5-effect evaporation plant for a cane sugar factory in India

At Indian Cane Power Limited's cane sugar factory in Uttur in the federal state of Karnataka, India, the aim is to cogenerate a considerable amount of electric power for the local grid, while producing sugar. For maximising the yield from cogeneration, the factory owner spares no effort to put modern machinery concepts into practice. At the core of the present modernisation and expansion project is a new five-effect evaporation plant with BMA falling-film evaporators that is to help reduce steam consumption in the sugar factory. The installations are based on energy concepts for beet sugar factories, while giving due regard to the special requirements of cane sugar production.

For this project, BMA delivered all necessary services and components for the evaporation plant:

- Basic engineering for the complete evaporation plant, with PIDs, equipment specifications, layout plan and a basic C&I plan
- 3 falling-film evaporators with 4,000 m² each; with BMA juice distributors and droplet separators, and workshop drawings for local manufacture
- 2 falling-film evaporators with 1,000 m² each; with BMA juice distributors, and workshop drawings for local manufacture
- Workshop drawings for local fabrication of the condensate tank
- Piping inspection and hydraulic test
- Commissioning and instructions for evaporator cleaning

BMA was able to demonstrate with mass and energy balances that higher proceeds can be expected with an efficiently operating evaporation plant. Especially the tendency of evaporator heating areas to become soiled was considered in rating and designing the evaporators and planning the plant as a whole. Extending the capacity of the cane sugar factory from the present 6,000 tcd to 7,000 tcd is no problem with the new evaporation plant. The plant also allows the measures that have already been taken with the crystallisation system to be effectively translated into an energy concept. For modern energy concepts it is not only necessary to expand the evaporation plant.

Evaporation plant during

installation of piping

The heating system also has to be adapted to the new requirements. In this particular case, first steps have already been prepared with continuous crystallisation and the use of efficient stirrers in the batch pans. With the effective steam savings that are thus possible, more electric power can be fed into the local grid.

After successful piping inspection, the plant was commissioned in January 2011.

Dr Andreas Lehnberger

Benefits

- Falling-film evaporator with small temperature gradients, adapted to suit cane sugar factory needs
- Implementation of modern energy concepts
- Use of reliable BMA technology at key points
- Accompanying engineering services ensure efficient commissioning