PRESSLESS HIGH-PRESSURE EQUIPMENT “SPLIT SPHERE”

Description
Pressless high-pressure split sphere (BARS) is an original high-performance equipment of high pressure (up to 10 GPa) and temperature (up to 2500 °C) designed for growing crystals of diamond and other superhard materials, as well as for scientific purposes.

Technical appraisal and economic benefits
The advantages of the equipment against its traditional analogs of uniaxial compression (belt, anvils, piston-cylinder) are as follows:
- multiaxial compression of the cell reducing deformation risks;
- effective cooling system of the gang unit allowing a continuous run for hundreds of hours under extreme P-T conditions;
- multichannel temperature and pressure reading;
- optimal size and weight (2.2 x 1.0 x 1.2 m; 2.8 tons);
- high environmental compatibility;
- low power inputs (1.5-2 kwt/h);
- changeable gang according to user's purposes.

Application areas
- production and modification of crystals of diamond, boron nitride and other superhard materials;
- research in materials science, physics and chemistry of high pressures;
- experimental mineralogy and upper mantle petrology.

Development stage
Pilot units used in Novosibirsk.

Patent situation
Know-how is kept.

Commercial offers
- joint venture;
- joint development of new generation equipment;
- high pressure and temperature studies.

Estimated cost
Under the contract.

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