

Symbol	Typ	Titel
H	Sektion	ELECTRICITY
H01	Klasse	BASIC ELECTRIC ELEMENTS
H01J	Unterklasse	ELECTRIC DISCHARGE TUBES OR DISCHARGE LAMPS (spark-gaps H01T; arc lamps with consumable electrodes H05B; particle accelerators H05H)
H01J 1/00	Hauptgruppe	Details of electrodes, of magnetic control means, of screens, or of the mounting or spacing thereof, common to two or more basic types of discharge tubes or lamps (details of electron-optical arrangements or of ion traps H01J 3/00)
H01J 1/02	1-Punkt Untergruppe	. Main electrodes
H01J 1/04	2-Punkt Untergruppe	. . Liquid electrodes, e.g. liquid cathode
H01J 1/05	3-Punkt Untergruppe	. . . characterised by material
H01J 1/06	3-Punkt Untergruppe	. . . Containers for liquid-pool electrodes; Arrangement or mounting thereof
H01J 1/08	3-Punkt Untergruppe	. . . Positioning or moving the cathode spot on the surface of a liquid-pool cathode
H01J 1/10	3-Punkt Untergruppe	. . . Cooling, heating, circulating, filtering, or controlling level of liquid in a liquid-pool electrode
H01J 1/12	2-Punkt Untergruppe	. . Cathodes having mercury or liquid alkali metal deposited on the cathode surface during operation of the tube
H01J 1/13	2-Punkt Untergruppe	. . Solid thermionic cathodes
H01J 1/14	3-Punkt Untergruppe	. . . characterised by the material
H01J 1/142	4-Punkt Untergruppe	 with alkaline-earth metal oxides, or such oxides used in conjunction with reducing agents, as an emissive material [6]
H01J 1/144	4-Punkt Untergruppe	 with other metal oxides as an emissive material [6]
H01J 1/146	4-Punkt Untergruppe	 with metals or alloys as an emissive material [6]
H01J 1/148	4-Punkt Untergruppe	 with compounds having metallic conductive properties, e.g. lanthanum boride, as an emissive material [6]
H01J 1/15	3-Punkt Untergruppe	. . . Cathodes heated directly by an electric current
H01J 1/16	4-Punkt Untergruppe	 characterised by the shape
H01J 1/18	4-Punkt Untergruppe	 Supports; Vibration-damping arrangements
H01J 1/20	3-Punkt Untergruppe	. . . Cathodes heated indirectly by an electric current; Cathodes heated by electron or ion bombardment
H01J 1/22	4-Punkt Untergruppe	 Heaters (filaments for incandescent lamps H01K 1/02)
H01J 1/24	4-Punkt Untergruppe	 Insulating layer or body located between heater and emissive material
H01J 1/26	4-Punkt Untergruppe	 Supports for the emissive material
H01J 1/28	4-Punkt Untergruppe	 Dispenser-type cathodes, e.g. L-cathode
H01J 1/30	2-Punkt Untergruppe	. . Cold cathodes
<i>H01J 1/304</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Field-emissive cathodes [7]</i>
<i>H01J 1/308</i>	<i>3-Punkt Untergruppe</i>	<i>. . . Semiconductor cathodes, e.g. cathodes with PN junction layers [7]</i>

Symbol	Typ	Titel
H01J 1/312	3-Punkt Untergruppe	. . . having an electric field perpendicular to the surface, e.g. tunnel-effect cathodes of Metal-Insulator-Metal (MIM) type [7]
H01J 1/316	3-Punkt Untergruppe	. . . having an electric field parallel to the surface, e.g. thin film cathodes [7]
H01J 1/32	2-Punkt Untergruppe	. . Secondary-electron-emitting electrodes (H01J 1/35 takes precedence; luminescent screens H01J 1/62; charge-storage screens in general H01J 1/78; charge-storage screens using secondary emission for image tubes H01J 29/41; dynodes for secondary-emission tubes H01J 43/10; secondary-emission detectors for measurement of nuclear or X-radiation G01T 1/28)
H01J 1/34	2-Punkt Untergruppe	. . Photo-emissive cathodes (H01J 1/35 takes precedence; photoelectric screens H01J 1/78)
H01J 1/35	2-Punkt Untergruppe	. . Electrodes exhibiting both secondary emission and photo-emission
H01J 1/36	2-Punkt Untergruppe	. . Solid anodes; Solid auxiliary anodes for maintaining a discharge
H01J 1/38	3-Punkt Untergruppe	. . . characterised by the material
H01J 1/40	3-Punkt Untergruppe	. . . forming part of the envelope of the tube or lamp
H01J 1/42	3-Punkt Untergruppe	. . . Cooling of anodes (cooling rotary anodes H01J 1/44); Heating of anodes
H01J 1/44	3-Punkt Untergruppe	. . . Rotary anodes; Arrangements for rotating anodes; Cooling rotary anodes
H01J 1/46	1-Punkt Untergruppe	. Control electrodes, e.g. grid (for igniting arrangements H01J 7/30); Auxiliary electrodes (auxiliary anodes for maintaining a discharge H01J 1/36)
H01J 1/48	2-Punkt Untergruppe	. . characterised by the material
H01J 1/50	1-Punkt Untergruppe	. Magnetic means for controlling the discharge
H01J 1/52	1-Punkt Untergruppe	. Screens for shielding (screens acting as control electrodes H01J 1/46); Guides for influencing the discharge; Masks interposed in the electron stream
H01J 1/53	1-Punkt Untergruppe	. Electrodes intimately associated with a screen on or from which an image or pattern is formed, picked-up, converted, or stored
H01J 1/54	1-Punkt Untergruppe	. Screens on or from which an image or pattern is formed, picked-up, converted, or stored; Luminescent coatings on vessels
H01J 1/56	2-Punkt Untergruppe	. . acting as light valves by shutter operation, e.g. for eidophor
H01J 1/58	2-Punkt Untergruppe	. . acting by discolouration, e.g. halide screen
H01J 1/60	2-Punkt Untergruppe	. . Incandescent screens
H01J 1/62	2-Punkt Untergruppe	. . Luminescent screens; Selection of materials for luminescent coatings on vessels
H01J 1/63	3-Punkt Untergruppe	. . . characterised by the luminescent material (luminescent materials C09K 11/00)
H01J 1/64	3-Punkt Untergruppe	. . . characterised by the binder or adhesive for securing the luminescent material to its support
H01J 1/66	3-Punkt Untergruppe	. . . Supports for luminescent material (vessels H01J 5/02)
H01J 1/68	3-Punkt Untergruppe	. . . with superimposed luminescent layers
H01J 1/70	3-Punkt Untergruppe	. . . with protective, conductive, or reflective layers
H01J 1/72	3-Punkt Untergruppe	. . . with luminescent material discontinuously arranged, e.g. in dots or lines
H01J 1/74	4-Punkt Untergruppe	 with adjacent dots or lines of different luminescent material
H01J 1/76	3-Punkt Untergruppe	. . . provided with permanent marks or references

Symbol	Typ	Titel
H01J 1/78	2-Punkt Untergruppe	. . Photoelectric screens; Charge-storage screens
H01J 1/88	1-Punkt Untergruppe	. Mounting, supporting, spacing, or insulating of electrodes or of electrode assemblies
H01J 1/90	2-Punkt Untergruppe	. . Insulation between electrodes or supports within the vacuum space (leading-in conductors H01J 5/46)
H01J 1/92	2-Punkt Untergruppe	. . Mountings for the electrode assembly as a whole
H01J 1/94	2-Punkt Untergruppe	. . Mountings for individual electrodes (for directly-heated cathodes H01J 1/15)
H01J 1/96	2-Punkt Untergruppe	. . Spacing members extending to the envelope
H01J 1/98	3-Punkt Untergruppe	. . . without fixed connection between spacing member and envelope
H01J 3/00	Hauptgruppe	Details of electron-optical or ion-optical arrangements or of ion traps common to two or more basic types of discharge tubes or lamps
H01J 3/02	1-Punkt Untergruppe	. Electron guns
H01J 3/04	1-Punkt Untergruppe	. Ion guns
H01J 3/06	1-Punkt Untergruppe	. two or more guns being arranged in a single vacuum space, e.g. for plural-ray tubes (H01J 3/07 takes precedence) [2]
H01J 3/07	1-Punkt Untergruppe	. Arrangements for controlling convergence of a plurality of beams [2]
H01J 3/08	1-Punkt Untergruppe	. Arrangements for controlling intensity of ray or beam (H01J 3/02 , H01J 3/04 take precedence)
H01J 3/10	1-Punkt Untergruppe	. Arrangements for centering ray or beam (H01J 3/02 , H01J 3/04 take precedence)
H01J 3/12	1-Punkt Untergruppe	. Arrangements for controlling cross-section of ray or beam; Arrangements for correcting aberration of beam, e.g. due to lenses (H01J 3/02 , H01J 3/04 take precedence)
H01J 3/14	1-Punkt Untergruppe	. Arrangements for focusing or reflecting ray or beam (H01J 3/02 , H01J 3/04 take precedence)
H01J 3/16	2-Punkt Untergruppe	. . Mirrors
H01J 3/18	2-Punkt Untergruppe	. . Electrostatic lenses
H01J 3/20	2-Punkt Untergruppe	. . Magnetic lenses
H01J 3/22	3-Punkt Untergruppe	. . . using electromagnetic means only
H01J 3/24	3-Punkt Untergruppe	. . . using permanent magnets only
H01J 3/26	1-Punkt Untergruppe	. Arrangements for deflecting ray or beam (circuit arrangements for producing sawtooth pulses or other deflecting voltages or currents H03K)
H01J 3/28	2-Punkt Untergruppe	. . along one straight line or along two perpendicular straight lines
H01J 3/30	3-Punkt Untergruppe	. . . by electric fields only
H01J 3/32	3-Punkt Untergruppe	. . . by magnetic fields only
H01J 3/34	2-Punkt Untergruppe	. . along a circle, spiral, or rotating radial line
H01J 3/36	1-Punkt Untergruppe	. Arrangements for controlling the ray or beam after passing the main deflection system, e.g. for post-acceleration or post-concentration
H01J 3/38	1-Punkt Untergruppe	. Mounting, supporting, spacing, or insulating electron-optical or ion-optical arrangements
H01J 3/40	1-Punkt Untergruppe	. Traps for removing or diverting unwanted particles, e.g. negative ions, fringing electrons; Arrangements for velocity or mass selection
H01J 5/00	Hauptgruppe	Details relating to vessels or to leading-in conductors common to two or more basic types of

