

DESCRIPTION

IGNITION AID

TECHNICAL FIELD

The invention on hand concerns a gas discharge emitter, in particular for ultraviolet light, with a discharge chamber filled with filling gas, with electrodes arranged outside the discharge chamber and with a power source connected to the electrodes for supply of the discharge.

BACKGROUND ART

DE 2242130 describes such discharge lamp with means for local field distortion in the discharge chamber of which the walls are composed of an outer 1 and an inner dielectric 2. A local constriction 12 of the coaxial discharge chamber is formed. With this ignition aid the ignition voltage will be slightly reduced. This technique is suitable for coaxial arranged discharge chambers at which the distance between inner tube and outer tube is up to 5mm.

DISCLOSURE OF THE INVENTION

According to the invention, the task is to further reduce the ignition voltage and to increase the power density at given emitter length.

For the solution of this task at least one of the outer electrodes in a salient which protrudes into the gas chamber of the discharge chamber casing, is shifted into the direction of the counter electrode.

Hereby the ignition voltage is reduced effectively. This in turn allows to increase the volume at equal emitter length by significantly enlarged electrode-distances, and thus to increase the emitted output per unit length. Connexion powers of 100 W/cm emitter length are made possible, in particular even up to 500W/cm. The effect according to the invention makes an impact especially on coaxial applications. For this, as inventive further development, a recess will be arranged into the gas chamber as supporting element between the inner tube and the outer tube. The supporting element stabilises the arrangement of the inner- and outer tube and allows the provision of stabilised emitters of major length.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig 1 shows a cuboid shaped discharge chamber;

Fig 2 shows a coaxial discharge chamber with salient at the inner tube;

Fig 3 shows a coaxial discharge chamber with salient at the outer tube.

DETAILED DESCRIPTION OF THE INVENTION

Fig 1 shows a cuboid shaped discharge chamber made of silica glass¹, at which electrodes 2 are arranged at two facing outer sides. The inner surfaces of the casing are connected with each other by the salient 3, whereas a metallic conductor 4 is arranged in the salient. Basically, an arrangement according to Fig 1, 2 or 3 at which an electrode 2 shortens the space between the electrodes with

an electric conductor 4 focusing in direction of the counter electrode 2. Especially reliable are arrangements according to Fig 1 - 3. There, a conductor 4, which is connected to an electrode, will be directed inside a salient 3 in the discharge chamber narrowly to the facing inner surface of the gas chamber. The salient can contact the counter surface, to achieve a mechanic support of the inner tube. Such arrangement is suitable for very long discharge chambers.

For manufacturing of the high power emitter according to the invention, a silica glass capillary 3 with a conductor 4 lying inside and protruding at one side, will be connected with the silica glass body 1 and an electrode 2. Thereby the metal 4 will be electrically connected at its open side with the electrodes 2 and the silica glass of the capillary closely sealed off with the lamp body 1. With this procedure the ignition voltage will be reduced approximately by half. At popular lamps with ignition voltage of 6 kV (amplitude), henceforth simply 3 kV (amplitude) will be required. The capillary length is of approximately the same length as the discharge distance. The capillary then touches the opposite side of the discharge chamber, so that between the capillary and the opposite side of the discharge chamber, gas is still existent, which is in exchange with the gas of the entire discharge chamber.

Compared to conductors which are placed into the discharge chamber without outer isolation, the manufacture of the gas discharge emitter according to the invention is simplified, because at manufacture of the emitter with ignition aid according to the invention, the application of protective

gas is no longer necessary. Further, the advantage is given, that at the production site the influence of impurity from sputtering of the conductor, which is placed in the discharge chamber, will cease.

For coaxial arranged gas discharge emitters the discharge chamber is situated between the outer wall of the inner tube 1 and the inner wall of the outer tube 1. Accordingly, the salient 3 will be placed between the outer wall of the inner tube 1 and the inner wall of the outer tube 1.

A coaxial emitter completed according to the invention with a distance of 10mm between the outer- and the inner tube can be ignited according to the invention with an electric power supply of 3kV (amplitude).

CLAIMS:

1. Gas discharge emitter with an discharge chamber and electrodes arranged outside the discharge chamber, thereby characterised, that the casing of the discharge chamber features a salient, in which an electrode is placed in direction of the counter electrode.
2. Gas discharge emitter according to claim 1, thereby characterised, that its electrode-surfaces are arranged in a distance of predominantly 5 mm or more, in particular 10 mm or more.
3. Gas discharge emitter according to claim 1 or 2, thereby characterised, that the gas discharge chamber is built between two coaxial dielectric tubes.
4. Emitter according to one of the claims 1 to 3, thereby characterised, that the salient in the discharge chamber connects the inner walls of the discharge chamber with each other.
5. Manufacturing method of a gas discharge emitter, thereby characterised, that a metallic conductor 4 is inserted into the discharge chamber by a salient 3 and isolated from the gas discharge chamber by the salient.
6. Gas discharge emitter claimed in any preceding claim, wherein said emitter is a high power emitter.