Joint Research Centre

www.jrc.ec.europa.eu

Technology portfolio

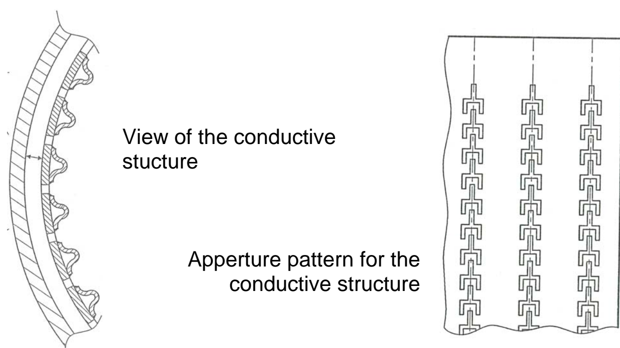
Process chamber for Inductively coupled plasma processing

Description

The present invention relates to the field of plasma processing including plasma etching, plasma enhanced chemical vapour deposition (PECVD) and ionized physical vapour deposition (I-PVD) of metallic films. A new type of process chamber for plasma processing was developed to overcome the problem of unwanted metallic film deposition on the inner surface of the chamber which would block the electromagnetic field without placing the inductor electrode inside the chamber.

The process chamber is bounded by wall portions and adapted to receive electromagnetic energy by inductive coupling from an external inductor to sustain a plasma discharge. Conductive elements are also arranged inside the chamber at a predetermined distance from internal surface to prevent coating of vapour material on this internal surface. These conductive elements act as a trap for condensing conductive material particles in the plasma before they can reach the inner surface of the dielectric wall portions which would result in a screening the electromagnetic field. .

The efficiency of the process chamber is further increased by adding a cooling to the conductive elements and by providing apertures in the conductive surfaces to avoid drift in the performance of the process chamber over time.

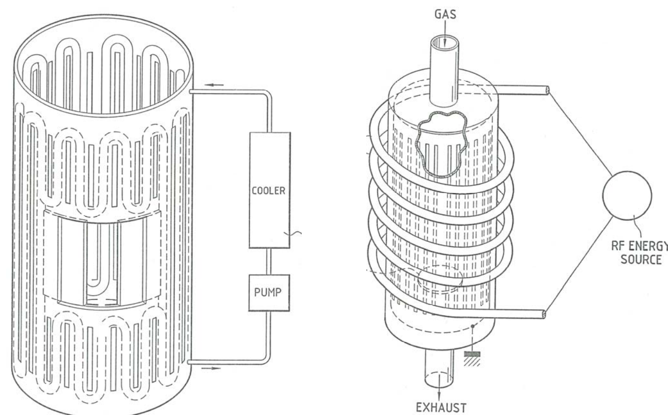


Areas of application

- Cleaning and activation of surfaces
- Chemical Vapour deposition

Innovative aspects and main advantages

- No film deposition on the inner surface of chamber
- No inductor electrode inside the chamber, hence no contamination by the electrode
- No drift in performance
- Increased efficiency gained from cooling system and special design of aperture in the conductive means



Stages of development

Patent Priority date 10.04.1998
Granted EP 0 908 922

Technology is mature.

Scientific contact

Dr. François Rossi
Joint Research Centre, IHCP
European Commission - I-21020 Ispra - Italy
Tel: (+39)0332/785443
Email address: francois.rossi@jrc.it

Licensing contact

Intellectual Property and Scientific Collaboration Unit
JRC - European Commission
B-1049 Brussels, Belgium
Email: JRC-TechTransfer@ec.europa.eu

Reference: file n°2538

ihcp Institute for Health and Consumer Protection

JRC EUROPEAN COMMISSION