Symbol	Typ	Titel
discharge tubes or lamps		
H01J 5/02	1-Punkt Untergruppe	. Vessels; Containers; Shields associated therewith; Vacuum locks
H01J 5/03	2-Punkt Untergruppe	. . Arrangements for preventing or mitigating effects of implosion of vessels or containers [2]
H01J 5/04	2-Punkt Untergruppe	. . Vessels or containers characterised by the material thereof (selection of the material of the coating H01J 5/08)
H01J 5/06	2-Punkt Untergruppe	. . Vessels or containers specially adapted for operation at high tension, e.g. by improved potential distribution over surface of vessel
H01J 5/08	2-Punkt Untergruppe	. . provided with coatings on the walls thereof; Selection of materials for the coatings (luminescent coatings H01J 1/62)
H01J 5/10	3-Punkt Untergruppe	. . . on internal surfaces
H01J 5/12	2-Punkt Untergruppe	. . Double-wall vessels or containers
H01J 5/14	2-Punkt Untergruppe	. . Dismountable vessels or containers, e.g. for replacing cathode heater
H01J 5/16	2-Punkt Untergruppe	. . Optical or photographic arrangements structurally combined with the vessel (luminescent coatings H01J 1/62)
H01J 5/18	2-Punkt Untergruppe	. . Windows permeable to X-rays, gamma-rays, or particles
H01J 5/20	1-Punkt Untergruppe	. Seals between parts of vessels
H01J 5/22	2-Punkt Untergruppe	. . Vacuum-tight joints between parts of vessel
H01J 5/24	3-Punkt Untergruppe	. . . between insulating parts of vessel
H01J 5/26	3-Punkt Untergruppe	. . . between insulating and conductive parts of vessel
H01J 5/28	3-Punkt Untergruppe	. . . between conductive parts of vessel
H01J 5/30	3-Punkt Untergruppe	. . . using packing material, e.g. sealing liquid or elastic insert
H01J 5/32	1-Punkt Untergruppe	. Seals for leading-in conductors
H01J 5/34	2-Punkt Untergruppe	. . for an individual conductor (pinched-stem seals H01J 5/38; end-disc seals H01J 5/40; annular seals H01J 5/44)
H01J 5/36	3-Punkt Untergruppe	. . . using intermediate part
H01J 5/38	2-Punkt Untergruppe	. . Pinched-stem or analogous seals
H01J 5/40	2-Punkt Untergruppe	. . End-disc seals, e.g. flat header
H01J 5/42	3-Punkt Untergruppe	. . . using intermediate part
H01J 5/44	2-Punkt Untergruppe	. . Annular seals disposed between the ends of the vessel
H01J 5/46	1-Punkt Untergruppe	. Leading-in conductors
H01J 5/48	1-Punkt Untergruppe	. Means forming part of the tube or lamp for the purpose of supporting it (associated with electrical connecting means H01J 5/50)
H01J 5/50	1-Punkt Untergruppe	. Means forming part of the tube or lamp for the purpose of providing electrical connection to it (electric coupling devices comprising a holder adapted for supporting a tube or lamp and not forming part of the tube or lamp H01R 33/00)
H01J 5/52	2-Punkt Untergruppe	. . directly applied to, or forming part of, the vessel

Symbol	Typ	Titel
H01J 5/54	2-Punkt Untergruppe	. . supported by a separate part, e.g. base
H01J 5/56	3-Punkt Untergruppe	. . . Shape of the separate part
H01J 5/58	3-Punkt Untergruppe	. . . Means for fastening the separate part to the vessel, e.g. by cement
H01J 5/60	4-Punkt Untergruppe	 for fastening by mechanical means
H01J 5/62	3-Punkt Untergruppe	. . . Connection of wires protruding from the vessel to connectors carried by the separate part
H01J 7/00	Hauptgruppe	Details not provided for in the preceding groups and common to two or more basic types of discharge tubes or lamps
H01J 7/02	1-Punkt Untergruppe	. Selection of substances for gas fillings; Specified operating pressure or temperature (radioactive fillings H01J 7/40)
H01J 7/04	2-Punkt Untergruppe	. . having one or more carbon compounds as the principal constituent
H01J 7/06	2-Punkt Untergruppe	. . having helium, argon, neon, krypton, or xenon as the principal constituent
H01J 7/08	2-Punkt Untergruppe	. . having a metallic vapour as the principal constituent
H01J 7/10	3-Punkt Untergruppe	. . . mercury vapour
H01J 7/12	3-Punkt Untergruppe	. . . vapour of an alkali metal
H01J 7/14	1-Punkt Untergruppe	. Means for obtaining or maintaining the desired pressure within the vessel
H01J 7/16	2-Punkt Untergruppe	. . Means for permitting pumping during operation of the tube or lamp
H01J 7/18	2-Punkt Untergruppe	. . Means for absorbing or adsorbing gas, e.g. by gettering
H01J 7/20	2-Punkt Untergruppe	. . Means for producing, introducing, or replenishing gas or vapour during operation of the tube or lamp
H01J 7/22	2-Punkt Untergruppe	. . Tubulations therefor, e.g. for exhausting; Closures therefor
H01J 7/24	1-Punkt Untergruppe	. Cooling arrangements (for main electrodes H01J 1/02); Heating arrangements (for main electrodes H01J 1/02); Means for circulating gas or vapour within the discharge space
H01J 7/26	2-Punkt Untergruppe	. . by flow of fluid through passages associated with tube or lamp
H01J 7/28	2-Punkt Untergruppe	. . by latent heat or evaporation of cooling liquid
H01J 7/30	1-Punkt Untergruppe	. Igniting arrangements (circuit arrangements H02M 1/02 , H05B)
H01J 7/32	2-Punkt Untergruppe	. . having resistive or capacitative igniter
H01J 7/34	3-Punkt Untergruppe	. . . having resistive igniter only
H01J 7/36	2-Punkt Untergruppe	. . Igniting by movement of a solid electrode
H01J 7/38	2-Punkt Untergruppe	. . Igniting by movement of vessel as a whole, e.g. tilting
H01J 7/40	2-Punkt Untergruppe	. . Igniting by associated radioactive materials or fillings
H01J 7/42	1-Punkt Untergruppe	. Means structurally associated with the tube or lamp for indicating defects or previous use
H01J 7/44	1-Punkt Untergruppe	. One or more circuit elements structurally associated with the tube or lamp
H01J 7/46	2-Punkt Untergruppe	. . Structurally associated resonator having distributed inductance and capacitance
H01J 9/00	Hauptgruppe	Apparatus or processes specially adapted for the manufacture of electric discharge tubes, discharge lamps, or parts thereof (manufacture of vessels or containers from metal B21 , e.g. B21D 51/00 , from glass C03B); Recovery of material from discharge tubes or lamps [1, 7]

Symbol	Typ	Titel
H01J 9/02	1-Punkt Untergruppe	. Manufacture of electrodes or electrode systems
H01J 9/04	2-Punkt Untergruppe	. . of thermionic cathodes
H01J 9/06	3-Punkt Untergruppe	. . . Machines therefor
H01J 9/08	2-Punkt Untergruppe	. . Manufacture of heaters for indirectly-heated cathodes
H01J 9/10	3-Punkt Untergruppe	. . . Machines therefor
H01J 9/12	2-Punkt Untergruppe	. . of photo-emissive cathodes; of secondary-emission electrodes
H01J 9/14	2-Punkt Untergruppe	. . of non-emitting electrodes
H01J 9/16	3-Punkt Untergruppe	. . . Machines for making wire grids
H01J 9/18	2-Punkt Untergruppe	. . Assembling together the component parts of electrode systems
H01J 9/20	1-Punkt Untergruppe	. Manufacture of screens on or from which an image or pattern is formed, picked-up, converted or stored; Applying coatings to the vessel
H01J 9/22	2-Punkt Untergruppe	. . Applying luminescent coatings
H01J 9/227	3-Punkt Untergruppe	. . . with luminescent material discontinuously arranged, e.g. in dots or lines [2]
H01J 9/233	2-Punkt Untergruppe	. . Manufacture of photoelectric screens or charge-storage screens [2]
H01J 9/236	1-Punkt Untergruppe	. Manufacture of magnetic deflecting devices for cathode-ray tubes (manufacturing coils for transformers, inductances, reactors or choke coils H01F 41/04) [3]
H01J 9/24	1-Punkt Untergruppe	. Manufacture or joining of vessels, leading-in conductors, or bases
H01J 9/26	2-Punkt Untergruppe	. . Sealing together parts of vessels
H01J 9/28	2-Punkt Untergruppe	. . Manufacture of leading-in conductors
H01J 9/30	2-Punkt Untergruppe	. . Manufacture of bases
H01J 9/32	2-Punkt Untergruppe	. . Sealing leading-in conductors
H01J 9/34	2-Punkt Untergruppe	. . Joining base to vessel
H01J 9/36	2-Punkt Untergruppe	. . Joining connectors to internal electrode system
H01J 9/38	1-Punkt Untergruppe	. Exhausting, degassing, filling, or cleaning vessels
H01J 9/385	2-Punkt Untergruppe	. . Exhausting vessels [2]
H01J 9/39	2-Punkt Untergruppe	. . Degassing vessels [2]
H01J 9/395	2-Punkt Untergruppe	. . Filling vessels [2]
H01J 9/40	1-Punkt Untergruppe	. Closing vessels
H01J 9/42	1-Punkt Untergruppe	. Measurement or testing during manufacture
H01J 9/44	1-Punkt Untergruppe	. Factory adjustment of completed discharge tubes or lamps to comply with desired tolerances
H01J 9/46	1-Punkt Untergruppe	. Machines having sequentially-arranged operating stations
H01J 9/48	2-Punkt Untergruppe	. . with automatic transfer of workpieces between operating stations
H01J 9/50	1-Punkt Untergruppe	. Repairing or regenerating used or defective discharge tubes, lamps or their salvageable components

