MULTI-DISK FAN SYSTEM FOR AIR PURIFICATION

Description
The system is designed for high-quality purification of air and other gases from solid and liquid particles and for reduction of content of moisture and water-soluble gases. The system operates on the basis of centrifugal separation of substances with different densities. Dusty air is separated into two parts, pure and dusty fractions, which approximately amount to 90 and 10% of purified air. The particles from the latter fraction enter a collecting bin. Pure air returns to the ventilated apartment.

Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of purified air</td>
<td>1000 m³/h</td>
</tr>
<tr>
<td>Temperature of purified air</td>
<td>10-30 °C</td>
</tr>
<tr>
<td>Decrease in humidity</td>
<td>up to 60%</td>
</tr>
<tr>
<td>Output of condensate</td>
<td>up to 2 g from 1 m³</td>
</tr>
<tr>
<td>Removal of ammonium condensate</td>
<td>up to 400 mg in 1 liter of condensate</td>
</tr>
<tr>
<td>Overall dimensions</td>
<td>1.6m x 0.6m x 0.6 m</td>
</tr>
<tr>
<td>Electrical supply</td>
<td>3-phase, 380 V</td>
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<tr>
<td>Power of the unit with a cooling set</td>
<td>1.2 kW</td>
</tr>
</tbody>
</table>

Technical appraisal and economic benefits
This system ensures
- Closed-circuit ventilation of industrial buildings practically without air emission into the atmosphere, which improves ecological environment near enterprises;
- Air purification in industrial buildings in winter, which saves up to 50% of heat.
There are no any known similar systems.

Application areas
Closed-circuit ventilation of air in industrial and stock buildings.

Development stage
The prototypes manufactured at the Institute were tested at the “Novoberdskoe” joint stock company in 2000-2001; one unit was purchased by Korea.
**Patent situation**
This system is protected by patents of the Russian Federation (1993 and 2001).

**Commercial offers**
License based cooperation.

**Estimated cost**
The cost of the system depends on its efficiency and purpose. For example, the cost of a purification system for stock buildings with efficiency of 1000m$^3$/h varies from 1200 USD to 3000 USD, depending on the type of the air cooling system for moisture condensation.

**Contacts**
Cand.Sc. Boris M. Melamed, Scientific Secretary
Institute of Theoretical and Applied Mechanics, Siberian Branch of the Russian Academy of Sciences
4/1, Institutskaya St., Novosibirsk, 630090, Russia.
Tel: (383) 330-42-79
Fax: (383) 330-72-68
E-mail: sci_itam@itam.nsc.ru
http://www.itam.nsc.ru