

# Thanks to DeltaV, Reno de Medici substantially improves the Performance of its boiler house

## RESULTS

The combustion is optimized resulting in a significant reduction in natural gas consumption.

- The combustion efficiency was improved by 3%
- The technical data of the equipment can be consulted in all control rooms of the site which shortens delays when interventions are required and limits the movements.
- In time, putting DeltaV systems across the entire site will simplify the integration and savings will be realized on training and maintenance



## APPLICATION

The paper machine ( cardboard actually) is fed by a pulp based on recycled paper ( cellulose base ) that is fabricated on the site and controlled by a DeltaV system that replaced the previous PROVOX system in 1998.

The cardboard production process requires a big amount of steam required to achieve the desired humidity.

This steam is produced on site using a medium pressure ( 45 bar ) steam boiler. The medium pressure steam is distributed across the site using steam headers. The use of let-down valves and a turbine connected to an alternator for the production of electricity allows for multiple pressure levels. In the beginning the boiler fed two paper machines requiring a flow of 40 to 45 tons/hour. With one of the paper machines taken out of commission the flow was decreased to 25 tons/ hour about 50% of what it was before.

Of course at this new working point the natural gas consumption was not optimal. Also the local control system used ( not an Emerson system ) proved obsolete which led the customer to completely rethink their solution and the two main control vendors on the site were consulted.

Reno de Medici started with the old technical specs from their previous installation and added new demands. They asked the two vendors to show the improvement their solution would bring specifically in the reduction of excess oxygen in their stack ( since that is a measure of the combustion quality ).

« We have put that demand on the suppliers of which we know that they have a lot experience in boiler control and who would therefore be best placed to know what benefits their solutions could bring” explains Bertrand Dufrenne.

**Emerson held its promises in terms of our boiler improvements. The service quality assured us to move forward with the future extensions of our DeltaV system across our entire site.**

**Bertrand Dufrenne**  
Leader of Technical services of Reno de Medici at the Blendecques site



To determine the possible benefits we performed a week long site audit to understand the issues and to assess the improvement potential. We also wanted to make sure that Mr. Dufrenne understood our assumptions and that he was comfortable with our proposed solution and our expertise.

### CUSTOMER

Reno de Medici is an Italian group created in 1967 specialized in production of cardboard applications for packaging primarily for food (80% of production). Number two in Europe with 75% of their production capacity employs 2700 people across 6 production sites in Italy (3), France (in Blendecques in the north of France), Spain and Germany.

The Blendecques site has a capacity of 110 kilotonnes and employs 190 people. It has complete autonomy for the technical choices supported by two great service departments "Mechanical, Boilers" and "Electrical and instrumentation". These service departments are led by Bertrand Dufrenne.

### SOLUTION

After understanding the Emerson solution the client was impressed. First of all it permitted Reno de Medici to choose a single supplier for all of their control systems which was a means to limit costs specifically in training and maintenance. Other favorable elements were that one system allows for easy information exchange: "in this way no matter in which control room the operators are, they are always aware of what is going on in other units" explains Bertrand Dufrenne. So if they are in the control room of the paper machine, they also know what is going on in the paper pulp unit and the boiler house.

Reno de Medici also chose Emerson in light of future improvement projects. They were particularly interested in Emerson's BMS (Burner Management System) to replace the current safety system used on their burners. Utilities control, real-time control of their electrical production, the improvement of the superheated steam control, the purification unit and the cardboard drying unit are also possible future improvement opportunities. To enable this DeltaV will be progressively introduced on the site.

For the first solution it is also noteworthy that the time to realize the project was very short. The decision to change the control system was taken in February and in August of that same year (their yearly planned shutdown). The instruments and cabling remained untouched. Emerson realized the solutions including some bonus features which were very appreciated by Bertrand Dufrenne: « The Emerson team went over and beyond our technical specifications. The level control which used to be manual is now automated and adapts to the boiler load which resulted in a better feed water level stability resulting in higher stability of the steam production ».

Local resources were completely focused on internal requirements which could negatively affect the project's realization. « Emerson helped out with the right specialists. A part of the solution was developed in Eastern Europe while another part was developed in the United Kingdom. The startup was supervised by a US national. This was a bit strange at first but everything went very smoothly and the project was finished within time and time», said a happy Bernard Dufrenne.

The new installation completely lives up to expectation. The contract with Emerson had a bonus/malus clause and Emerson went above and beyond the project's objectives. The stack excess oxygen was decreased substantially, more than 50% in some cases: for a load of 20 tons/hour, excess oxygen fell from 8,1% to 3%; for a load of 25 tons/hour it went down from 6% to 2%. In the end the combustion efficiency was improved by 3% resulting in a return of investment below 24 months. Strengthened by these results Reno de Medici looks forward to future improvement projects.



#### Emerson Process Management

##### Business Unit Name

Business Unit Address

City, State 123456

T (123) 456 7890

F (123) 456 7890

[www.BusinessUnitURL.com](http://www.BusinessUnitURL.com)

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