Symbol	Typ	Titel
H01J 9/52	1-Punkt Untergruppe	. Recovery of material from discharge tubes or lamps (H01J 9/50 takes precedence) [7]
H01J 11/00	Hauptgruppe	Gas-filled discharge tubes without any main electrode inside the vessel; Gas-filled discharge tubes with at least one main electrode outside the vessel (lamps H01J 65/00)
H01J 11/02	1-Punkt Untergruppe	. Details, e.g. gas filling, shape of vessel
H01J 11/04	2-Punkt Untergruppe	. . Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 13/00	Hauptgruppe	Discharge tubes with liquid-pool cathodes, e.g. metal-vapour rectifying tubes (lamps H01J 61/00)
H01J 13/02	1-Punkt Untergruppe	. Details
H01J 13/04	2-Punkt Untergruppe	. . Main electrodes; Auxiliary anodes
H01J 13/06	3-Punkt Untergruppe	. . . Cathodes
H01J 13/08	4-Punkt Untergruppe	 characterised by the material
H01J 13/10	4-Punkt Untergruppe	 Containers for the liquid pool; Arrangement or mounting thereof
H01J 13/12	4-Punkt Untergruppe	 Positioning or moving the cathode spot on the surface of the pool
H01J 13/14	4-Punkt Untergruppe	 Cooling, heating, circulating, filtering, or controlling level of the liquid
H01J 13/16	3-Punkt Untergruppe	. . . Anodes; Auxiliary anodes for maintaining the discharge (screens H01J 13/22)
H01J 13/18	4-Punkt Untergruppe	 Cooling or heating of anodes
H01J 13/20	2-Punkt Untergruppe	. . Control electrodes, e.g. grid (for igniting arrangements H01J 13/34)
H01J 13/22	2-Punkt Untergruppe	. . Screens, e.g. for preventing or eliminating arcing-back
H01J 13/24	2-Punkt Untergruppe	. . Vessels; Containers
H01J 13/26	2-Punkt Untergruppe	. . Seals between parts of vessels; Seals for leading-in conductors; Leading-in conductors
H01J 13/28	2-Punkt Untergruppe	. . Selection of substances for gas filling; Means for obtaining or maintaining the desired pressure within the tube [2]
H01J 13/30	3-Punkt Untergruppe	. . . Means for permitting pumping during operation of the tube
H01J 13/32	2-Punkt Untergruppe	. . Cooling arrangements; Heating arrangements (for cathodes H01J 13/14; for anodes H01J 13/18)
H01J 13/34	2-Punkt Untergruppe	. . Igniting arrangements (circuit arrangements H02M 1/02)
H01J 13/36	3-Punkt Untergruppe	. . . having resistive or capacitive igniter
H01J 13/38	4-Punkt Untergruppe	 having resistive igniter only
H01J 13/40	3-Punkt Untergruppe	. . . Igniting by movement of a solid electrode
H01J 13/42	3-Punkt Untergruppe	. . . Igniting by movement of vessel as a whole, e.g. tilting
H01J 13/44	2-Punkt Untergruppe	. . Devices for preventing or eliminating arcing-back (screens therefor H01J 13/22)
H01J 13/46	2-Punkt Untergruppe	. . One or more circuit elements structurally associated with the tube
H01J 13/48	2-Punkt Untergruppe	. . Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 13/50	1-Punkt Untergruppe	. Tubes having a single main anode
H01J 13/52	2-Punkt Untergruppe	. . with control by one or more intermediate control electrodes
H01J 13/54	2-Punkt Untergruppe	. . with control by igniter, e.g. single-anode ignitron

Symbol	Typ	Titel
H01J 13/56	1-Punkt Untergruppe	. Tubes having two or more main anodes
H01J 13/58	2-Punkt Untergruppe	. . with control by one or more intermediate control electrodes
H01J 15/00	Hauptgruppe	Gas-filled discharge tubes with gaseous cathodes, e.g. plasma cathode (lamps H01J 61/62)
H01J 15/02	1-Punkt Untergruppe	. Details, e.g. electrode, gas filling, shape of vessel
H01J 15/04	2-Punkt Untergruppe	. . Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 17/00	Hauptgruppe	Gas-filled discharge tubes with solid cathode (H01J 25/00 , H01J 27/00 , H01J 31/00 to H01J 41/00 take precedence; gas or vapour discharge lamps H01J 61/00; gas filled spark gaps H01T; Marx converters H02M 7/26; tubes for generating potential differences by charges carried in a gas stream H02N)
H01J 17/02	1-Punkt Untergruppe	. Details
H01J 17/04	2-Punkt Untergruppe	. . Electrodes; Screens
H01J 17/06	3-Punkt Untergruppe	. . . Cathodes
H01J 17/08	4-Punkt Untergruppe	 having mercury or liquid alkali metal deposited on the cathode surface during operation of the tube
H01J 17/10	3-Punkt Untergruppe	. . . Anodes
H01J 17/12	3-Punkt Untergruppe	. . . Control electrodes
H01J 17/14	2-Punkt Untergruppe	. . Magnetic means for controlling the discharge
H01J 17/16	2-Punkt Untergruppe	. . Vessels; Containers
H01J 17/18	2-Punkt Untergruppe	. . Seals between parts of vessels; Seals for leading-in conductors; Leading-in conductors
H01J 17/20	2-Punkt Untergruppe	. . Selection of substances for gas fillings; Specified operating pressure or temperature (radioactive fillings H01J 17/32)
H01J 17/22	2-Punkt Untergruppe	. . Means for obtaining or maintaining the desired pressure within the tube
H01J 17/24	3-Punkt Untergruppe	. . . Means for absorbing or adsorbing gas, e.g. by gettering
H01J 17/26	3-Punkt Untergruppe	. . . Means for producing, introducing, or replenishing gas or vapour during operation of the tube
H01J 17/28	2-Punkt Untergruppe	. . Cooling arrangements
H01J 17/30	2-Punkt Untergruppe	. . Igniting arrangements
H01J 17/32	3-Punkt Untergruppe	. . . Igniting by associated radioactive materials or fillings
H01J 17/34	2-Punkt Untergruppe	. . One or more circuit elements structurally associated with the tube
H01J 17/36	2-Punkt Untergruppe	. . Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 17/38	1-Punkt Untergruppe	. Cold-cathode tubes (TR boxes H01J 17/64)
H01J 17/40	2-Punkt Untergruppe	. . with one cathode and one anode, e.g. glow tube, tuning-indicator glow tube, voltage-stabiliser tube, voltage-indicator tube (cathode-glow lamps H01J 61/64)
H01J 17/42	3-Punkt Untergruppe	. . . having one or more probe electrodes, e.g. for potential dividing
H01J 17/44	3-Punkt Untergruppe	. . . having one or more control electrodes
H01J 17/46	4-Punkt Untergruppe	 for preventing and then permitting ignition, but thereafter having no control
H01J 17/48	2-Punkt Untergruppe	. . with more than one cathode or anode, e.g. sequence-discharge tube, counting tube, dekatron

Symbol	Typ	Titel
H01J 17/49	3-Punkt Untergruppe	. . . Display panels, e.g. with crossed electrodes (gas-discharge-type indicating arrangements effected by the combination of a number of individual lamps G09F 9/313) [3]
H01J 17/50	1-Punkt Untergruppe	. Thermionic-cathode tubes (TR boxes H01J 17/64)
H01J 17/52	2-Punkt Untergruppe	. . with one cathode and one anode
H01J 17/54	3-Punkt Untergruppe	. . . having one or more control electrodes
H01J 17/56	4-Punkt Untergruppe	 for preventing and then permitting ignition, but thereafter having no control
H01J 17/58	2-Punkt Untergruppe	. . with more than one cathode or anode
H01J 17/60	3-Punkt Untergruppe	. . . the discharge paths priming each other in a predetermined sequence, e.g. counting tube
H01J 17/62	3-Punkt Untergruppe	. . . with independent discharge paths controlled by intermediate electrodes, e.g. polyphase rectifier
H01J 17/64	1-Punkt Untergruppe	. Tubes specially designed for switching or modulating in a waveguide, e.g. TR box
H01J 19/00	Hauptgruppe	Details of vacuum tubes of the types covered by group H01J 21/00
H01J 19/02	1-Punkt Untergruppe	. Electron-emitting electrodes; Cathodes
H01J 19/04	2-Punkt Untergruppe	. . Thermionic cathodes
H01J 19/06	3-Punkt Untergruppe	. . . characterised by the material
H01J 19/062	4-Punkt Untergruppe	 with alkaline-earth metal oxides, or such oxides used in conjunction with reducing agents, as an emissive material [6]
H01J 19/064	4-Punkt Untergruppe	 with other metal oxides as an emissive material [6]
H01J 19/066	4-Punkt Untergruppe	 with metals or alloys as an emissive material [6]
H01J 19/068	4-Punkt Untergruppe	 with compounds having metallic conductive properties, e.g. lanthanum boride, as an emissive material [6]
H01J 19/08	3-Punkt Untergruppe	. . . Cathodes heated directly by an electric current
H01J 19/10	3-Punkt Untergruppe	. . . characterised by the shape
H01J 19/12	4-Punkt Untergruppe	 Supports; Vibration-damping arrangements
H01J 19/14	3-Punkt Untergruppe	. . . Cathodes heated indirectly by an electric current; Cathodes heated by electron or ion bombardment
H01J 19/16	4-Punkt Untergruppe	 Heaters (filaments for incandescent lamps H01K 1/02)
H01J 19/18	4-Punkt Untergruppe	 Insulating layer or body located between heater and emissive material
H01J 19/20	4-Punkt Untergruppe	 Supports for the emissive material
H01J 19/22	4-Punkt Untergruppe	 Dispenser-type cathodes, e.g. L-cathode
H01J 19/24	2-Punkt Untergruppe	. . Cold cathodes, e.g. field-emissive cathode
H01J 19/28	1-Punkt Untergruppe	. Non-electron-emitting electrodes; Screens
H01J 19/30	2-Punkt Untergruppe	. . characterised by the material
H01J 19/32	2-Punkt Untergruppe	. . Anodes
H01J 19/34	3-Punkt Untergruppe	. . . forming part of the envelope
H01J 19/36	3-Punkt Untergruppe	. . . Cooling of anodes

Symbol	Typ	Titel
H01J 19/38	2-Punkt Untergruppe	. . Control electrodes, e.g. grid
H01J 19/40	2-Punkt Untergruppe	. . Screens for shielding (screens acting as control electrodes H01J 19/38)
H01J 19/42	1-Punkt Untergruppe	. Mounting, supporting, spacing, or insulating of electrodes or of electrode assemblies
H01J 19/44	2-Punkt Untergruppe	. . Insulation between electrodes or supports within the vacuum space (leading-in conductors H01J 19/62)
H01J 19/46	2-Punkt Untergruppe	. . Mountings for the electrode assembly as a whole
H01J 19/48	2-Punkt Untergruppe	. . Mountings for individual electrodes (for directly-heated cathodes H01J 19/12)
H01J 19/50	2-Punkt Untergruppe	. . Spacing members extending to the envelope
H01J 19/52	3-Punkt Untergruppe	. . . without fixed connection between spacing member and envelope
H01J 19/54	1-Punkt Untergruppe	. Vessels; Containers; Shields associated therewith
H01J 19/56	2-Punkt Untergruppe	. . characterised by the material of the vessel or container
H01J 19/57	2-Punkt Untergruppe	. . provided with coatings on the walls thereof; Selection of materials for the coatings
H01J 19/58	1-Punkt Untergruppe	. Seals between parts of vessels
H01J 19/60	1-Punkt Untergruppe	. Seals for leading-in conductors
H01J 19/62	1-Punkt Untergruppe	. Leading-in conductors
H01J 19/64	1-Punkt Untergruppe	. Means forming part of the tube for the purpose of supporting it (associated with electrical connecting means H01J 19/66)
H01J 19/66	1-Punkt Untergruppe	. Means forming part of the tube for the purpose of providing electrical connection to it (construction of connectors H01R)
H01J 19/68	1-Punkt Untergruppe	. Specified gas introduced into the tube at low pressure, e.g. for reducing or influencing space charge
H01J 19/70	1-Punkt Untergruppe	. Means for obtaining or maintaining the vacuum, e.g. by gettering
H01J 19/72	2-Punkt Untergruppe	. . Tubulations therefor, e.g. for exhausting; Closures therefor
H01J 19/74	1-Punkt Untergruppe	. Cooling arrangements (cooling of anodes H01J 19/36)
H01J 19/76	1-Punkt Untergruppe	. Means structurally associated with the tube for indicating defects or previous use
H01J 19/78	1-Punkt Untergruppe	. One or more circuit elements structurally associated with the tube
H01J 19/80	2-Punkt Untergruppe	. . Structurally associated resonator having distributed inductance and capacitance
H01J 19/82	1-Punkt Untergruppe	. Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 21/00	Hauptgruppe	Vacuum tubes (H01J 25/00 , H01J 31/00 to H01J 40/00 , H01J 43/00 , H01J 47/00 , H01J 49/00 take precedence; details of vacuum tubes H01J 19/00; cathode-ray or electron-stream lamps H01J 63/00)
H01J 21/02	1-Punkt Untergruppe	. Tubes with a single discharge path
H01J 21/04	2-Punkt Untergruppe	. . without control means, i.e. diodes
H01J 21/06	2-Punkt Untergruppe	. . having electrostatic control means only
H01J 21/08	3-Punkt Untergruppe	. . . with movable electrode or electrodes
H01J 21/10	3-Punkt Untergruppe	. . . with one or more immovable internal control electrodes, e.g. triode, pentode, octode

