe	. . . containing phosphates [4, 5]
C23C 22/08	4-Punkt Untergruppe	 Orthophosphates [4, 5]
C23C 22/10	5-Punkt Untergruppe	 containing oxidants [4, 5]
C23C 22/12	5-Punkt Untergruppe	 containing zinc cations [4, 5]

Symbol	Typ	Titel
C23C 22/13	6-Punkt Untergruppe	 containing also nitrate or nitrite anions [4, 5]
C23C 22/14	6-Punkt Untergruppe	 containing also chlorate anions [4, 5]
C23C 22/16	6-Punkt Untergruppe	 containing also peroxy-compounds [4, 5]
C23C 22/17	6-Punkt Untergruppe	 containing also organic acids [4, 5]
C23C 22/18	5-Punkt Untergruppe	 containing manganese cations [4, 5]
C23C 22/20	5-Punkt Untergruppe	 containing aluminium cations [4, 5]
C23C 22/22	5-Punkt Untergruppe	 containing alkaline earth metal cations [4, 5]
C23C 22/23	4-Punkt Untergruppe	 Condensed phosphates [4, 5]
C23C 22/24	3-Punkt Untergruppe	. . . containing hexavalent chromium compounds [4, 5]
C23C 22/26	4-Punkt Untergruppe	 containing also organic compounds [4, 5]
C23C 22/27	5-Punkt Untergruppe	 Acids [4, 5]
C23C 22/28	5-Punkt Untergruppe	 Macromolecular compounds [4, 5]
C23C 22/30	4-Punkt Untergruppe	 containing also trivalent chromium [4, 5]
C23C 22/32	4-Punkt Untergruppe	 containing also pulverulent metals [4, 5]
C23C 22/33	4-Punkt Untergruppe	 containing also phosphates [4, 5]
C23C 22/34	3-Punkt Untergruppe	. . . containing fluorides or complex fluorides [4, 5]
C23C 22/36	4-Punkt Untergruppe	 containing also phosphates [4, 5]
C23C 22/37	4-Punkt Untergruppe	 containing also hexavalent chromium compounds [4, 5]
C23C 22/38	5-Punkt Untergruppe	 containing also phosphates [4, 5]
C23C 22/40	3-Punkt Untergruppe	. . . containing molybdates, tungstates or vanadates [4, 5]
C23C 22/42	4-Punkt Untergruppe	 containing also phosphates [4, 5]
C23C 22/43	4-Punkt Untergruppe	 containing also hexavalent chromium compounds [4, 5]
C23C 22/44	4-Punkt Untergruppe	 containing also fluorides or complex fluorides [4, 5]
C23C 22/46	3-Punkt Untergruppe	. . . containing oxalates [4, 5]
C23C 22/47	4-Punkt Untergruppe	 containing also phosphates [4, 5]
C23C 22/48	3-Punkt Untergruppe	. . . not containing phosphates, hexavalent chromium compounds, fluorides or complex fluorides, molybdates, tungstates, vanadates or oxalates [4, 5]
C23C 22/50	4-Punkt Untergruppe	 Treatment of iron or alloys based thereon [4, 5]
C23C 22/52	4-Punkt Untergruppe	 Treatment of copper or alloys based thereon [4, 5]
C23C 22/53	4-Punkt Untergruppe	 Treatment of zinc or alloys based thereon [4, 5]
C23C 22/54	4-Punkt Untergruppe	 Treatment of refractory metals or alloys based thereon [4, 5]
C23C 22/56	4-Punkt Untergruppe	 Treatment of aluminium or alloys based thereon [4, 5]

Symbol	Typ	Titel
C23C 22/57	4-Punkt Untergruppe	 Treatment of magnesium or alloys based thereon [4, 5]
C23C 22/58	4-Punkt Untergruppe	 Treatment of other metallic material [4, 5]
C23C 22/60	2-Punkt Untergruppe	. . using alkaline aqueous solutions with pH > 8 [4, 5]
C23C 22/62	3-Punkt Untergruppe	. . . Treatment of iron or alloys based thereon [4, 5]
C23C 22/63	3-Punkt Untergruppe	. . . Treatment of copper or alloys based thereon [4, 5]
C23C 22/64	3-Punkt Untergruppe	. . . Treatment of refractory metals or alloys based thereon [4, 5]
C23C 22/66	3-Punkt Untergruppe	. . . Treatment of aluminium or alloys based thereon [4, 5]
C23C 22/67	4-Punkt Untergruppe	 with solutions containing hexavalent chromium [4, 5]
C23C 22/68	2-Punkt Untergruppe	. . using aqueous solutions with pH between 6 and 8 [4, 5]
C23C 22/70	1-Punkt Untergruppe	. using melts [4]
C23C 22/72	2-Punkt Untergruppe	. . Treatment of iron or alloys based thereon [4]
C23C 22/73	1-Punkt Untergruppe	. characterised by the process [4]
C23C 22/74	2-Punkt Untergruppe	. . for obtaining burned-in conversion coatings [4]
C23C 22/76	2-Punkt Untergruppe	. . Applying the liquid by spraying [4]
C23C 22/77	2-Punkt Untergruppe	. . Controlling or regulating of the coating process (controlling or regulating in general G05) [4]
C23C 22/78	1-Punkt Untergruppe	. Pretreatment of the material to be coated [4]
C23C 22/80	2-Punkt Untergruppe	. . with solutions containing titanium or zirconium compounds [4]
C23C 22/82	1-Punkt Untergruppe	. After-treatment [4]
C23C 22/83	2-Punkt Untergruppe	. . Chemical after-treatment [4]
C23C 22/84	2-Punkt Untergruppe	. . Dyeing [4]
C23C 22/86	1-Punkt Untergruppe	. Regeneration of coating baths [4]
C23C 24/00	Hauptgruppe	Coating starting from inorganic powder (spraying of the coating material in molten state C23C 4/00; solid state diffusion C23C 8/00 to C23C 12/00; manufacture of composite layers, workpieces or articles by sintering metallic powder B22F 7/00; friction welding B23K 20/12) [4]
C23C 24/02	1-Punkt Untergruppe	. by application of pressure only [4]
C23C 24/04	2-Punkt Untergruppe	. . Impact or kinetic deposition of particles [4]
C23C 24/06	2-Punkt Untergruppe	. . Compressing powdered coating material, e.g. by milling [4]
C23C 24/08	1-Punkt Untergruppe	. by application of heat or pressure and heat (C23C 24/04 takes precedence) [4]
C23C 24/10	2-Punkt Untergruppe	. . with intermediate formation of a liquid phase in the layer [4]
C23C 26/00	Hauptgruppe	Coating not provided for in groups C23C 2/00 to C23C 24/00 [4]
C23C 26/02	1-Punkt Untergruppe	. applying molten material to the substrate (applying melts to surfaces, in general B05) [4]
C23C 28/00	Hauptgruppe	Coating for obtaining at least two superposed coatings either by methods not provided for in a single one of main groups C23C 2/00 to C23C 26/00 , or by combinations of methods provided for in subclasses C23C and C25C or C25D [4]
C23C 28/02	1-Punkt Untergruppe	. only coatings of metallic material [4]

Symbol	Typ	Titel
C23C 28/04	1-Punkt Untergruppe	. only coatings of inorganic non-metallic material [4]
C23C 30/00	Hauptgruppe	Coating with metallic material characterised only by the composition of the metallic material, i.e. not characterised by the coating process (C23C 26/00 , C23C 28/00 take precedence) [4]