Physical installation for generating high-enthalpy gas flows

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The report considers the possibilities of using an experimental installation that was developed at the UPI (UrFU) [1]. It generates heated high-speed gas flows for the study of thermal destruction of materials, including studying the properties of heat-resistant and heat-shielding materials. Studying of the ablation processes and reflow is also possible with the installation. The mechanism of using a high-frequency arc discharge to heat a gas stream is described. The technical characteristics of the installation and the range of parameters obtained in the generated plasma jet are presented. Examples of the installation's use and results obtained in studies of the properties of heat-resistant and heat-shielding materials, as well as in experiments on the ablation of extraterrestrial matter, are shown.

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[1] Kokorin A F 1976 *Vestnik UGTU-UPI* **231**(2) 326–329