

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

### H05 ELECTRIC TECHNIQUES NOT OTHERWISE PROVIDED FOR

#### H05G X-RAY TECHNIQUE (investigating or analysing materials by the use of X-rays [G01N 23/00](#); apparatus for X-ray photography [G03B 42/02](#); X-ray tubes [H01J 35/00](#); TV systems having X-ray input [H04N 5/321](#))

##### WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:  

<a href="#">H05G 1/61</a>	covered by	<a href="#">H05G 1/60</a>
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- In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<p><b>1/00</b> X-ray apparatus involving X-ray tubes; Circuits therefor</p> <p>1/02 . Constructional details</p> <p>1/025 . . {Means for cooling the X-ray tube or the generator}</p> <p>1/04 . . Mounting the X-ray tube within a closed housing</p> <p>1/06 . . . X-ray tube and at least part of the power supply apparatus being mounted within the same housing</p> <p>1/08 . Electrical details</p> <p>1/085 . . {Circuit arrangements particularly adapted for X-ray tubes having a control grid}</p> <p>1/10 . . Power supply arrangements for feeding the X-ray tube {(supply circuits with converters in general <a href="#">H02M</a>; supply circuits for emitters and amplifiers <a href="#">H04B 1/16</a> - <a href="#">H04B 1/1623</a>)}</p> <p>1/12 . . . with DC or rectified single-phase AC {or double-phase}</p> <p>1/14 . . . with single-phase low-frequency AC {also when a rectifier element is in series with the X-ray tube}</p> <p>1/16 . . . . Reducing the peak-inverse voltage</p> <p>1/18 . . . with polyphase AC of low frequency {rectified}</p> <p>1/20 . . . with high-frequency AC; with pulse trains {(pulse generators in general <a href="#">H03K 3/00</a>, <a href="#">H03K 4/00</a>)}</p> <p>1/22 . . . with single pulses</p> <p>1/24 . . . . Obtaining pulses by using energy storage devices</p> <p>1/26 . . Measuring, controlling or protecting (measuring X-ray radiation <a href="#">G01T</a>)</p> <p>1/265 . . . {Measurements of current, voltage or power}</p> <p>1/28 . . . Measuring or recording actual exposure time; Counting number of exposures; Measuring required exposure time</p> <p>1/30 . . . Controlling</p> <p>1/32 . . . . Supply voltage of the X-ray apparatus or tube</p> <p>1/34 . . . . Anode current, heater current or heater voltage of X-ray tube</p>	<p>1/36 . . . . Temperature of anode; Brightness of image {power (electrical temperature regulating in general <a href="#">G05D 23/19</a>)}</p> <p>1/38 . . . . Exposure time {(time switches in general <a href="#">H01H 43/00</a> and subgroups)}</p> <p>1/40 . . . . . using adjustable time-switch</p> <p>1/42 . . . . . using arrangements for switching when a predetermined dose of radiation has been applied, e.g. in which the switching instant is determined by measuring the electrical energy supplied to the tube</p> <p>1/44 . . . . . in which the switching instant is determined by measuring the amount of radiation directly {(dosimetry in general <a href="#">G01T 1/02</a>)}</p> <p>1/46 . . . . Combined control of different quantities, e.g. exposure time as well as voltage or current</p> <p>1/48 . . . . Compensating the voltage drop occurring at the instant of switching-on of the apparatus</p> <p>1/50 . . . . Passing the tube current only during a restricted portion of the voltage waveform</p> <p>1/52 . . . . Target size or shape; Direction of electron beam, e.g. in tubes with one anode and more than one cathode</p> <p>1/54 . . . Protecting {or lifetime prediction}(overload protection combined with control <a href="#">H05G 1/46</a>)</p> <p>1/56 . . Switching-on; Switching-off</p> <p>1/58 . . Switching arrangements for changing-over from one mode of operation to another, e.g. from radioscopy to radiography, from radioscopy to irradiation {or from one tube voltage to another}</p> <p>1/60 . . Circuit arrangements for obtaining a series of X-ray photographs or for X-ray cinematography</p> <p>1/62 . . Circuit arrangements for obtaining X-ray photography at predetermined instants in the movement of an object, e.g. X-ray stroboscopy</p> <p>1/64 . . Circuit arrangements for X-ray apparatus incorporating image intensifiers</p> <p>1/66 . . Circuit arrangements for X-ray tubes with target movable relatively to the anode</p> <p>1/68 . . Circuit arrangements for Lilienfield tubes; Circuit arrangements for gas-filled X-ray tubes</p>
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- 1/70 . . . Circuit arrangements for X-ray tubes with more than one anode; Circuit arrangements for apparatus comprising more than one X ray tube {or more than one cathode ([H05G 1/58](#) takes precedence)}
- 2/00 **Apparatus or processes specially adapted for producing X-rays, not involving X-ray tubes, e.g. involving generation of a plasma (X-ray lasers [H01S 4/00](#))**
- 2/001 . . {Production of X-ray radiation generated from plasma}  
**WARNING**  
Group [H05G 2/001](#) is impacted by reclassification into groups [H05G 2/002](#) - [H05G 2/0027](#), [H05G 2/007](#) and [H05G 2/009](#) - [H05G 2/0094](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- 2/002 . . {Supply of the plasma generating material}  
**WARNING**  
Groups [H05G 2/002](#), [H05G 2/0025](#) and [H05G 2/0027](#) are incomplete pending reclassification of documents from groups [H05G 2/001](#), [H05G 2/003](#), [H05G 2/005](#), [H05G 2/006](#) and [H05G 2/008](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- 2/0023 . . . {Constructional details of the ejection system}  
**WARNING**  
Group [H05G 2/0023](#) is incomplete pending reclassification of documents from groups [H05G 2/001](#), [H05G 2/006](#) and [H05G 2/008](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- 2/0025 . . . {Systems for collecting the plasma generating material after the plasma generation}
- 2/0027 . . . {Arrangements for controlling the supply; Arrangements for measurements}
- 2/003 . . {the plasma being generated from a material in a liquid or gas state}  
**WARNING**  
Group [H05G 2/003](#) is impacted by reclassification into groups [H05G 2/002](#), [H05G 2/0025](#), [H05G 2/0027](#), [H05G 2/007](#), [H05G 2/0088](#) and [H05G 2/009](#) - [H05G 2/0094](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- 2/0035 . . . {the material containing metals as principal radiation-generating components}  
**WARNING**  
Group [H05G 2/0035](#) is incomplete pending reclassification of documents from group [H05G 2/005](#).  
Groups [H05G 2/005](#) and [H05G 2/0035](#) should be considered in order to perform a complete search.
- 2/005 . . . {containing a metal as principal radiation generating component}  
(Frozen)  
**WARNING**  
Group [H05G 2/005](#) is no longer used for the classification of documents as of August 1, 2024.  
The content of this group is being reclassified into groups [H05G 2/002](#), [H05G 2/0025](#), [H05G 2/0027](#), [H05G 2/0035](#), [H05G 2/007](#), [H05G 2/0088](#) and [H05G 2/009](#) - [H05G 2/0094](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- 2/006 . . . {details of the ejection system, e.g. constructional details of the nozzle}  
(Frozen)  
**WARNING**  
Group [H05G 2/006](#) is no longer used for the classification of documents as of August 1, 2024.  
The content of this group is being reclassified into groups [H05G 2/002](#) - [H05G 2/0027](#), [H05G 2/007](#) and [H05G 2/009](#) - [H05G 2/0094](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- 2/007 . . {involving electric or magnetic fields in the process of plasma generation}  
**WARNING**  
Group [H05G 2/007](#) is incomplete pending reclassification of documents from groups [H05G 2/001](#), [H05G 2/003](#), [H05G 2/005](#), [H05G 2/006](#) and [H05G 2/008](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- 2/008 . . {involving an energy-carrying beam in the process of plasma generation}  
**WARNING**  
Group [H05G 2/008](#) is impacted by reclassification into groups [H05G 2/002](#) - [H05G 2/0027](#), [H05G 2/007](#), [H05G 2/0082](#) - [H05G 2/0088](#) and [H05G 2/009](#) - [H05G 2/0094](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

