The mashing-in process is a crucial step in modern brewing practice for several reasons:

- The trend toward high gravity brewing requires mashing-in at a low water/grist ratio;
- The limitation of mash oxidation is necessary to ensure that the final beer has a long shelf life;
- The mashing-in process influences the mash filterability and thus the brewhouse productivity (number of brews/day).

Traditional mashing-in is performed by a hydrator directly connected to the top of the mash conversion vessel. This method is no longer adapted to the modern brewing practice mentioned above since:

- High oxidation of the mash occurs when it falls inside the mash conversion vessel;
- Lump formation is almost unavoidable for the thick mashes that are necessary for H.G.B.;
- High agitator speed is required afterwards to up break the lumps, resulting in the generation of shear forces that finally reduce the mash filterability.

To prevent these serious problems, MEURA has developed a mechanical pre-masher, the MECHAMASHER.
MAIN ASSETS

- Excellent hydration of the starch without any lump formation.
- The mash can be pumped to any mash conversion vessels or cereal cookers avoiding a problematic grist transport and its oxidation in existing plants.
- Very low oxidation during mashing due to reduced air/product interface and therefore the ideal partner for the CARBOMILL (drastic reduction in the nonenal potential).
- Ideally suited to H.G.B. – high gravity brewing (production of thick mash down to 1.8 l water per kg malt grist).
- Able to pre-mash all types of adjuncts.
- Easy maintenance.

TECHNICAL DESCRIPTION

Meura’s mechanical pre-masher, the MECHAMASHER is based on the hydrating technology of Steel’s mashing machine. It consists of a horizontal tank in which a specially designed pre-mashing screw rotates. This screw provides constant and homogeneous lump-free mixing of malt grist and water, whilst eliminating air from the grist and consequently limiting oxidation.

When the required amount of grist has been fed into the MECHAMASHER, additional mashing-in water is supplied for rinsing and reaching the desired density in the mash conversion vessel. The MECHAMASHER is cleaned once a week using normal brewhouse CIP solutions.

<table>
<thead>
<tr>
<th>Types</th>
<th>Total installed Power (incl. Pump) (kW)</th>
<th>Capacity (tons malt grist/hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEC 1</td>
<td>15</td>
<td>Up to 15</td>
</tr>
<tr>
<td>MEC 2</td>
<td>19</td>
<td>From 15 to 30</td>
</tr>
<tr>
<td>MEC 3</td>
<td>37.5</td>
<td>From 30 to 50</td>
</tr>
<tr>
<td>MEC 4</td>
<td>44.5</td>
<td>From 50 to 70</td>
</tr>
</tbody>
</table>

SOME REFERENCES

- Angarsk Brewery, Russia (70 t/h)
- Bavaria, Columbia (30 t/h and 70 t/h)
- Baltika, Russia (50 t/h)
- Bracongo (Kinshasa), Congo (30 t/h)
- Brasimba (Lubumbashi), Congo (30 t/h)
- Brasseries du Cameroun, Yaoundé (30 t/h), Cameroon
- Brasseries Star, Madagascar (25 t/h)
- Cabinda, Angola (15 t/h)
- Carlsberg Frederica, Denmark (70 t/h)
- Confidential customer, Japan (60 t/h)
- Cuca Brewery, Angola (50 t/h)
- Desna Brewery, Ukraine (50 t/h)
- Fox Brewery, Denmark (50 t/h)
- FEIZ, China (20 t/h)
- Florida Bebidas, Costa Rica (60 t/h)
- Harboe Brewery, Denmark (50 t/h)
- Lobatt Brewery, Canada (60 t/h)
- NLDC – Martens Brewery, Belgium
- Nical Brewery, Angola (50 t/h)
- Nocebo (Huambo), Angola (15 t/h)
- Oettinger, Germany (60 t/h)
- Perm Brewery, Russia (50 t/h)
- Povalzhe Brewery, Russia (50 t/h)
- Radegast Brewery, Czech Republic (50 t/h)
- Rogan Brewery, Ukraine (50 t/h)
- Shymkentpivo, Kazakhstan (50 t/h)
- Slavutich Brewery Kiev, Ukraine (50 t/h)
- St Georges Brewery, Ethiopia (50 t/h)
- Tanzania Breweries, Tanzania (50 t/h)