Symbol	Typ	Titel
H01J 21/12	4-Punkt Untergruppe	 Tubes with variable amplification factor
H01J 21/14	4-Punkt Untergruppe	 Tubes with means for concentrating the electron stream, e.g. beam tetrode
H01J 21/16	3-Punkt Untergruppe	. . . with external electrostatic control means and with or without internal control electrodes
H01J 21/18	2-Punkt Untergruppe	. . having magnetic control means; having both magnetic and electrostatic control means
H01J 21/20	1-Punkt Untergruppe	. Tubes with more than one discharge path; Multiple tubes, e.g. double diode, triode-hexode (secondary-emission tubes, electron-multiplier tubes H01J 43/00)
H01J 21/22	2-Punkt Untergruppe	. . with movable electrode or electrodes
H01J 21/24	2-Punkt Untergruppe	. . with variable amplification factor
H01J 21/26	2-Punkt Untergruppe	. . with means for concentrating the electron stream
H01J 21/34	1-Punkt Untergruppe	. Tubes with electrode system arranged or dimensioned so as to eliminate transit-time effect (with flat electrodes H01J 21/36)
H01J 21/36	1-Punkt Untergruppe	. Tubes with flat electrodes, e.g. disc electrode
H01J 23/00	Hauptgruppe	Details of transit-time tubes of the types covered by group H01J 25/00
H01J 23/02	1-Punkt Untergruppe	. Electrodes; Magnetic control means; Screens (associated with resonator or delay system H01J 23/16)
H01J 23/027	2-Punkt Untergruppe	. . Collectors [2]
H01J 23/033	3-Punkt Untergruppe	. . . Collector cooling devices [2]
H01J 23/04	2-Punkt Untergruppe	. . Cathodes
H01J 23/05	3-Punkt Untergruppe	. . . having a cylindrical emissive surface, e.g. cathodes for magnetrons [3]
H01J 23/06	2-Punkt Untergruppe	. . Electron or ion guns
H01J 23/065	3-Punkt Untergruppe	. . . producing a solid cylindrical beam (H01J 23/075 takes precedence) [3]
H01J 23/07	3-Punkt Untergruppe	. . . producing a hollow cylindrical beam (H01J 23/075 takes precedence) [3]
H01J 23/075	3-Punkt Untergruppe	. . . Magnetron injection guns [3]
H01J 23/08	2-Punkt Untergruppe	. . Focusing arrangements, e.g. for concentrating stream of electrons, for preventing spreading of stream
H01J 23/083	3-Punkt Untergruppe	. . . Electrostatic focusing arrangements [3]
H01J 23/087	3-Punkt Untergruppe	. . . Magnetic focusing arrangements [3]
H01J 23/09	2-Punkt Untergruppe	. . Electric systems for directing or deflecting the discharge along a desired path, e.g. E-type (focusing arrangements H01J 23/08)
H01J 23/10	2-Punkt Untergruppe	. . Magnet systems for directing or deflecting the discharge along a desired path, e.g. a spiral path (magnetic focusing arrangements H01J 23/08)
H01J 23/11	2-Punkt Untergruppe	. . Means for reducing noise (in electron or ion gun H01J 23/06)
H01J 23/12	1-Punkt Untergruppe	. Vessels; Containers
H01J 23/14	1-Punkt Untergruppe	. Leading-in arrangements; Seals therefor
H01J 23/15	2-Punkt Untergruppe	. . Means for preventing wave energy leakage structurally associated with tube leading-in arrangements, e.g. filters, chokes, attenuating devices [4]

Symbol	Typ	Titel
H01J 23/16	1-Punkt Untergruppe	. Circuit elements, having distributed capacitance and inductance, structurally associated with the tube and interacting with the discharge (circuit elements, having distributed capacitance and inductance, in general H01P)
H01J 23/18	2-Punkt Untergruppe	. . Resonators
H01J 23/20	3-Punkt Untergruppe	. . . Cavity resonators; Adjustment or tuning thereof
H01J 23/207	4-Punkt Untergruppe	 Tuning of single resonator [2]
H01J 23/213	4-Punkt Untergruppe	 Simultaneous tuning of more than one resonator, e.g. resonant cavities of a magnetron [2]
H01J 23/22	3-Punkt Untergruppe	. . . Connections between resonators, e.g. strapping for connecting resonators of a magnetron
H01J 23/24	2-Punkt Untergruppe	. . Slow-wave structures
H01J 23/26	3-Punkt Untergruppe	. . . Helical slow-wave structures; Adjustment therefor
H01J 23/27	4-Punkt Untergruppe	 Helix-derived slow-wave structures [3]
H01J 23/28	3-Punkt Untergruppe	. . . Interdigital slow-wave structures; Adjustment therefor
H01J 23/30	3-Punkt Untergruppe	. . . Damping arrangements associated with slow-wave structures, e.g. for suppression of unwanted oscillations
H01J 23/34	1-Punkt Untergruppe	. Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 23/36	1-Punkt Untergruppe	. Coupling devices having distributed capacitance and inductance, structurally associated with the tube, for introducing or removing wave energy [4]
H01J 23/38	2-Punkt Untergruppe	. . to or from the discharge [4]
H01J 23/40	2-Punkt Untergruppe	. . to or from the interaction circuit [4]
H01J 23/42	3-Punkt Untergruppe	. . . the interaction circuit being a helix or a helix-derived slow-wave structure (H01J 23/44 to H01J 23/48 take precedence) [4]
H01J 23/44	3-Punkt Untergruppe	. . . Rod-type coupling devices (H01J 23/46 , H01J 23/48 , H01J 23/54 take precedence) [4]
H01J 23/46	3-Punkt Untergruppe	. . . Loop coupling devices [4]
H01J 23/48	3-Punkt Untergruppe	. . . for linking interaction circuit with coaxial lines; Devices of the coupled helices type (H01J 23/46 takes precedence) [4]
H01J 23/50	4-Punkt Untergruppe	 the interaction circuit being a helix or derived from a helix (H01J 23/52 takes precedence) [4]
H01J 23/52	4-Punkt Untergruppe	 the coupled helices being disposed coaxially around one another [4]
H01J 23/54	2-Punkt Untergruppe	. . Filtering devices preventing unwanted frequencies or modes to be coupled to, or out of, the interaction circuit; Prevention of high frequency leakage in the environment [4]
H01J 25/00	Hauptgruppe	Transit-time tubes, e.g. klystrons, travelling-wave tubes, magnetrons (details of transit-time tubes H01J 23/00; particle accelerators H05H)
H01J 25/02	1-Punkt Untergruppe	. Tubes with electron stream modulated in velocity or density in a modulator zone and thereafter giving-up energy in an inducing zone, the zones being associated with one or more resonators (tubes in which a travelling wave is simulated at spaced gaps H01J 25/34)
H01J 25/04	2-Punkt Untergruppe	. . Tubes having one or more resonators, without reflection of the electron stream, and in which the modulation produced in the modulator zone is mainly density modulation, e.g. Haeff tube
H01J 25/06	2-Punkt Untergruppe	. . Tubes having only one resonator, without reflection of the electron stream, and in which the modulation produced in the modulator zone is mainly velocity modulation, e.g. L%\$di klystron

Symbol	Typ	Titel
H01J 25/08	3-Punkt Untergruppe	. . . with electron stream perpendicular to the axis of the resonator
H01J 25/10	2-Punkt Untergruppe	. . Klystrons, i.e. tubes having two or more resonators, without reflection of the electron stream, and in which the stream is modulated mainly by velocity in the zone of the input resonator
H01J 25/11	3-Punkt Untergruppe	. . . Extended interaction klystrons [2]
H01J 25/12	3-Punkt Untergruppe	. . . with pencil-like electron stream in the axis of the resonators
H01J 25/14	3-Punkt Untergruppe	. . . with tube-like electron stream coaxial with the axis of the resonators
H01J 25/16	3-Punkt Untergruppe	. . . with pencil-like electron stream perpendicular to the axis of the resonators
H01J 25/18	3-Punkt Untergruppe	. . . with radial or disc-like electron stream perpendicular to the axis of the resonators
H01J 25/20	3-Punkt Untergruppe	. . . having special arrangements in the space between resonators, e.g. resistive-wall amplifier tube, space-charge amplifier tube, velocity-jump tube
H01J 25/22	2-Punkt Untergruppe	. . Reflex klystrons, i.e. tubes having one or more resonators, with a single reflection of the electron stream, and in which the stream is modulated mainly by velocity in the modulator zone
H01J 25/24	3-Punkt Untergruppe	. . . in which the electron stream is in the axis of the resonator or resonators and is pencil-like before reflection
H01J 25/26	3-Punkt Untergruppe	. . . in which the electron stream is coaxial with the axis of the resonator or resonators and is tube-like before reflection
H01J 25/28	3-Punkt Untergruppe	. . . in which the electron stream is perpendicular to the axis of the resonator or resonators and is pencil-like before reflection
H01J 25/30	3-Punkt Untergruppe	. . . in which the electron stream is perpendicular to the axis of the resonator or resonators and is radial or disc-like before reflection
H01J 25/32	2-Punkt Untergruppe	. . Tubes with plural reflection, e.g. Coeterier tube
H01J 25/34	1-Punkt Untergruppe	. Travelling-wave tubes; Tubes in which a travelling wave is simulated at spaced gaps
H01J 25/36	2-Punkt Untergruppe	. . Tubes in which an electron stream interacts with a wave travelling along a delay line or equivalent sequence of impedance elements, and without magnet system producing an H-field crossing the E-field
H01J 25/38	3-Punkt Untergruppe	. . . the forward-travelling wave being utilised
H01J 25/40	3-Punkt Untergruppe	. . . the backward-travelling wave being utilised
H01J 25/42	2-Punkt Untergruppe	. . Tubes in which an electron stream interacts with a wave travelling along a delay line or equivalent sequence of impedance elements, and with a magnet system producing an H-field crossing the E-field (with travelling wave moving completely around the electron space H01J 25/50)
H01J 25/44	3-Punkt Untergruppe	. . . the forward-travelling wave being utilised
H01J 25/46	3-Punkt Untergruppe	. . . the backward-travelling wave being utilised
H01J 25/48	2-Punkt Untergruppe	. . Tubes in which two electron streams of different velocities interact with one another, e.g. electron-wave tube
H01J 25/49	2-Punkt Untergruppe	. . Tubes using the parametric principle, e.g. for parametric amplification
H01J 25/50	1-Punkt Untergruppe	. Magnetrons, i.e. tubes with a magnet system producing an H-field crossing the E-field (with travelling wave not moving completely around the electron space H01J 25/42; functioning with plural reflection or with reversed cyclotron action H01J 25/62 , H01J 25/64)
H01J 25/52	2-Punkt Untergruppe	. . with an electron space having a shape that does not prevent any electron from moving completely around the cathode or guide electrode

