

Solid-fuel steam-plasma gas generator comprises sealed reaction chamber with lid that simultaneously serves as distributor for the gas and solid phases of the reaction, cathode and anode electrodes, solenoid used to create energy cone, means for the dose-controlled introduction of solid carbon-containing feedstock and oxidizer into reaction chamber through axial channel in cathode holder and cathode of axial units for reactor and gas cooling, as well as power supply, control, and short-circuit protection units, wherein reaction chamber is made uncased, made of graphite and surrounded by double-layer heat exchanger made of variable-cross-section tubing, which is cooled by liquid and simultaneously serves as solenoid coils. The inner layer of heat exchanger extends along the entire length of reaction chamber, providing cooling and serving as steam generator in which water is converted into steam under the influence of heat from reaction chamber and solenoid current. The outer layer is located in arc discharge zone and is designed for intensive cooling of chamber with cold water and to protect solenoid wire from overheating, wherein generated steam is structurally intended to serve as oxidizer and transport medium for feeding pulverized carbon-containing material into reaction chamber.