STEAM AUDIT – Greece, nr. 7
FACTSHEET

Companies connection to energy efficiency

The company is certified according ISO 9001:2000……

Steam system

Thus, in 1985 one more production line of parenteral solutions in BOTTLEPACK® was introduced, raising the production rate by 50%. The solid technological and quality advantages and the immediate success in the local market led the enterprise to expand its activities in the European market. Its export activity started in 1986, just two years after its production startup, mainly including sales to Germany and Cyprus. The main equipment, which is used for the production of infusion solutions in round and oval bottles of various sizes, is based on the Blow/Fill/Seal Technology®. The enterprise also uses highly automated systems for the water treatment, distillation, solution preparation, sterilization and packaging procedures of the plant.

Steam boiler information

Size: Steam Boiler:
Steam Boiler 1: 2.4MWth, Steam Boiler 2: 3.0MWth,Steam Boiler 3: 3.0MWth
Nominal steam capacity: Steam Boiler 1: 3.200 kg/h @ 8 bar , Steam Boiler 2: 4.000 kg/h @ 8 bar, Steam Boiler 3: 4.000 kg/h @ 8 bar
Boiler's operation: 6.912 hours/year
Kind of fuel: LPG

Steam system problems identified

- ✓ The majority of the steam pipes checked are insulated but some areas of the pipe network are rusted and un-insulated.
- ✓ Thermography results show that the steam condensate reheat tank is un-insulated
- ✓ Energy losses caused by the increased flue gas temperatures can be reduced by installing a ceramic economizer that uses flue gases in a heat exchanger to preheat either the make-up water or the boiler feedwater of steam boilers.
- ✓ The condensate tank de-aerator is not functioning properly
- ✓ The excess air (66,6%) of steam boiler is considered to be excessive and results in heat losses due to the heat transfer to the excess ambient air.

Proposed energy saving measure(s), investments, and expected results (in figures)

- ✓ Insulate un-insulated steam distribution: 3.936 kWh/m (steam distribution) => Simple payback < 6 months, Energy savings in fuel consumption: 3.936 kWh/m .
- ✓ Insulate condensate lines: 1.509 kWh/m (steam condensate) => Simple payback < 6 months, Energy savings in fuel consumption: 1,509kWh/m.
- ✓ Insulate un-insulated hot surfaces (steam boiler, hydraulic valves, flanges etc.) 11.500 kWh/m2 => Simple payback < 1 year, Energy savings in fuel consumption: 11.500kWh/m2.
- ✓ Ceramic flue-gas economizers for waste heat recovery: 195.272 kWh/year => Simple payback = 5,5 years, Energy savings in fuel consumption: 195.272 kWh/year.
- ✓ Retrofit deaerator on condensate tank: 189.988kWh/year => Simple payback = 5 years, Energy savings in fuel consumption: 189.988kWh/year.

Greece

Production of parenteral solutions

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Total (estimated) Investment

~€ 105.000

Total (Estimated) Savings

1,05 GWh/yr

Implemented proposed energy saving measure(s), investments and results achieved (in figures)

The proposed measures are not yet implemented.

Achieved and/or expected Non Energy Benefits (NEBs) as result of implemented and/or proposed measures and investments involved

Expected NEBS as a result of proposed measures:

- ✓ Reduction of chemical agents by installing a retrofit de-aerator on the condensate tank.
- ✓ Improve steam quality.
- ✓ Reduce maintenance costs
- ✓ Prediction and repair of malfunction of the system
- ✓ Facilitation of the personnel to control and supervise the system