PANDURANGA RAO MEESALA*, SHRIJEE PROCESS ENGINEERING WORKS LTD, A 504 Dynasty Business Park, Andheri – Kurla Road, Andheri East, Mumbai 400059. India.

Split & dual continuous pans – Design aspects for maximizing the benefit to sugar mills.

Indian and overseas sugar mills are expanding capacity and looking for innovative designs of various process house equipment which could minimize, steam consumption, power consumption, process losses, man power, required space for installation and better capacity utilization. To increase the revenue, sugar mills have to install the energy saving equipment in the process house to reduce steam & power consumption in addition to the improvement in the product quality. Split/Dual Continuous vacuum pans provides significant advantages such as complete automation, minimal supervision, steam economy, better exhaustion, uniform crystals, high rate of crystallization, high throughput, improved quality and maximum capacity utilization. The design concept of Split /Dual continuous pans has been developed by "M/S Shrijee Process Engineering Works Ltd", Mumbai, India, to ensure the above benefits to the sugar mills. These pans can run with V3/V4 vapor from multiple effect evaporators. The split continuous vacuum pan is having the flexibility to operate at 50% to 100% of the designed capacity in correlation with beet/cane processing; and either side 50% of the pan can be taken for water boiling without stopping the complete pan. Dual continuous pan can be utilized for simultaneous boiling of any two grades of massecuite or any one grade of massecuite boiling or one massecuite boiling can be stopped and other massecuite can be boiled as and when required. Both, Split and Dual continuous pans, are having the provision to utilize the different pressure vapor simultaneously at different sides of the calendria. These pans have been running successfully for A, B and C massecuite in India and overseas. Shrijee Split continuous pans of each 180 m^3 (6356.64 ft^3) volume for "C" massecuite, "B" massecuite and "A" massecuite have been working with excellent results since 2018, 2020 and 2023 respectively in LASUCA, USA. A Split/Dual continuous vacuum pan provides major advantages to achieve more effective use of installed volumetric capacity than batch pans. Additional advantages are reduced supervision, lesser steam consumption, consistency in the product massecuite and easy operation. In order to maximize the benefits, Split/Dual continuous pans must be operated to achieve high rate of crystallization, maximum exhaustion and high throughput so as to get shorter return on investment. This paper shall emphasize several important designs and operating criterion for maximizing the benefits to the sugar mill from Split/Dual continuous pans.