Symbol	Typ	Titel
H01J 25/54	3-Punkt Untergruppe	. . . having only one cavity or other resonator, e.g. neutrode tube (having a composite resonator H01J 25/58)
H01J 25/55	4-Punkt Untergruppe	 Coaxial-cavity magnetrons [2]
H01J 25/56	4-Punkt Untergruppe	 with interdigital arrangement of anodes, e.g. turbator tube
H01J 25/58	3-Punkt Untergruppe	. . . having a number of resonators; having a composite resonator, e.g. a helix
H01J 25/587	4-Punkt Untergruppe	 Multi-cavity magnetrons [2]
H01J 25/593	5-Punkt Untergruppe	 Rising-sun magnetrons [2]
H01J 25/60	2-Punkt Untergruppe	. . with an electron space having a shape that prevents any electron from moving completely around the cathode or guide electrode; Linear magnetrons
H01J 25/61	1-Punkt Untergruppe	. Hybrid tubes, i.e. tubes comprising a klystron section and a travelling-wave section [2]
H01J 25/62	1-Punkt Untergruppe	. Strophotrons, i.e. tubes with H-field crossing the E-field and functioning with plural reflection
H01J 25/64	1-Punkt Untergruppe	. Turbine tubes, i.e. tubes with H-field crossing the E-field and functioning with reversed cyclotron action
H01J 25/66	1-Punkt Untergruppe	. Tubes with electron stream crossing itself and thereby interrupting, or interfering with, itself
H01J 25/68	1-Punkt Untergruppe	. Tubes specially designed to act as oscillator with positive grid and retarding field, e.g. for Barkhausen-Kurz oscillators (with secondary emission H01J 25/76)
H01J 25/70	2-Punkt Untergruppe	. . with resonator having distributed inductance and capacitance, e.g. Pintsch tube
H01J 25/72	2-Punkt Untergruppe	. . in which a standing wave or a considerable part thereof is produced along an electrode, e.g. Clavier tube (with resonator having distributed inductance and capacitance H01J 25/70)
H01J 25/74	1-Punkt Untergruppe	. Tubes specially designed to act as transit-time diode oscillators, e.g. monotron (with secondary emission H01J 25/76)
H01J 25/76	1-Punkt Untergruppe	. Dynamic electron-multiplier tubes, e.g. Farnsworth multiplier tube, multipactor
H01J 25/78	1-Punkt Untergruppe	. Tubes with electron stream modulated by deflection in a resonator
H01J 27/00	Hauptgruppe	Ion beam tubes (H01J 25/00 , H01J 33/00 , H01J 37/00 take precedence; particle accelerators H05H)
H01J 27/02	1-Punkt Untergruppe	. Ion sources; Ion guns (arrangements for handling particles, e.g. focusing, G21K 1/00; generating ions to be introduced into non-enclosed gases H01T 23/00; generating plasma H05H 1/24) [3]
H01J 27/04	2-Punkt Untergruppe	. . using reflex discharge, e.g. Penning ion sources [3]
H01J 27/06	3-Punkt Untergruppe	. . . without applied magnetic field [3]
H01J 27/08	2-Punkt Untergruppe	. . using arc discharge [3]
H01J 27/10	3-Punkt Untergruppe	. . . Duoplasmatrons (for use in particle accelerators H05H 7/00) [3]
H01J 27/12	4-Punkt Untergruppe	 provided with an expansion cup [3]
H01J 27/14	3-Punkt Untergruppe	. . . Other arc discharge ion sources using an applied magnetic field [3]
H01J 27/16	2-Punkt Untergruppe	. . using high-frequency excitation, e.g. microwave excitation [3]
H01J 27/18	3-Punkt Untergruppe	. . . with an applied axial magnetic field [3]
H01J 27/20	2-Punkt Untergruppe	. . using particle bombardment, e.g. ionisers [3]
H01J 27/22	3-Punkt Untergruppe	. . . Metal ion sources [3]

Symbol	Typ	Titel
H01J 27/24	2-Punkt Untergruppe	. . using photo-ionisation, e.g. using laser beam [3]
H01J 27/26	2-Punkt Untergruppe	. . using surface ionisation, e.g. field effect ion sources, thermionic ion sources (H01J 27/20 , H01J 27/24 take precedence) [3]
H01J 29/00	Hauptgruppe	Details of cathode-ray tubes or of electron-beam tubes of the types covered by group H01J 31/00
H01J 29/02	1-Punkt Untergruppe	. Electrodes; Screens; Mounting, supporting, spacing, or insulating thereof
H01J 29/04	2-Punkt Untergruppe	. . Cathodes (electron guns H01J 29/48)
H01J 29/06	2-Punkt Untergruppe	. . Screens for shielding; Masks interposed in the electron stream
H01J 29/07	3-Punkt Untergruppe	. . . Shadow masks for colour-television tubes [2]
H01J 29/08	2-Punkt Untergruppe	. . Electrodes intimately associated with a screen on or from which an image or pattern is formed, picked-up converted, or stored, e.g. backing-plate for storage tube, for collecting secondary electrons (arrangements for colour switching H01J 29/80)
H01J 29/10	2-Punkt Untergruppe	. . Screens on, or from, which an image or pattern is formed, picked-up, converted, or stored
H01J 29/12	3-Punkt Untergruppe	. . . acting as light valves by shutter operation, e.g. for eidophor
H01J 29/14	3-Punkt Untergruppe	. . . acting by discolouration, e.g. halide screen
H01J 29/16	3-Punkt Untergruppe	. . . Incandescent screens
H01J 29/18	3-Punkt Untergruppe	. . . Luminescent screens
H01J 29/20	4-Punkt Untergruppe	 characterised by the luminescent material
H01J 29/22	4-Punkt Untergruppe	 characterised by the binder or adhesive for securing the luminescent material to its support, e.g. vessel
H01J 29/24	4-Punkt Untergruppe	 Supports for luminescent material
H01J 29/26	4-Punkt Untergruppe	 with superimposed luminescent layers
H01J 29/28	4-Punkt Untergruppe	 with protective, conductive, or reflective layers
H01J 29/30	4-Punkt Untergruppe	 with luminescent material discontinuously arranged, e.g. in dots or lines
H01J 29/32	5-Punkt Untergruppe	 with adjacent dots or lines of different luminescent material, e.g. for colour television
H01J 29/34	4-Punkt Untergruppe	 provided with permanent marks or references
H01J 29/36	3-Punkt Untergruppe	. . . Photoelectric screens; Charge-storage screens
H01J 29/38	4-Punkt Untergruppe	 not using charge storage, e.g. photo-emissive screen, extended cathode
H01J 29/39	4-Punkt Untergruppe	 Charge-storage screens
H01J 29/41	5-Punkt Untergruppe	 using secondary emission, e.g. for supericonoscope
H01J 29/43	5-Punkt Untergruppe	 using photo-emissive mosaic, e.g. for orthicon, for iconoscope
H01J 29/44	5-Punkt Untergruppe	 exhibiting internal electric effects caused by particle radiation, e.g. bombardment-induced conductivity
H01J 29/45	5-Punkt Untergruppe	 exhibiting internal electric effects caused by electromagnetic radiation, e.g. photoconductive screen, photodielectric screen, photovoltaic screen
H01J 29/46	1-Punkt Untergruppe	. Arrangements of electrodes and associated parts for generating or controlling the ray or beam, e.g. electron-optical arrangement
H01J 29/48	2-Punkt Untergruppe	. . Electron guns

Symbol	Typ	Titel
H01J 29/50	3-Punkt Untergruppe	. . . two or more guns being arranged in a single vacuum space, e.g. for plural-ray tubes (H01J 29/51 takes precedence) [2]
H01J 29/51	3-Punkt Untergruppe	. . . Arrangements for controlling convergence of a plurality of beams [2]
H01J 29/52	2-Punkt Untergruppe	. . Arrangements for controlling intensity of ray or beam, e.g. for modulation
H01J 29/54	2-Punkt Untergruppe	. . Arrangements for centring ray or beam
H01J 29/56	2-Punkt Untergruppe	. . Arrangements for controlling cross-section of ray or beam; Arrangements for correcting aberration of beam, e.g. due to lenses
H01J 29/58	2-Punkt Untergruppe	. . Arrangements for focusing or reflecting ray or beam
H01J 29/60	3-Punkt Untergruppe	. . . Mirrors
H01J 29/62	3-Punkt Untergruppe	. . . Electrostatic lenses
H01J 29/64	3-Punkt Untergruppe	. . . Magnetic lenses
H01J 29/66	4-Punkt Untergruppe	 using electromagnetic means only
H01J 29/68	4-Punkt Untergruppe	 using permanent magnets only
H01J 29/70	2-Punkt Untergruppe	. . Arrangements for deflecting ray or beam (circuit arrangements for producing sawtooth pulses or other deflecting voltages or currents H03K)
H01J 29/72	3-Punkt Untergruppe	. . . along one straight line or along two perpendicular straight lines
H01J 29/74	4-Punkt Untergruppe	 Deflecting by electric fields only
H01J 29/76	4-Punkt Untergruppe	 Deflecting by magnetic fields only
H01J 29/78	3-Punkt Untergruppe	. . . along a circle, spiral, or rotating radial line, e.g. for radar display
H01J 29/80	2-Punkt Untergruppe	. . Arrangements for controlling the ray or beam after passing the main deflection system, e.g. for post-acceleration or post-concentration, for colour switching
H01J 29/81	3-Punkt Untergruppe	. . . using shadow masks (shadow masks per se H01J 29/07) [3]
H01J 29/82	2-Punkt Untergruppe	. . Mounting, supporting, spacing, or insulating electron-optical or ion-optical arrangements
H01J 29/84	1-Punkt Untergruppe	. Traps for removing or diverting unwanted particles, e.g. negative ions, fringing electrons; Arrangements for velocity or mass selection (particle spectrometers or separator tubes H01J 49/00)
H01J 29/86	1-Punkt Untergruppe	. Vessels; Containers; Vacuum locks
H01J 29/87	2-Punkt Untergruppe	. . Arrangements for preventing or mitigating effects of implosion of vessels or containers [2]
H01J 29/88	2-Punkt Untergruppe	. . provided with coatings on the walls thereof; Selection of materials for the coatings (luminescent screens H01J 29/18)
H01J 29/89	2-Punkt Untergruppe	. . Optical or photographic arrangements structurally combined with the vessel
H01J 29/90	1-Punkt Untergruppe	. Leading-in arrangements; Seals therefor
H01J 29/92	1-Punkt Untergruppe	. Means forming part of the tube for the purpose of providing electrical connection to it (construction of connectors H01R)
H01J 29/94	1-Punkt Untergruppe	. Selection of substances for gas fillings; Means for obtaining or maintaining the desired pressure within the tube, e.g. by gettering
H01J 29/96	1-Punkt Untergruppe	. One or more circuit elements structurally associated with the tube

