**KV-02 BLASTING CHAMBER**

**Description**

The KV-02 blasting chamber (in what follows, the chamber) is designed for article treatment with the use of explosion energy and for investigations of explosion processes. The chamber consists of a frame supporting the body, hydraulic devices for manipulations with the body, and a device for body ventilation. The body consists of a foundation with a bed and a moving element. The moving element implies the presence of 2 to 4 windows for photographic recording of the processes. Electrical sensors placed inside the body allow registration of electric signals obtained in the study.

**Technical specifications**

<table>
<thead>
<tr>
<th>Type of the body</th>
<th>Cylinder with hemispherical bottoms and rotating part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle of body revolution in the vertical plane, degrees</td>
<td>72</td>
</tr>
<tr>
<td>Internal diameter of the bottoms and cylinder, mm</td>
<td>900</td>
</tr>
<tr>
<td>Diameter of the hatch in the open body, mm</td>
<td>780</td>
</tr>
<tr>
<td>Body lock type</td>
<td>Rotary bayonet lock</td>
</tr>
<tr>
<td>Maximum explosive charge (TNT equivalent)</td>
<td>8 000</td>
</tr>
</tbody>
</table>

**Modifications of the body**

- a) with window plugs made of metal or Plexiglas and the charge located on the bed surface
  - spherical, kg: Smaller than 0.2
  - plane, kg: Smaller than 0.092
  - efficiency, m³/h: Greater than 3 600
- b) with Plexiglas plugs and the spherical charge located in the center of the body in the plane of windows, kg: Smaller than 0.135

**Size of the treated articles**

- a) diameter, mm: Smaller than 400
- b) height, mm: Smaller than 500

**Drive of mechanisms of body opening and closing, body revolution, and switching of the blasting cable interlocking device**

Hydraulic

**Working pressure in the hydraulic drive system, MPa**

Lower than 6.3

**Electric power source**

Frequency — 50 Hz, voltage — 380 V.

**Control system**

Electromechanical semi-automatic

**Body degassing system**

Forced combined extract and input ventilation

**Size of the chamber (length × width × height, mm)**

- a) with the closed body: Smaller than 1730 × 1190 × 1700
- b) with the open body: Smaller than 1930 × 1190 × 1980

**Weight of the chamber, kg**

Smaller than 2000

The chamber includes: a frame with the body; a hydraulic drive (pumping station); a control system (semi-automatic); and a high-voltage initiation system (includes a high-voltage pulse generator).
Technical appraisal and economic benefits

The use of the metallic blasting chamber KV-02 allows one to perform blasting operations in a workshop or in a laboratory building, the maintenance staff being in an adjacent room, where an acceptable noise level can be ensured. Equipment compactness is worth noting. The presence of windows and electrical sensors allows research activities. The high-voltage charge initiation system allows one to avoid charge initiation by induced currents.

Application area

The chamber is designed for various blasting operations with the help of a spherical charge (placed on the bed or opposite the windows in the center) or a plane charge (placed on the bed).

Development stage

The institute has produced and delivered ten pilot blasting chambers to customers in Russia.

Patent situation

Know-how.

Commercial offers

Delivery of the chamber with allowance for customer’s demand (with project adaptation).

Estimated cost

Price is to be negotiated.

Contacts

Igor S. Kim, Deputy Director for Marketing
Design & Technology Branch of the Lavrentiev Institute of Hydrodynamics, Siberian Branch of the Russian Academy of Sciences