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Charicteristics of HF 10-cm Concave Type Grid Ion Source for Inert and Chemically Reactive Gases.

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This paper represents a new type low power High Frequency technological ion source (HF TIS) for ion - beam processing: the surface modification of materials, cleaning of surface, sputtering, coating of thin films, and polishing. The operational principle of HF TIS is based on the excitation of electrostatic waves in plasma located in the external magnetic field. Low power HF TIS with diameter 92 mm gives the opportunity to obtain beams of inert and chemically reactive gases with currents range from 5 to 150 mA (current density 0.015 ~ 3.5 mA/cm²) and ion beam energy 100 ~ 2500 eV at a HF power level 10 ~ 150 W. Three grid concave type ion optical system (IOS) is used for extraction and formation of ion beam.