Continuous Vacuum Pans

The world reference in continuous crystallization

Ideal for cogeneration

References of the market leader
• More than 250 Fives Cail and Fives Fletcher references, including the world’s largest vacuum pans with a working volume of 300 m³

Highly competitive equipment
• Affordably priced thanks to its compact design
• Local fabrication ensures rapid delivery and lower cost

Unrivalled performance
• Ideal for cogeneration (10% steam saving)
• High reduction of greenhouse gas emissions
• Excellent heat exchange and very high massecuite exhaustion
• Minimum ΔT and use of low-pressure steam

Easy maintenance
• Low incrustation
• Long cleaning interval: on average, from once every 2 weeks (high purity) to once every 6 months (low-grade) depending on the massecuite characteristics.

Fives Cail, the first sugar manufacturer to utilise the continuous boiling process in industrial sugar production, has unrivalled experience in continuous crystallization. Providing global coverage – 80% of the world market – Fives Cail equipment is for beet and cane sugar processing as well as refinery applications. With more than 250 references worldwide, Fives Cail and Fives Fletcher continuous vacuum pans are today’s natural successor to the original designs introduced in the 1960s.

The Group’s new generation of continuous vacuum pans combine the expertise of Fives Cail and of Fives Fletcher. With unrivalled thermal and exhaustion performance and excellent crystal quality, Fives Cail and Fives Fletcher continuous vacuum pans are now incontestably setting the world standard for process equipment.

www.fivesgroup.com

Driving progress
Numerous versions available

- Fives Cail model with horizontal tubes or Fives Fletcher model with vertical tubes
- Single, double or flex in order to produce from 1 to 4 massecuities with one equipment only and facilitate cleaning
- 11 to 13 compartments for the Fives Cail model and 10 to 20 compartments for the Fives Fletcher model
- Expandable: possibility of future expansions by simple addition of rows of tubes for the Fives Cail model and by adding compartments to the Fives Fletcher model

A very large, flexible range

<table>
<thead>
<tr>
<th></th>
<th>Minimum*</th>
<th>Maximum*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective volume</td>
<td>30</td>
<td>350</td>
</tr>
<tr>
<td>Surface / Volume ratio</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Productivity T/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st strike</td>
<td>30</td>
<td>350</td>
</tr>
<tr>
<td>2nd strike</td>
<td>15</td>
<td>145</td>
</tr>
<tr>
<td>3rd strike</td>
<td>7,5</td>
<td>70</td>
</tr>
</tbody>
</table>

*The values in the table are indicative, showing the minimum and maximum for each parameter, depending on the massecuite characteristics.

Choice of 2 exceptional designs

Fives Fletcher Model

- Alternated side circulation
- Expandable model

Fives Cail Model

- Alternated upper circulation
- Alternated lower circulation

Design

- Manufactured in compliance with all applicable regulations for pressure vessels
- Magma preparation
  - Seed massecuite feed or sugar magma feed
  - Low magma / massecuite ratio required
- Massecuite circulation
  - Excellent crystal quality due to consistent circulation of the massecuite in numerous compartments
  - The "W" shape of the vessel ensures excellent natural circulation of all types of massecuite
  - Very low maintenance, long cleaning intervals
- Heat exchange
  - Maximum heat-exchange efficiency, and use of low-pressure steam
  - Very low hydrostatic head: very low temperature differential
- Process control
  - Feedback-type control with high-performance probes
  - Predictive-type control by mass balance

© MG Productions DK - Data for information only. Copyright © 2012 - Fives Cail - All rights reserved.