Symbol	Typ	Titel
H01J 29/98	1-Punkt Untergruppe	. Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 31/00	Hauptgruppe	Cathode-ray tubes; Electron-beam tubes (H01J 25/00 , H01J 33/00 , H01J 35/00 , H01J 37/00 take precedence; details of cathode-ray tubes or of electron-beam tubes H01J 29/00; cathode-ray or electron-stream lamps H01J 63/00)
H01J 31/02	1-Punkt Untergruppe	. having one or more output electrodes which may be impacted selectively by the ray or beam, and onto, from, or over which the ray or beam may be deflected or de-focused
H01J 31/04	2-Punkt Untergruppe	. . with only one or two output electrodes
H01J 31/06	2-Punkt Untergruppe	. . with more than two output electrodes, e.g. for multiple switching or counting
H01J 31/08	1-Punkt Untergruppe	. having a screen on or from which an image or pattern is formed, picked-up, converted, or stored
H01J 31/10	2-Punkt Untergruppe	. . Image or pattern display tubes, i.e. having electrical input and optical output; Flying-spot tubes for scanning purposes
H01J 31/12	3-Punkt Untergruppe	. . . with luminescent screen
H01J 31/14	4-Punkt Untergruppe	 Magic-eye or analogous tuning indicators
H01J 31/15	4-Punkt Untergruppe	 with ray or beam selectively directed to luminescent anode segments [3]
H01J 31/16	4-Punkt Untergruppe	 with mask carrying a number of selectively displayable signs, e.g. numeroscope
H01J 31/18	4-Punkt Untergruppe	 with image written by a ray or beam on a grid-like charge-accumulating screen, and with a ray or beam passing through, and influenced by, this screen before striking the luminescent screen, e.g. direct-view storage tube
H01J 31/20	3-Punkt Untergruppe	. . . for displaying images or patterns in two or more colours
H01J 31/22	3-Punkt Untergruppe	. . . for stereoscopic displays
H01J 31/24	3-Punkt Untergruppe	. . . with screen acting as light valve by shutter operation, e.g. eidophor
H01J 31/26	2-Punkt Untergruppe	. . Image pick-up tubes having an input of visible light and electric output (tubes without defined electron beams and having a light ray scanning a photo-emissive screen H01J 40/20)
H01J 31/28	3-Punkt Untergruppe	. . . with electron ray scanning the image screen
H01J 31/30	4-Punkt Untergruppe	 having regulation of screen potential at anode potential, e.g. iconoscope
H01J 31/32	5-Punkt Untergruppe	 Tubes with image-amplification section, e.g. image-iconoscope, supericonoscope
H01J 31/34	4-Punkt Untergruppe	 having regulation of screen potential at cathode potential, e.g. orthicon
H01J 31/36	5-Punkt Untergruppe	 Tubes with image-amplification section, e.g. image-orthicon
H01J 31/38	5-Punkt Untergruppe	 Tubes with photoconductive screen, e.g. vidicon
H01J 31/40	4-Punkt Untergruppe	 having grid-like image screen through which the electron ray passes and by which the ray is influenced before striking the output electrode, i.e. having "triode action"
H01J 31/42	3-Punkt Untergruppe	. . . with image screen generating a composite electron beam which is deflected as a whole past a stationary probe to simulate a scanning effect, e.g. Farnsworth pick-up tube
H01J 31/44	4-Punkt Untergruppe	 Tubes with image-amplification section
H01J 31/46	3-Punkt Untergruppe	. . . Tubes in which electrical output represents both intensity and colour of image
H01J 31/48	3-Punkt Untergruppe	. . . Tubes with amplification of output effected by electron-multiplier arrangements within the vacuum space

Symbol	Typ	Titel
H01J 31/49	2-Punkt Untergruppe	. . Pick-up tubes adapted for an input of electromagnetic radiation other than visible light and having an electric output, e.g. for an input of X-rays, for an input of infra-red radiation
H01J 31/495	2-Punkt Untergruppe	. . Pick-up tubes adapted for an input of sonic, ultrasonic, or mechanical vibrations and having an electric output
H01J 31/50	2-Punkt Untergruppe	. . Image-conversion or image-amplification tubes, i.e. having optical, X-ray, or analogous input, and optical output
H01J 31/52	3-Punkt Untergruppe	. . . having grid-like image screen through which the electron ray or beam passes and by which the ray or beam is influenced before striking the luminescent output screen, i.e. having "triode action"
H01J 31/54	3-Punkt Untergruppe	. . . in which the electron ray or beam is reflected by the image input screen on to the image output screen
H01J 31/56	3-Punkt Untergruppe	. . . for converting or amplifying images in two or more colours
H01J 31/58	2-Punkt Untergruppe	. . Tubes for storage of image or information pattern or for conversion of definition of television or like images, i.e. having electrical input and electrical output
H01J 31/60	3-Punkt Untergruppe	. . . having means for deflecting, either selectively or sequentially, an electron ray on to separate surface elements of the screen (by circuitry alone H01J 29/98)
H01J 31/62	4-Punkt Untergruppe	 with separate reading and writing rays
H01J 31/64	5-Punkt Untergruppe	 on opposite sides of screen, e.g. for conversion of definition
H01J 31/66	3-Punkt Untergruppe	. . . having means for allowing all but selected cross-section elements of a homogeneous electron beam to reach corresponding elements of the screen, e.g. selectron
H01J 31/68	3-Punkt Untergruppe	. . . in which the information pattern represents two or more colours
H01J 33/00	Hauptgruppe	Discharge tubes with provision for emergence of electrons or ions from the vessel (particle accelerators H05H); Lenard tubes
H01J 33/02	1-Punkt Untergruppe	. Details
H01J 33/04	2-Punkt Untergruppe	. . Windows
H01J 35/00	Hauptgruppe	X-ray tubes (X-ray lasers H01S 4/00; X-ray technique in general H05G)
H01J 35/02	1-Punkt Untergruppe	. Details
H01J 35/04	2-Punkt Untergruppe	. . Electrodes
H01J 35/06	3-Punkt Untergruppe	. . . Cathodes
H01J 35/08	3-Punkt Untergruppe	. . . Anodes; Anticathodes
H01J 35/10	4-Punkt Untergruppe	 Rotary anodes; Arrangements for rotating anodes; Cooling rotary anodes
H01J 35/12	4-Punkt Untergruppe	 Cooling non-rotary anodes
H01J 35/14	2-Punkt Untergruppe	. . Arrangements for concentrating, focusing, or directing the cathode ray
H01J 35/16	2-Punkt Untergruppe	. . Vessels; Containers; Shields associated therewith
H01J 35/18	3-Punkt Untergruppe	. . . Windows
H01J 35/20	2-Punkt Untergruppe	. . Selection of substances for gas fillings; Means for obtaining or maintaining the desired pressure within the tube, e.g. by gettering
H01J 35/22	1-Punkt Untergruppe	. specially designed for passing a very high current for a very short time, e.g. for flash operation
H01J 35/24	1-Punkt Untergruppe	. Tubes wherein the point of impact of the cathode ray on the anode or anticathode is movable relative to the surface thereof

Symbol	Typ	Titel
H01J 35/26	2-Punkt Untergruppe	. . by rotation of the anode or anticathode
H01J 35/28	2-Punkt Untergruppe	. . by vibration, oscillation, reciprocation, or swash-plate motion of the anode or anticathode
H01J 35/30	2-Punkt Untergruppe	. . by deflection of the cathode ray
H01J 35/32	1-Punkt Untergruppe	. Tubes wherein the X-rays are produced at or near the end of the tube or a part thereof, which tube or part has a small cross-section to facilitate introduction into a small hole or cavity
H01J 37/00	Hauptgruppe	Discharge tubes with provision for introducing objects or material to be exposed to the discharge, e.g. for the purpose of examination or processing thereof (H01J 33/00 , H01J 40/00 , H01J 41/00 , H01J 47/00 , H01J 49/00 take precedence; investigating or analysing surface structures in atomic ranges using scanning-probe techniques G01N 13/10 , e.g. scanning tunnelling microscopy G01N 13/12; contactless testing of electronic circuits using electron beams G01R 31/305; details of scanning-probe apparatus, in general G12B 21/00) [2, 5]
H01J 37/02	1-Punkt Untergruppe	. Details
H01J 37/04	2-Punkt Untergruppe	. . Arrangements of electrodes and associated parts for generating or controlling the discharge, e.g. electron-optical arrangement, ion-optical arrangement
H01J 37/05	3-Punkt Untergruppe	. . . Electron- or ion-optical arrangements for separating electrons or ions according to their energy (particle separator tubes H01J 49/00) [3]
H01J 37/06	3-Punkt Untergruppe	. . . Electron sources; Electron guns
H01J 37/063	4-Punkt Untergruppe	 Geometrical arrangement of electrodes for beam-forming [3]
H01J 37/065	4-Punkt Untergruppe	 Construction of guns or parts thereof (H01J 37/067 to H01J 37/077 take precedence) [3]
H01J 37/067	4-Punkt Untergruppe	 Replacing parts of guns; Mutual adjustment of electrodes (H01J 37/073 to H01J 37/077 take precedence; vacuum locks H01J 37/18) [3]
H01J 37/07	4-Punkt Untergruppe	 Eliminating deleterious effects due to thermal effects or electric or magnetic fields (H01J 37/073 to H01J 37/077 take precedence) [3]
H01J 37/073	4-Punkt Untergruppe	 Electron guns using field emission, photo emission, or secondary emission electron sources [3]
H01J 37/075	4-Punkt Untergruppe	 Electron guns using thermionic emission from cathodes heated by particle bombardment or by irradiation, e.g. by laser [3]
H01J 37/077	4-Punkt Untergruppe	 Electron guns using discharge in gases or vapours as electron sources [3]
H01J 37/08	3-Punkt Untergruppe	. . . Ion sources; Ion guns
H01J 37/09	3-Punkt Untergruppe	. . . Diaphragms; Shields associated with electron- or ion-optical arrangements; Compensation of disturbing fields [3]
H01J 37/10	3-Punkt Untergruppe	. . . Lenses
H01J 37/12	4-Punkt Untergruppe	 electrostatic
H01J 37/14	4-Punkt Untergruppe	 magnetic
H01J 37/141	5-Punkt Untergruppe	 Electromagnetic lenses [3]
H01J 37/143	5-Punkt Untergruppe	 Permanent magnetic lenses [3]
H01J 37/145	4-Punkt Untergruppe	 Combinations of electrostatic and magnetic lenses [3]
H01J 37/147	3-Punkt Untergruppe	. . . Arrangements for directing or deflecting the discharge along a desired path (lenses H01J 37/10) [2]
H01J 37/15	4-Punkt Untergruppe	 External mechanical adjustment of electron- or ion-optical components (H01J 37/067 , H01J 37/20 take precedence) [3]