## H05G

2/0082 . . . {the energy-carrying beam being a laser beam}

### **WARNING**

Groups [H05G 2/0082](#), [H05G 2/0084](#) and [H05G 2/0086](#) are incomplete pending reclassification of documents from group [H05G 2/008](#).

All groups listed in this Warning should be considered in order to perform a complete search.

2/0084 . . . . {Control of the laser beam}

2/0086 . . . . {Optical arrangements for conveying the laser beam to the plasma generation location}

2/0088 . . . . {for preconditioning the plasma generating material}

### **WARNING**

Group [H05G 2/0088](#) is incomplete pending reclassification of documents from groups [H05G 2/003](#), [H05G 2/005](#) and [H05G 2/008](#).

All groups listed in this Warning should be considered in order to perform a complete search.

2/009 . . {Auxiliary arrangements not involved in the plasma generation}

### **WARNING**

Groups [H05G 2/009](#) - [H05G 2/0094](#) are incomplete pending reclassification of documents from groups [H05G 2/001](#), [H05G 2/003](#), [H05G 2/005](#), [H05G 2/006](#) and [H05G 2/008](#).

All groups listed in this Warning should be considered in order to perform a complete search.

2/0092 . . . {Housing of the apparatus for producing X-rays; Environment inside the housing}

2/0094 . . . {Reduction, prevention or protection from contamination; Cleaning}