CENTRIFUGAL ELLIPTIC MILLS

Description

Centrifugal elliptic TsEM mills are designed to implement mechanochemical processes in a continuous mode. The milling drums are made in the form of tubes, which can be partitioned into several sections on consumer's request. The sections are separated from each other by grids and filled with milling bodies, most often, metal balls and rods. The drums and milling bodies can be lined with various materials, according to consumer's order.

Technical Specifications

<table>
<thead>
<tr>
<th>Type of mill</th>
<th>TsEM-7</th>
<th>TsEM-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation mode</td>
<td>Continuous or discrete</td>
<td></td>
</tr>
<tr>
<td>Milling bodies</td>
<td>balls and rods</td>
<td></td>
</tr>
<tr>
<td>Power [kW]</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Number and volume [liter] of drums</td>
<td>2x1,2</td>
<td>2x10</td>
</tr>
<tr>
<td>Grinding capacity in a continuous mode (for quartz sand) [kg/h]</td>
<td>50</td>
<td>1000</td>
</tr>
<tr>
<td>Maximum particle size of material to be treated [mm]</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Particle size after grinding (for sand) [μm]</td>
<td>1-10</td>
<td>5-30</td>
</tr>
<tr>
<td>Centrifugal acceleration of milling bodies [m/s²]</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>Overall dimensions (length/width/height) [mm]</td>
<td>700/540/420</td>
<td>1910/1225/870</td>
</tr>
<tr>
<td>Mass [kg]</td>
<td>235</td>
<td>1300</td>
</tr>
</tbody>
</table>

Technological appraisal and economic benefits

Compared to flow-through machines, TsEM mills are characterized by a high rate of acceleration of milling bodies (up to 100 m/s²).

Application areas

Centrifugal elliptic mills are used:
- to grind and activate granular materials and natural minerals with a hardness of 8–9 units;
- to prepare structural materials;
- to manufacture various types of ceramics, pigments, fertilizers, and medicines in process lines;
- to process various organic materials and industrial wastes;
• to homogenize mixtures of solids and to prepare suspensions;
• in the production of new materials and as chemical reactors.

**Development stage**
Full-scale production.

**Patent situation**

**Commercial offers**
Product supply contract.

**Estimated cost**
The cost is 185 to 600 thousand rubles, depending on the grinding capacity and configuration.

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