C-Massecuite Reheater

- Unique Heating Surface Configuration
- High Surface to Volume Ratio
- Very Low Approach Temperatures
- Low Purity Rise
- Energy Saving and Low Head
- Small Footprint
- Stainless Steel Tube Construction
The Role of Reheating “C” Massecuites

The objective of cooling and then reheating “C” massecuites is to maximise the amount of sucrose that is recovered out of the massecuite by deposition onto the existing crystals. The principles for maximising “C” massecuite exhaustion are as follows:

Massecuite will normally be discharged from the pan at between 67°C and 77°C, depending on the pan boiling pressure.

The solubility of sucrose in water reduces rapidly on cooling. For example, at 80°C, 1 kg of water can dissolve 3.70 kg of sucrose, but at 40°C only 2.33 kg of sucrose.

However, crystallisation rates in low-purity “C” massecuites are slow. The massecuite should therefore be cooled slowly and steadily in stirred crystallisers over a period of 28 to 40 hours, down to a temperature of about 40°C to 43°C. At temperatures below this, crystallisation is slowed excessively by the high viscosity.

However, at these temperatures the massecuite is too viscous for centrifuging. It is therefore necessary to reheat the massecuite to a temperature of between 54°C and 60°C to be able to cure at a reasonable rate and without using excessive wash/steam. To avoid re-solution of crystals, this reheating must be done rapidly and without using any unduly hot surfaces that could cause dissolution. The reheater must therefore have a high heating surface/volume ratio and achieve close contact between all the massecuite and heating surfaces. Reheating surface temperatures should be limited to between 60°C and 65°C.

Curing must follow immediately after reheating.

The Bosch Projects Reheater

The unique Bosch Projects Reheater has been designed specifically to meet the above objectives. It features:

- A significant higher heating surface/volume ratio than other designs.
- Very close contact between the massecuite and heating surfaces.
- No “dead spots”.
- No opportunity for massecuite “channeling”.
- A low massecuite-water approach temperature, which avoids crystal dissolution.
- Compact, with small footprint.

Measurement of massecuite temperature on a continuous basis can be difficult due to its low thermal conductivity and build-up of massecuite on measuring instruments. With the Bosch Projects reheater, the approach temperature between heating water and massecuite remains reasonably constant under steady operations. It is therefore sufficient to set and control the water temperature, with occasional checks of the resulting massecuite temperature.