

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.



High-pressure equipment BARS

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.

Contacts

Cand.Sc. Anatoly A. Tomilenko, Deputy Director
Institute of Mineralogy and Petrography, Siberian Branch of the Russian Academy of Sciences
3, Prosp. Akademika Koptyuga, Novosibirsk, 630090, Russia
Phone: (383) 333-36-93
Fax: (383) 333-27-92
E-mail: tomilen@uiggm.nsc.ru
<http://www.uiggm.nsc.ru/uiggm/mineralogy>