

CASE STUDY

A Major Pharmaceutical API Manufacturing Plant in North India
Area of Focus: Stripper Column, ATFD and Non TVR MEE



Problem

AFTD

- Steam condensate evacuation issues due to group-trapping
- Steam loss through bypass valve opening
- Higher steam to feed ratio
- Huge wastage of flash steam

Stripper

- Bypass valves always kept cracked open because of stall conditions due to improper condensate evacuation
- Fluctuation in column temperature of $\pm 5^{\circ}\text{C}$
- Steam to feed ratio higher than desired

3 effect MEE

- Issues of condensate evacuation in the first effect of MEE
- Preheater section not used due to condensate stall issues

Solution

- Installation of 3 nos twin orifice float trap for individual chambers of the ATFD
- Installation of steam operated pumping trap on the stripper, 1st effect evaporator and preheater
- Installation of Flash Jet Pump for recovery of flash steam at elevated temperature from the ATFD to the stripper and preheater

Benefits

15% reduction in steam consumption due to

- Zero leak discharge design
- Optimised condensate evacuation and desired steam to feed ratio in the ATFD
- Condensate evacuation from stripper optimised for evacuation even under negative differential pressure and temperature fluctuations $\pm 1^{\circ}\text{C}$
- Condensate from ATFD recovered at elevated temperature ($> 100^{\circ}\text{C}$)
- Stall conditions eliminated in 1st effect evaporator of MEE