Symbol	Typ	Titel
H01J 37/153	3-Punkt Untergruppe	. . . Electron-optical or ion-optical arrangements for the correction of image defects, e.g. stigmators [2]
H01J 37/16	2-Punkt Untergruppe	. . Vessels; Containers
H01J 37/18	2-Punkt Untergruppe	. . Vacuum locks
H01J 37/20	2-Punkt Untergruppe	. . Means for supporting or positioning the object or the material; Means for adjusting diaphragms or lenses associated with the support (preparing specimens for investigation G01N 1/28)
H01J 37/21	2-Punkt Untergruppe	. . Means for adjusting the focus [2]
H01J 37/22	2-Punkt Untergruppe	. . Optical or photographic arrangements associated with the tube
H01J 37/24	2-Punkt Untergruppe	. . Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 37/244	2-Punkt Untergruppe	. . Detectors; Associated components or circuits therefor [3]
H01J 37/248	2-Punkt Untergruppe	. . Components associated with high voltage supply (high voltage supply in general H02J , H02M) [3]
H01J 37/252	1-Punkt Untergruppe	. Tubes for spot-analysing by electron or ion beams; Microanalysers (investigating or analysing thereby G01N 23/22) [3]
H01J 37/256	2-Punkt Untergruppe	. . using scanning beams [3]
H01J 37/26	1-Punkt Untergruppe	. Electron or ion microscopes; Electron- or ion-diffraction tubes [2]
H01J 37/27	2-Punkt Untergruppe	. . Shadow microscopy [3]
H01J 37/28	2-Punkt Untergruppe	. . with scanning beams (microanalysers using scanning beams H01J 37/256)
H01J 37/285	2-Punkt Untergruppe	. . Emission microscopes, e.g. field-emission microscopes [2]
H01J 37/29	2-Punkt Untergruppe	. . Reflection microscopes [2]
H01J 37/295	2-Punkt Untergruppe	. . Electron- or ion-diffraction tubes [2]
H01J 37/30	1-Punkt Untergruppe	. Electron-beam or ion-beam tubes for localised treatment of objects
H01J 37/301	2-Punkt Untergruppe	. . Arrangements enabling beams to pass between regions of different pressure [3]
H01J 37/302	2-Punkt Untergruppe	. . Controlling tubes by external information, e.g. programme control (H01J 37/304 takes precedence) [3]
H01J 37/304	2-Punkt Untergruppe	. . Controlling tubes by information coming from the objects, e.g. correction signals [3]
H01J 37/305	2-Punkt Untergruppe	. . for casting, melting, evaporating, or etching [2]
H01J 37/31	2-Punkt Untergruppe	. . for cutting or drilling [2]
H01J 37/315	2-Punkt Untergruppe	. . for welding [2]
H01J 37/317	2-Punkt Untergruppe	. . for changing properties of the objects or for applying thin layers thereon, e.g. ion implantation (H01J 37/36 takes precedence) [3]
H01J 37/32	1-Punkt Untergruppe	. Gas-filled discharge tubes (heating by discharge H05B)
H01J 37/34	2-Punkt Untergruppe	. . operating with cathodic sputtering (H01J 37/36 takes precedence) [3]
H01J 37/36	2-Punkt Untergruppe	. . for cleaning surfaces while plating with ions of materials introduced into the discharge, e.g. introduced by evaporation [3]
H01J 40/00	Hauptgruppe	Photoelectric discharge tubes not involving the ionisation of a gas (H01J 49/00 takes precedence; cathode-ray or image-pick-up tubes H01J 31/26) [3]
H01J 40/02	1-Punkt Untergruppe	. Details [3]

Symbol	Typ	Titel
H01J 40/04	2-Punkt Untergruppe	. . Electrodes [3]
H01J 40/06	3-Punkt Untergruppe	. . . Photo-emissive cathodes [3]
H01J 40/08	2-Punkt Untergruppe	. . Magnetic means for controlling discharge [3]
H01J 40/10	2-Punkt Untergruppe	. . Selection of substances for gas fillings [3]
H01J 40/12	2-Punkt Untergruppe	. . One or more circuit elements structurally associated with the tube [3]
H01J 40/14	2-Punkt Untergruppe	. . Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for [3]
H01J 40/16	1-Punkt Untergruppe	. having photo-emissive cathode, e.g. alkaline photoelectric cell (operating with secondary emission H01J 43/00) [3]
H01J 40/18	2-Punkt Untergruppe	. . with luminescent coatings for influencing the sensitivity of the tube, e.g. by converting the input wavelength (image-conversion or image-amplification tubes H01J 31/50) [3]
H01J 40/20	2-Punkt Untergruppe	. . wherein a light-ray scans a photo-emissive screen [3]
H01J 41/00	Hauptgruppe	Discharge tubes and means integral therewith for measuring gas pressure (vacuum gauge systems using such tubes G01L 21/30); Discharge tubes for evacuation by diffusion of ions
H01J 41/02	1-Punkt Untergruppe	. Discharge tubes and means integral therewith for measuring gas pressure [2]
H01J 41/04	2-Punkt Untergruppe	. . with ionisation by means of thermionic cathodes [2]
H01J 41/06	2-Punkt Untergruppe	. . with ionisation by means of cold cathodes [2]
H01J 41/08	2-Punkt Untergruppe	. . with ionisation by means of radioactive substances, e.g. alphasources [2]
H01J 41/10	2-Punkt Untergruppe	. . of particle-spectrometer type (particle spectrometers in general H01J 49/00) [2]
H01J 41/12	1-Punkt Untergruppe	. Discharge tubes for evacuating by diffusion of ions, e.g. ion pumps, getter ion pumps [2]
H01J 41/14	2-Punkt Untergruppe	. . with ionisation by means of thermionic cathodes [2]
H01J 41/16	3-Punkt Untergruppe	. . . using gettering substances [2]
H01J 41/18	2-Punkt Untergruppe	. . with ionisation by means of cold cathodes [2]
H01J 41/20	3-Punkt Untergruppe	. . . using gettering substances [2]
H01J 43/00	Hauptgruppe	Secondary-emission tubes; Electron-multiplier tubes (dynamic electron-multiplier tubes H01J 25/76; secondary-emission detectors for measurement of nuclear or X-radiation G01T 1/28)
H01J 43/02	1-Punkt Untergruppe	. Tubes in which one or a few electrodes are secondary-electron-emitting electrodes
H01J 43/04	1-Punkt Untergruppe	. Electron multipliers
H01J 43/06	2-Punkt Untergruppe	. . Electrode arrangements
H01J 43/08	3-Punkt Untergruppe	. . . Cathode arrangements (construction of photo cathodes H01J 40/06 , H01J 40/16 , H01J 47/00 , H01J 49/08)
H01J 43/10	3-Punkt Untergruppe	. . . Dynodes (H01J 43/24 , H01J 43/26 take precedence; secondary-electron-emitting electrodes in general H01J 1/32)
H01J 43/12	3-Punkt Untergruppe	. . . Anode arrangements
H01J 43/14	3-Punkt Untergruppe	. . . Control of electron beam by magnetic field
H01J 43/16	3-Punkt Untergruppe	. . . Electrode arrangements using essentially one dynode
H01J 43/18	3-Punkt Untergruppe	. . . Electrode arrangements using essentially more than one dynode

Symbol	Typ	Titel
H01J 43/20	4-Punkt Untergruppe	. . . Dynodes consisting of sheet material, e.g. plane, bent
H01J 43/22	4-Punkt Untergruppe	. . . Dynodes consisting of electron-permeable material, e.g. foil, grid, tube, venetian blind
H01J 43/24	4-Punkt Untergruppe	. . . Dynodes having potential gradient along their surfaces
H01J 43/26	4-Punkt Untergruppe	. . . Box dynodes
H01J 43/28	2-Punkt Untergruppe	. . Vessels; Windows; Screens; Suppressing undesired discharges or currents
H01J 43/30	2-Punkt Untergruppe	. . Circuit arrangements not adapted to a particular application of the tube and not otherwise provided for
H01J 45/00	Hauptgruppe	Discharge tubes functioning as thermionic generators
H01J 47/00	Hauptgruppe	Tubes for determining the presence, intensity, density or energy of radiation or particles (photoelectric discharge tubes not involving the ionisation of a gas H01J 40/00) [3]
H01J 47/02	1-Punkt Untergruppe	. Ionisation chambers [3]
H01J 47/04	2-Punkt Untergruppe	. . Capacitive ionisation chambers, e.g. the electrodes of which are used as electrometers (electrostatic dosimeters in general G01T 1/14) [3]
H01J 47/06	1-Punkt Untergruppe	. Proportional counter tubes [3]
H01J 47/08	1-Punkt Untergruppe	. Geiger-Müller counter tubes [3]
H01J 47/10	1-Punkt Untergruppe	. Spark counters (H01J 47/14 takes precedence; spark gaps H01T) [3]
H01J 47/12	1-Punkt Untergruppe	. Neutron detector tubes, e.g. BF ₃ tubes [3]
H01J 47/14	1-Punkt Untergruppe	. Parallel electrode spark or streamer chambers; Wire spark or streamer chambers [3]
H01J 47/16	2-Punkt Untergruppe	. . characterised by readout of each individual wire [3]
H01J 47/18	3-Punkt Untergruppe	. . . the readout being electrical (H01J 47/20 takes precedence) [3]
H01J 47/20	3-Punkt Untergruppe	. . . the readout employing electrical or mechanical delay lines, e.g. magnetostrictive delay lines [3]
H01J 47/22	2-Punkt Untergruppe	. . characterised by another type of readout [3]
H01J 47/24	3-Punkt Untergruppe	. . . the readout being acoustical [3]
H01J 47/26	3-Punkt Untergruppe	. . . the readout being optical [3]
H01J 49/00	Hauptgruppe	Particle spectrometers or separator tubes (for measuring gas pressure H01J 41/10) [3]
H01J 49/02	1-Punkt Untergruppe	. Details [3]
H01J 49/04	2-Punkt Untergruppe	. . Arrangements for introducing or extracting samples to be analysed, e.g. vacuum locks; Arrangements for external adjustment of electron- or ion-optical components [3]
H01J 49/06	2-Punkt Untergruppe	. . Electron- or ion-optical arrangements (H01J 49/04 takes precedence) [3]
H01J 49/08	2-Punkt Untergruppe	. . Electron sources, e.g. for generating photo-electrons, secondary electrons or Auger electrons [3]
H01J 49/10	2-Punkt Untergruppe	. . Ion sources; Ion guns [3]
H01J 49/12	3-Punkt Untergruppe	. . . using an arc discharge, e.g. of the duoplasmatron type [3]
H01J 49/14	3-Punkt Untergruppe	. . . using particle bombardment, e.g. ionisation chambers [3]
H01J 49/16	3-Punkt Untergruppe	. . . using surface ionisation, e.g. field-, thermionic- or photo-emission [3]
H01J 49/18	3-Punkt Untergruppe	. . . using spark ionisation [3]

