Batch cooker
Cooking of water-soluble polymers

The ABB batch cooker is designed for simple, enzymatic or thermo-chemical cooking of any water-soluble polymers (starch, CMC, PVA, protein, etc.).

Operating principle
The ABB batch cooker is equipped with a mixing device, specially designed to maintain a uniform solution, even during highly viscous phases, and obtain:
- a perfectly homogeneous cooking,
- complete condensation of all steam introduced.

It can operate under pressure or atmospheric pressure.

Application
The ABB batch cooker is designed for the preparation of natural or organic polymers:
- cooking of modified starches,
- cooking of native starches through enzymatic conversion or thermo-oxydation,
- dissolution of organic polymers: PVA\(^1\), CMC\(^2\), etc.

Advantages

Operational flexibility
- Adaptability of the cooker to each product.
- Operating conditions can be modified for each batch: cooking cycle (time and temperature) as well as additive quantity.
- Possibility for cooking with very high viscosities.
- Cooking up to 40% solids content.

Finished product quality
- Dosing accuracy and repeatability for all products and condensates.
- Homogeneous cooking.
- Stable process.

Environmental protection
- Rincing water accounted and re-used.
- No zinc sulfate required for enzymation through thermal inhibition.

<table>
<thead>
<tr>
<th>Cooking method/Cooker type</th>
<th>Atmospheric cooker</th>
<th>Pressure cooker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified starch, PVA(^1), CMC(^2)</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Enzymatic conversion of native starch through chemical inhibition</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Enzymatic conversion of native starch through thermal inhibition</td>
<td>no</td>
<td>125°C - 3 bar</td>
</tr>
<tr>
<td>Conversion of native starch through thermo-oxydation</td>
<td>no</td>
<td>150°C - 5 bar</td>
</tr>
</tbody>
</table>

\(^1\) PVA = Polyvinyl Alcohol
\(^2\) CMC = Carboxymethyl Cellulose
**Features**

<table>
<thead>
<tr>
<th>Volume (m³)</th>
<th>1</th>
<th>1.6</th>
<th>2.5</th>
<th>4</th>
<th>5</th>
<th>7</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed power (kw)*</td>
<td>5.5-10</td>
<td>11-18.5</td>
<td>11-30</td>
<td>15-37</td>
<td>15-45</td>
<td>22-55</td>
<td>22-75</td>
</tr>
</tbody>
</table>

* According to the polymer to be cooked and required concentration

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[Internal view of batch cooker]

[Flow circulation inside batch cooker]