Extension of Dakahlia Sugar Co.'s factory at Belkas, Egypt

The beet sugar factory erected in the 1990s at Belkas in the Eastern Nile delta had been designed for a processing capacity of 7,000 tons per day (see also BMA Information nos. 33/1995 and 37/1999).

It was possible to increase the capacity to 8,700 t/d over extended periods with optimization measures by using good beet quality. Beet cultivation was expanded at the same time, and therefore the extension of the factory to a daily processing capacity of 10,000 tons became necessary.

Initially, BMA received an order for an engineering study to determine the necessary extension measures for the main process building under the given marginal conditions. For this purpose, current mass and heat balances were prepared, and the processing of raw cane sugar, which had since started, was to be taken into account. Critical bottlenecks could be identified in the extraction process, the evaporator station and the sugar house.

Based on the results of this study, BMA was commissioned to supply a new extraction tower and a countercurrent cossette mixer, with the latter replacing the old mixer completely and feeding the old and new extraction towers. Thanks to this solution, complex additional conveying belts and changeovers at the slicers could be avoided.

BMA will add an outside located falling-film evaporator with a heating surface of 4,000 m^2 as the new effect no. 3 to the evaporator station. The two existing falling-film evaporators of effects no. 3 (3,600 m^2) and no. 4 (2,200 m^2) will in future form together a high-performance effect no. 4. This extension and additional measures concerning the heat exchangers will help exploit potential savings in steam consumption.

The sugar house will be supplemented in the B-station by a BMA-supplied seed pan with a capacity of 50 t. The existing plant equipment that will remain in use comprises the necessary mixers, a massecuite pump and a large part of the necessary piping connections. Thanks to these measures, a clear improvement of the crystal quality of the B-sugar will be achieved. Since the major part of the B-sugar is used as crystal seed for A-sugar, the requirement for a coarse crystalline product with a narrow particle-size distribution can be far better met.

Together with the expansion measures implemented for the 2006 campaign mainly in the stations of beet yard, pulp presses and pulp dryers, the investments as described above satisfy the prerequisites for achieving a processing capacity of 10,000 t/d.

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Dakahlia Sugar Company

Benefits

- High throughput
- Reduced steam consumption
- Better sugar quality
- Commissioning performed by BMA