



## STEAM AND POWER SOLUTIONS FOR **TEA INDUSTRY**

### *CASE STUDY : COMBINED HEAT & POWER FOR TYPICAL TEA FACTORY*

Industry : Tea Processing

Application : Biomass CHP Combined Heat and Power

Boiler : COMBLOC/24 Bar/Wood, Single Stage Turbine Steam

In -> 23 Bar, Out-> 8 Bar

Steam Flow :- 5000 Kg/hr

Power Generation : Upto 95 KW



**Speno**  
group **Matic**



## B. THE PROJECT

Spenomatic is well known supplier of energy equipment such as boiler and steam distribution accessories in tea processing industry. With more than 21 Years plus experience in the field of energy & Environment. Spenomatic has come up with the Innovative solution for combined Heat & Power to reduce cost of production in Tea Industry.

The diagram illustrates a closed-loop cycle for a biomass power plant. The cycle consists of four main components connected by pipes:

- BIOMASS BOILER:** Located at the top, it receives biomass input (indicated by a small plant icon) and heats the working fluid. Arrows show the fluid flowing out to the right and then down.
- PRESSURE REDUCTION VALVE:** Located on the right side, it reduces the pressure of the fluid. Arrows show the fluid flowing down and then left.
- SINGLE STAGE TURBINE:** Located at the bottom, it converts the energy of the fluid into mechanical work. Arrows show the fluid flowing left and then up.
- TEA FACTORY:** Located on the left, it represents the heat sink where the fluid is cooled. An arrow shows the fluid flowing up and then right back to the boiler.

The cycle is represented by a continuous loop of pipes with arrows indicating the direction of fluid flow: clockwise from the boiler, through the valve, then the turbine, and back to the boiler.

**Design :- 5 TPH, 23 to 8 Kg**

Flow, tph	Power, kW
5	87
4	61
3	40
2.5	26

**Design conditions**

Inlet: 23 kg/cm<sup>2</sup>g, sat.

Exhaust: 8 Kg/cm<sup>2</sup>g

**PFC, for Spenomatic -LST**

Flow (TPH)	Power (kW)
2.5	26
3.0	40
4.0	61
5.0	87

**Power Bill Reduces upto 30%**

**World Class, Innovative Products from World Leader Manufacturers**

**Easy synchronization with existing electrical set up**

**No Extra fuel required for generating Power**

**Reduce carbon footprints on Earth**