Symbol	Typ	Titel
H01J 49/20	2-Punkt Untergruppe	. . Magnetic deflection [3]
H01J 49/22	2-Punkt Untergruppe	. . Electrostatic deflection [3]
H01J 49/24	2-Punkt Untergruppe	. . Vacuum systems, e.g. maintaining desired pressures [3]
H01J 49/26	1-Punkt Untergruppe	. Mass spectrometers or separator tubes (isotope separation using these tubes B01D 59/44; mass spectrometers specially adapted for column chromatography G01N 30/72) [3]
H01J 49/28	2-Punkt Untergruppe	. . Static spectrometers [3]
H01J 49/30	3-Punkt Untergruppe	. . . using magnetic analysers [3]
H01J 49/32	3-Punkt Untergruppe	. . . using double focusing [3]
H01J 49/34	2-Punkt Untergruppe	. . Dynamic spectrometers [3]
H01J 49/36	3-Punkt Untergruppe	. . . Radio frequency spectrometers, e.g. Bennett-type spectrometers, Redhead-type spectrometers [3]
H01J 49/38	4-Punkt Untergruppe	 Omegatrons [3]
H01J 49/40	3-Punkt Untergruppe	. . . Time-of-flight spectrometers (H01J 49/36 takes precedence) [3]
H01J 49/42	3-Punkt Untergruppe	. . . Stability-of-path spectrometers, e.g. monopole, quadrupole, multipole, farvitrons [3]
H01J 49/44	1-Punkt Untergruppe	. Energy spectrometers, e.g. alpha-, beta-spectrometers [3]
H01J 49/46	2-Punkt Untergruppe	. . Static spectrometers [3]
H01J 49/48	3-Punkt Untergruppe	. . . using electrostatic analysers, e.g. cylindrical sector, Wien filter [3]
		<u>Discharge lamps</u>
H01J 61/00	Hauptgruppe	Gas- or vapour-discharge lamps (use for sterilising milk products A23C; use for medical purposes A61N 5/00; use for disinfecting water C02F; use for lighting F21; circuits therefor H05B; arc lamps with consumable electrodes H05B; electroluminescent lamps H05B)
H01J 61/02	1-Punkt Untergruppe	. Details
H01J 61/04	2-Punkt Untergruppe	. . Electrodes (for igniting H01J 61/54); Screens; Shields
H01J 61/06	3-Punkt Untergruppe	. . . Main electrodes
H01J 61/067	4-Punkt Untergruppe	 for low-pressure discharge lamps [2]
H01J 61/073	4-Punkt Untergruppe	 for high-pressure discharge lamps [2]
H01J 61/09	4-Punkt Untergruppe	 Hollow cathodes [2]
H01J 61/10	3-Punkt Untergruppe	. . . Shield, screens, or guides for influencing the discharge
H01J 61/12	2-Punkt Untergruppe	. . Selection of substances for gas fillings; Specified operating pressure or temperature
H01J 61/14	3-Punkt Untergruppe	. . . having one or more carbon compounds as the principal constituents
H01J 61/16	3-Punkt Untergruppe	. . . having helium, argon, neon, krypton, or xenon as the principle constituent
H01J 61/18	3-Punkt Untergruppe	. . . having a metallic vapour as the principal constituent
H01J 61/20	4-Punkt Untergruppe	 mercury vapour
H01J 61/22	4-Punkt Untergruppe	 vapour of an alkali metal
H01J 61/24	2-Punkt Untergruppe	. . Means for obtaining or maintaining the desired pressure within the vessel

Symbol	Typ	Titel
H01J 61/26	3-Punkt Untergruppe	. . . Means for absorbing or adsorbing gas, e.g. by gettering; Means for preventing blackening of the envelope
H01J 61/28	3-Punkt Untergruppe	. . . Means for producing, introducing, or replenishing gas or vapour during operation of the lamp
H01J 61/30	2-Punkt Untergruppe	. . Vessels; Containers
H01J 61/32	3-Punkt Untergruppe	. . . Special longitudinal shape, e.g. for advertising purposes
H01J 61/33	3-Punkt Untergruppe	. . . Special shape of cross-section, e.g. for producing cool spot
H01J 61/34	3-Punkt Untergruppe	. . . Double-wall vessels or containers
H01J 61/35	3-Punkt Untergruppe	. . . provided with coatings on the walls thereof; Selection of materials for the coatings (using coloured coatings H01J 61/40; using luminescent coatings H01J 61/42)
H01J 61/36	2-Punkt Untergruppe	. . Seals between parts of vessels; Seals for leading-in conductors; Leading-in conductors
H01J 61/38	2-Punkt Untergruppe	. . Devices for influencing the colour or wavelength of the light
H01J 61/40	3-Punkt Untergruppe	. . . by light-filters; by coloured coatings in or on the envelope
H01J 61/42	3-Punkt Untergruppe	. . . by transforming the wavelength of the light by luminescence
H01J 61/44	4-Punkt Untergruppe	 Devices characterised by the luminescent material (luminescent materials C09K 11/00)
H01J 61/46	4-Punkt Untergruppe	 Devices characterised by the binder or other non-luminescent constituent of the luminescent material, e.g. for obtaining desired pouring or drying properties
H01J 61/48	4-Punkt Untergruppe	 Separate coatings of different luminous materials
H01J 61/50	2-Punkt Untergruppe	. . Auxiliary parts or solid material within the envelope for reducing risk of explosion upon breakage of the envelope, e.g. for use in mines
H01J 61/52	2-Punkt Untergruppe	. . Cooling arrangements; Heating arrangements; Means for circulating gas or vapour within the discharge space
H01J 61/54	2-Punkt Untergruppe	. . Igniting arrangements, e.g. promoting ionisation for starting (circuit arrangements H05B)
H01J 61/56	2-Punkt Untergruppe	. . One or more circuit elements structurally associated with the lamp
H01J 61/58	1-Punkt Untergruppe	. Lamps with both liquid anode and liquid cathode
H01J 61/60	1-Punkt Untergruppe	. Lamps in which the discharge space is substantially filled with mercury before ignition
H01J 61/62	1-Punkt Untergruppe	. Lamps with gaseous, e.g. plasma cathode
H01J 61/64	1-Punkt Untergruppe	. Cathode glow lamps (designed as tuning or voltage indicators H01J 17/40)
H01J 61/66	2-Punkt Untergruppe	. . having one or more specially shaped cathodes, e.g. for advertising purposes
H01J 61/68	1-Punkt Untergruppe	. Lamps in which the main discharge is between parts of a current-carrying guide, e.g. halo lamp
H01J 61/70	1-Punkt Untergruppe	. Lamps with low-pressure unconfined discharge
H01J 61/72	2-Punkt Untergruppe	. . having a main light-emitting filling of easily vaporisable metal vapour, e.g. mercury
H01J 61/74	2-Punkt Untergruppe	. . having a main light-emitting filling of difficult vaporisable metal vapour, e.g. sodium
H01J 61/76	2-Punkt Untergruppe	. . having a filling of permanent gas or gases only
H01J 61/78	3-Punkt Untergruppe	. . . with cold cathode; with cathode heated only by discharge, e.g. high-tension lamp for advertising
H01J 61/80	2-Punkt Untergruppe	. . Lamps suitable only for intermittent operation, e.g. flash lamp

Symbol	Typ	Titel
H01J 61/82	1-Punkt Untergruppe	. Lamps with high-pressure unconfined discharge
H01J 61/84	1-Punkt Untergruppe	. Lamps with discharge constricted by high pressure
H01J 61/86	2-Punkt Untergruppe	. . with discharge additionally constricted by close spacing of electrodes, e.g. for optical projection
H01J 61/88	2-Punkt Untergruppe	. . with discharge additionally constricted by envelope
H01J 61/90	2-Punkt Untergruppe	. . Lamps suitable only for intermittent operation, e.g. flash lamp
H01J 61/92	1-Punkt Untergruppe	. Lamps with more than one main discharge path
H01J 61/94	2-Punkt Untergruppe	. . Paths producing light of different wavelengths, e.g. for simulating daylight
H01J 61/95	1-Punkt Untergruppe	. Lamps with control electrode for varying intensity or wavelength of the light, e.g. for producing modulated light
H01J 61/96	1-Punkt Untergruppe	. Lamps with light-emitting discharge path and separately-heated incandescent body within a common envelope, e.g. for simulating daylight (lamps with filament heated only by non-luminous discharge H01K)
H01J 61/98	1-Punkt Untergruppe	. Lamps with closely spaced electrodes heated to incandescence by light-emitting discharge, e.g. tungsten arc lamp
H01J 63/00	Hauptgruppe	Cathode-ray or electron-stream lamps (flying-spot tubes H01J 31/10; magic-eye tuning indicators H01J 31/14; lamps with incandescent body heated by the ray or stream H01K)
H01J 63/02	1-Punkt Untergruppe	. Details, e.g. electrode, gas filling, shape of vessel
H01J 63/04	2-Punkt Untergruppe	. . Vessels provided with luminescent coatings; Selection of materials for the coatings
H01J 63/06	1-Punkt Untergruppe	. Lamps with luminescent screen excited by the ray or stream
H01J 63/08	1-Punkt Untergruppe	. Lamps with gas plasma excited by the ray or stream
H01J 65/00	Hauptgruppe	Lamps without any electrode inside the vessel; Lamps with at least one main electrode outside the vessel
H01J 65/04	1-Punkt Untergruppe	. Lamps in which a gas filling is excited to luminesce by an external electromagnetic field or by external corpuscular radiation, e.g. for indicating
H01J 65/06	1-Punkt Untergruppe	. Lamps in which a gas filling is excited to luminesce by radioactive material structurally associated with the lamp, e.g. inside the vessel
H01J 65/08	1-Punkt Untergruppe	. Lamps in which a screen or coating is excited to luminesce by radioactive material located inside the vessel