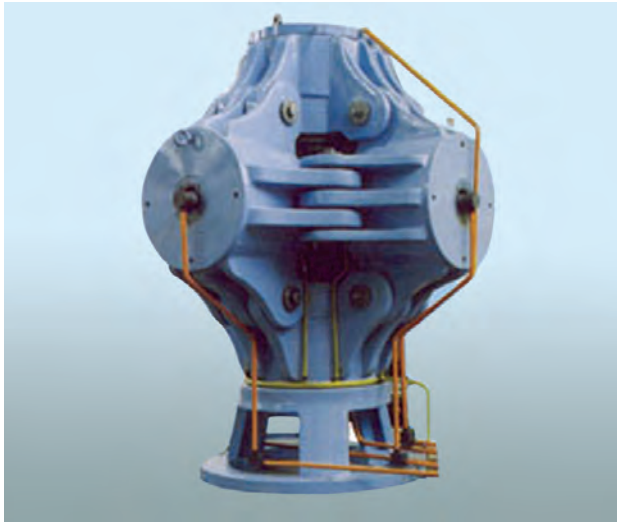
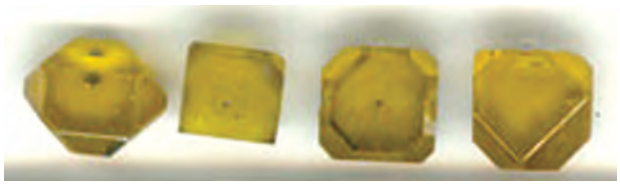
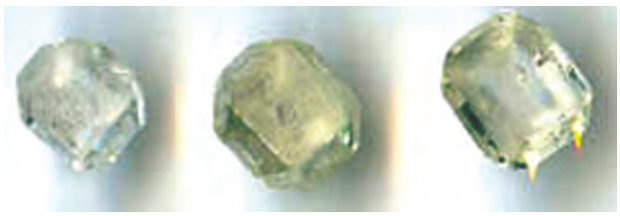
GROWTH OF STRUCTURALLY PERFECT DIAMOND SINGLE CRYSTALS



Equipment for growing structurally perfect single crystal diamonds: 6-cylinder hydraulic press CSXII; load 6×48.5 MN, piston diameter 750 mm, weight 70 tons; dimensions 4×4×4,5 m



a



b

c

Structurally perfect single crystal diamond obtained at a high pressure and temperature:
a) type Ib, weight up to 20 ct., *b*) type IIa, weight up to 15 ct., *c*) type IIb (semiconductor), weight up to 10 ct.

Areas of Application

The offering is designed to grow structurally perfect diamond single crystals to be used in electronics, optics, précising processing, and in other industries

Specification

Diamond type: Ib, IIa, IIb; growing technique: seed-grown in the diamond thermodynamic stability region by the temperature gradient method; the process parameters: pressure P = 5.8—6.5 GPa, temperature: T = 1400—1700 °C; 6-cylinder synthetic diamond machine CS-VII–CS-XIII; crystal weight: 0 1—20 ct

Advantages

As compared with the existing methods, the offering has a growing capacity up to 0.5 dm^3 and enables obtaining diamonds up to 40 carats in one cycle; reducing significantly the production costs, and raising profitability

Stage of Development. Suggestions for Commercialization

IRL8, TRL8
The offering is ready for large-scale implementation. Design, delivery, warranty service, and staff training, upon request

IPR Protection

IPR1, IPR2, IPR3

Contact Information

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