

Pan capacity optimization with *Pan^{plus}* Automation System

A case study of Mehran Sugar Mills Ltd., Pakistan

In the year 2010 Mehran Sugar Mills Ltd. (MSM) obtained services from IPRO to increase the plant capacity from 7,300 to 9,000 tcd. During the plant audit IPRO identified various operational and equipment inefficiencies. In the refinery section for example MSM used to add approx. 400 t/d movement water to the pans. There were four batch vacuum pans of 60 t capacity and 242 m² heating surface each. The MSM team wanted to add a fifth pan to reach the target capacity of 9,000 tcd but IPRO emphasised the idea to optimize the operation of the pans by cutting the unwanted water addition with modern pan automation. The addition of a new pan would have been a costly affair and the inefficiencies would have remained in the system. Eventually, MSM management agreed and IPRO implemented a *pan^{plus}* automation system.

It was a first of its kind project in Pakistan. Various issues faced during the implementation were successfully resolved with the support of MSM team. The major challenge was training the pan operators to operate the pans from the control room instead of standing in front of the pans. It took roughly two seasons to complete the project but the efforts of the IPRO and MSM teams eventually paid off when MSM achieved the target capacity.

By operating the floating calandria type pans with the *pan^{plus}* automation system MSM cut down the pan movement water by more than 70%. And it helped MSM to achieve more than 11,000 tcd during the crushing season 2015-16 with the existing four pans after resolving additional bottlenecks in other process areas. Apart from the pan capacity optimization, the *pan^{plus}* automation system helped to significantly reduce the process steam demand of the plant.

